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# **Q1/2 MSP outpatient laboratory expenditure report for 2009/10**

**Prepared for:**  
**Collaborative Laboratory Expenditure Management Committee**  
**February 11<sup>th</sup>, 2010**

**Q1/2 volumes, expenditures, and trend analysis  
over the period 2006/07 to 2009/10**

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*Laboratory Intelligence Unit, Ministry of Health Services*

February 4<sup>th</sup>, 2010  
*Health System Planning Division*



**2009/10 Q1 + Q2 expenditure total = \$152M**  
**(0.98% under target)**

## Overview

**Expenditure:** MSP payment for outpatient lab services was \$152M for the first-half of 2009/10 (i.e., Q1/Q2). Full-year expenditure is estimated to be \$309M, about 1% below the lab agreement target of \$312.6M and 12% above the 2006/07 expenditure (\$274.9M). (4% 3-yr CAGR.)

**Volume:** The total volume of lab tests performed in Q1/ Q2 2009/10 was 19.6M tests, and is projected to be 40M for the full fiscal year (7% 3-yr CAGR or 23% over 06/07 level).

**Per capita:** Based on current practice patterns, 8.97 tests will be done per capita in BC in 2009/10, at an average cost of \$7.73 per test. Total outpatient lab service expenditure will be \$69.45 per capita.

## Volume discounting effect - by lab subsection

Of the \$152M Q1/Q2 expenditure, \$92M was spent on testing in chemistry, \$30M in haematology, \$27M in microbiology, and the remaining \$3M in other areas (see table).

The lab volume discounting (LVD) mechanism of the renewed lab agreement reduced the expenditure on Appendix C tests (those subject to LVD) by 3.3% over the 2006/07 level.

However, for those fee items not subject to volume discounting, expenditure increased 44.4% over the 2006/07 level.

## 2009/10 targets versus actual Q1/Q2 & projected full-year expenditures

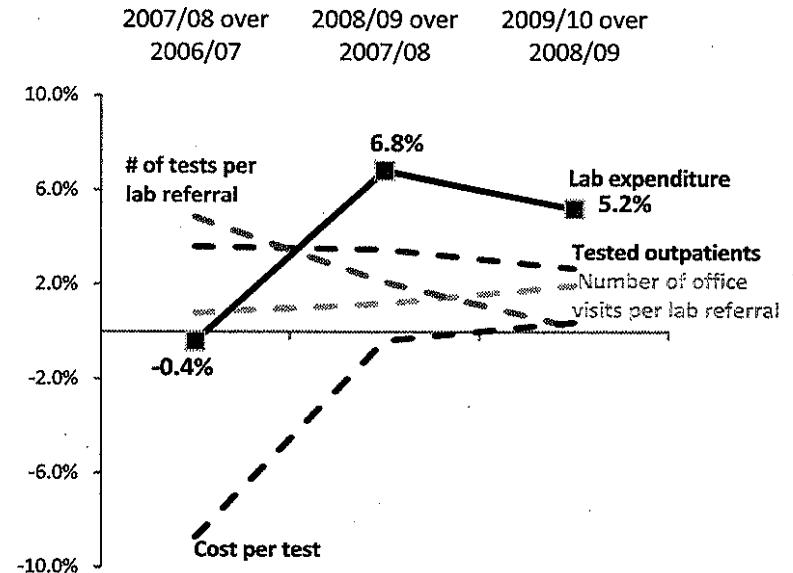
	2009/10 Q1 + Q2	2009/10 full-year
<b>Targets set in 2007 renewed laboratory agreement</b>	\$147.4M	\$300.3M
<b>Revised targets after micro-allocation payments</b>	\$153.5M	\$312.6M
<b>Expenditures (Q1/2 actual &amp; 09/10 full year projected)</b>	\$152M	\$309M
<b>+/- % deviated from target</b>	-0.98%	-1.15%
<b>Test Volumes</b>	19.6M	40M
<b>Cost per test (PBFs are counted as lab tests)</b>	\$7.73	\$7.73
<b># of tests per capita</b>	4.41	8.97
<b>MSP FFS lab test expenditure per capita</b>	\$34.09	\$69.45

Lab subsection (Q1 + Q2 data)	2009/10 Q1 + Q2 % change over 2006/07 Q1 + Q2	Apdx. C items (subject to LVD) % change over 2006/07 Q1 + Q2	Non Apdx. C items (not subject to LVD) % change over 2006/07 Q1 + Q2
Chemistry	\$92M (+8%)	\$65M (-1.5%)	\$27M (+42.6%)
Haematology	\$30M (+7%)	\$21M (-7.9%)	\$9M (+68.9%)
Microbiology	\$27M (+35%)	\$4M (-7.3%)	\$23M (+46.6%)
Cytogenetics	\$1.7M (-8%)	—	\$1.7M (-7.8%)
Anatomical Pathology	\$0.9M (-1%)	—	\$0.9M (-1.4%)
Pre-analytical (with no tests done at the same facility)	\$0.3M (+89%)	—	\$0.3M (+88.6%)
<b>Total (% change over 06/07)</b>	<b>\$152M (+11.8%)</b>	<b>\$90M (-3.3%)</b>	<b>\$62M (+44.4%)</b>

## Volume and expenditure drivers

- 1. Outpatients:** 1.53M outpatients received lab test(s) in Q1/2 of 2009/10. The number of patients receiving lab tests in Q1/Q2 increased, on average, by 3.3% annually over the course of the agreement.
- 2. Number of office visits per outpatient lab referral:** On average, lab testing was ordered for every 2.62 office visits. This rate increased by 1.3% annually over the last 3 years (i.e., slightly reduced likelihood of an office visit resulting in lab testing).
- 3. Number of tests per lab referral:** Each referral for lab testing was, on average, for 4.88 tests in Q1/2 of 2009/10. This rate is the net result of increases of 4.8% 2007/08, 2.1% in 2008/09, and 0.2% in 2009/10.
- 4. Cost per test:** Currently, the average lab test costs MSP \$7.73. This is the net result of two year-over-year declines of 8.7% in 2007/08 and 4% in 2008/09 and a 0.4% increase in 2009/10.

### Q1/Q2 Growth Year-over –previous-year



FY Q1/Q2 data only	# of outpatients	# of office visits per lab referral	# of tests per lab referral
2009/10 Q1/2	1.53M	2.62	4.88
2008/09 Q1/2	1.49M	2.57	4.87
2007/08 Q1/2	1.44M	2.54	4.77
2006/07 Q1/2	1.39M	2.52	4.55

# of tests per outpatient	Cost per test	Total Q1/Q2 lab expenditure
12.78	\$7.73	\$152M
12.50	\$7.70	\$144M
12.12	\$7.73	\$135M
11.49	\$8.47	\$136M

# MSP lab test volume/expenditure overview and growth trend

Summary

Volume/  
Expenditure

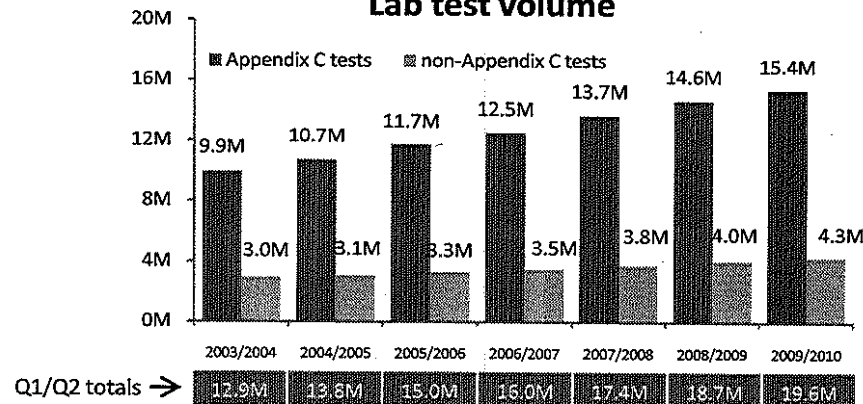
Cost per test

Expenditure  
TrendLab Test  
Level

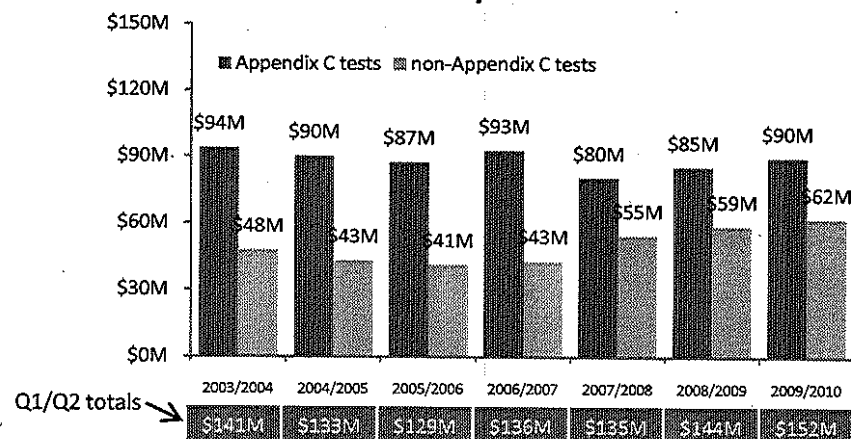
1. There were 5% more tests done in Q1/2 of 2009/10 than in the same period of the last fiscal year. Over the three-year term of the agreement (2006/07 to 2009/10) Q1/Q2 lab test volumes grew, on average, by 7% annually.
2. 1.6% of the above 7% volume growth was due to population growth and 5.4% to increased testing per capita.
3. Q1/2 expenditures were 5.2% more than last year. Over the 3 yr agreement term, Q1/Q2 expenditures grew by 4% annually.
4. Payments for non-Appendix C tests increased to \$62M in 2009/10 (Q1/2) from \$43M in Q1/Q2 2006/07 (+44%). The contribution of non-Appendix C tests to the overall lab expenditures increased from 31.6% to 40.9% to - an increase of 9.3%.
5. Payments for Appendix C tests were reduced to \$90M in 2009/10 (Q1/2) from \$93M in 2006/07 (-3%).

## Q1/2 actual MSP lab test volume and expenditure

### Lab test volume

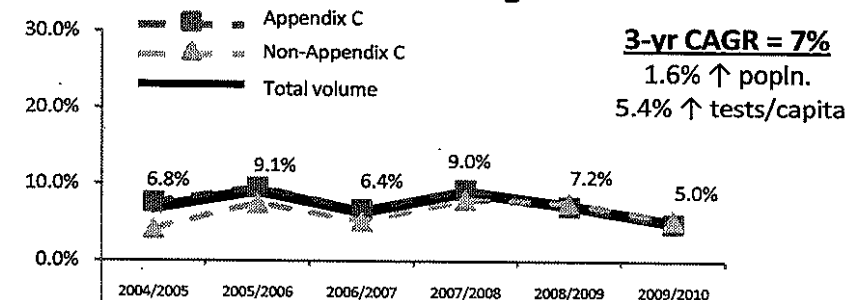


### Lab expenditure

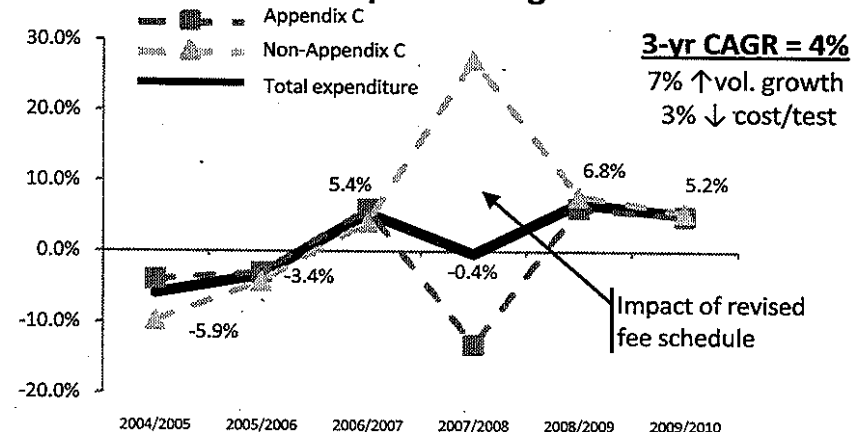


## Q1/2 actual MSP lab test volume and expenditure growth

### Lab test volume growth



### Lab expenditure growth



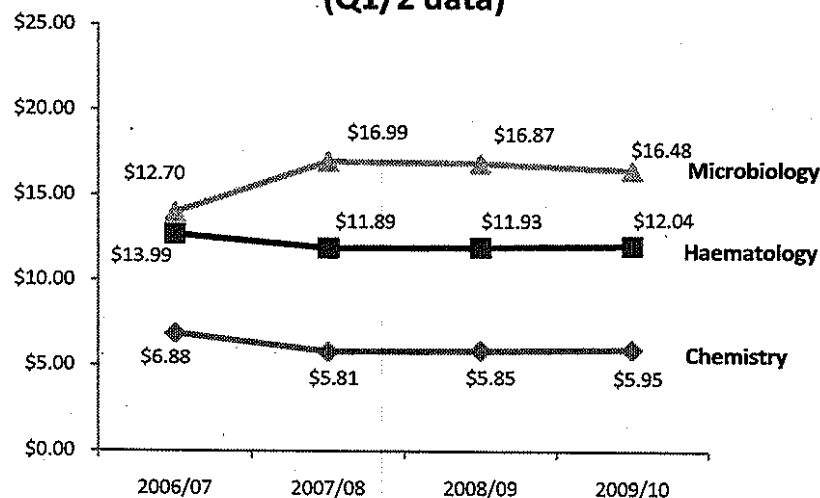


Note: lab test volume includes the count of PBF for selective chemistry tests, PBF for drug screenings, and venepuncture

Over the term of the renewed lab agreement the overall average cost per test declined from \$8.47 in 2006/07 to \$7.73 in 2009/10.

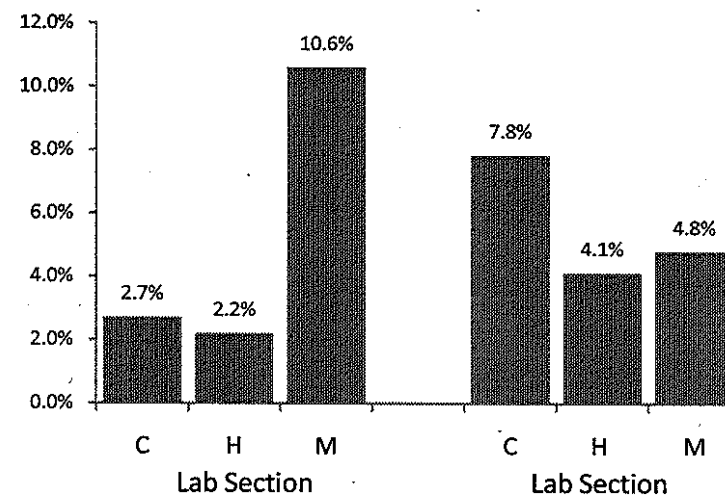
1. The section with largest net decline in cost per test was Chemistry, where there was a reduction of 93 cents per test (\$6.88 in 06/07 and \$5.95 in 09/10). This decline in average test cost, together with the 7.8% average annual volume growth in Chemistry, resulted in a net 2.7% annual expenditure growth (CAGR) in Chemistry over the term of the agreement.
2. The second largest average fee decline was in Haematology. The 66 cents per test reduction (\$12.70 in 06/07 and \$12.04 in 09/10) kept the average annual expenditure growth to 2.2%, although there was a 4.1% average annual volume growth.
3. The average cost per test in Microbiology increased by \$2.49 (\$13.99 in 06/07 and \$16.48 in 09/10). This, combined with the 4.8% average annual volume growth resulted in 10.6% annual expenditure growth over the term of the agreement.

Cost per test by section 06/07 to 09/10  
(Q1/2 data)



3-Yr CAGR<sup>1</sup> - Expenditure

3-Yr CAGR - Volume



<sup>1</sup> CAGR = cumulative annual growth rate

Note: These data only include tests that are in the chemistry, haematology, and microbiology subsections of the fee schedule. Low volume cytogenetics, anatomic pathology, and pre-analytical are excluded.

Note: lab test volume includes the count of PBF for selective chemistry tests, PBF for drug screenings, and venepuncture

Summary

Volume/  
Expenditure

Cost per test

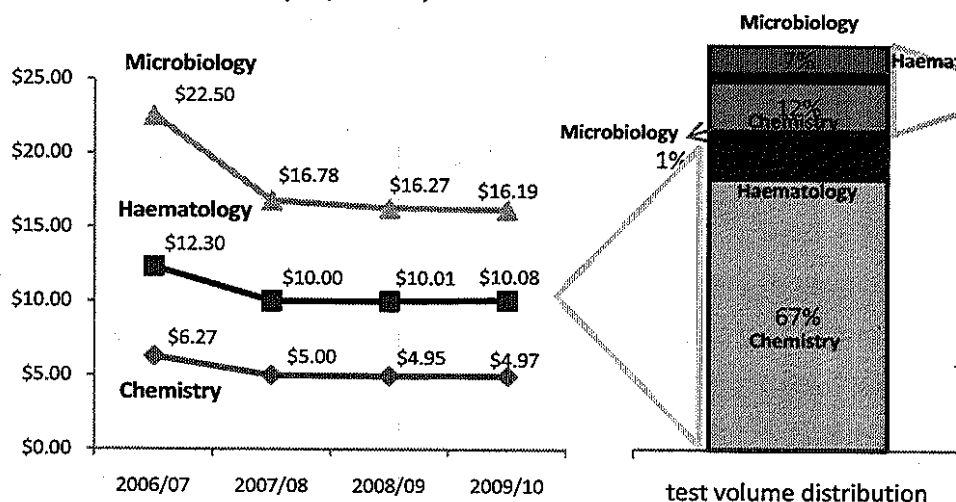
Expenditure  
Trend

Lab Test  
Level

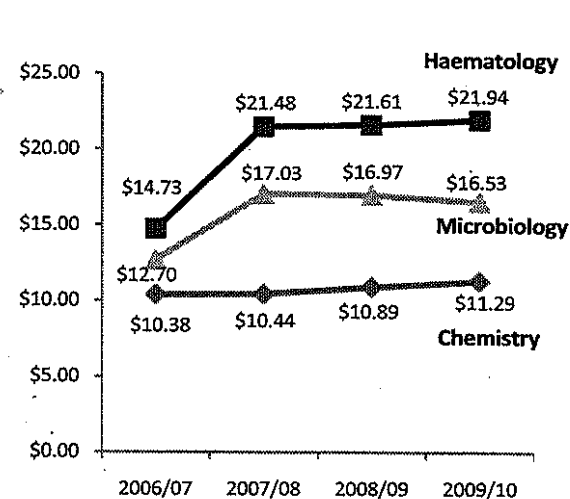
### Changes in cost per test over the term of the agreement – by test type (±volume discount and by section)

1. In Q1/2 of 2009/10, 79% of the lab test volumes were subject to lab volume discounting (LVD) and 21% not subject to LVD.
2. Of the 79% LVD tests, 67% were chemistry tests, 11% haematology tests, and 1% microbiology tests.
3. Of the 21% LVD tests, 12% were chemistry tests, 2% haematology tests, and 7% microbiology tests.
4. Costs per test declined for Appendix C tests (LVD) and increased for non-Appendix C tests (non-LVD).

**Cost per Appendix C (LVD) test**  
(Q1/2 data)



**Cost per Non-Appendix C (non-LVD) test**  
(Q1/2 data)

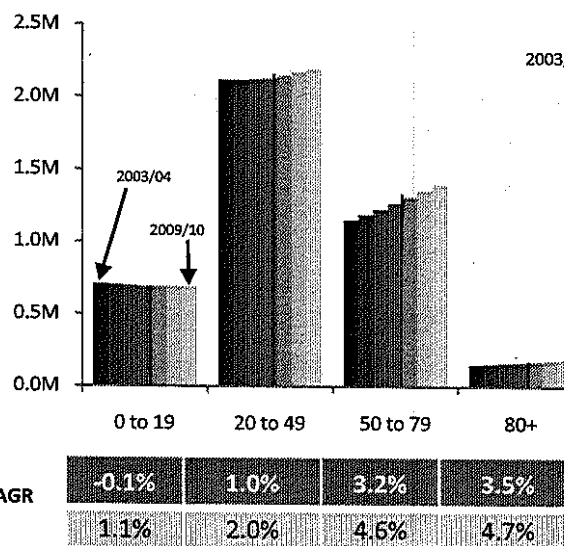
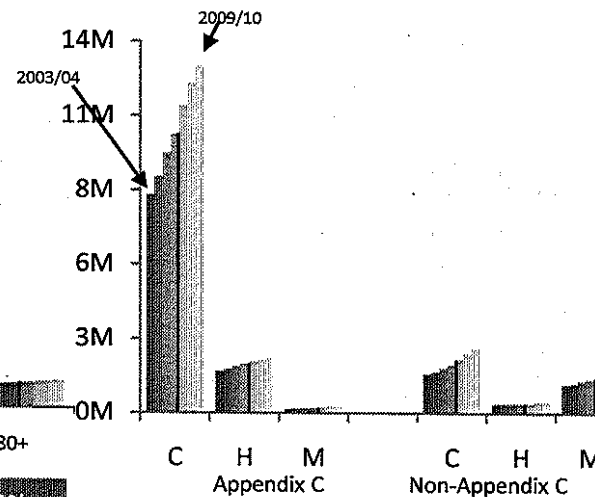
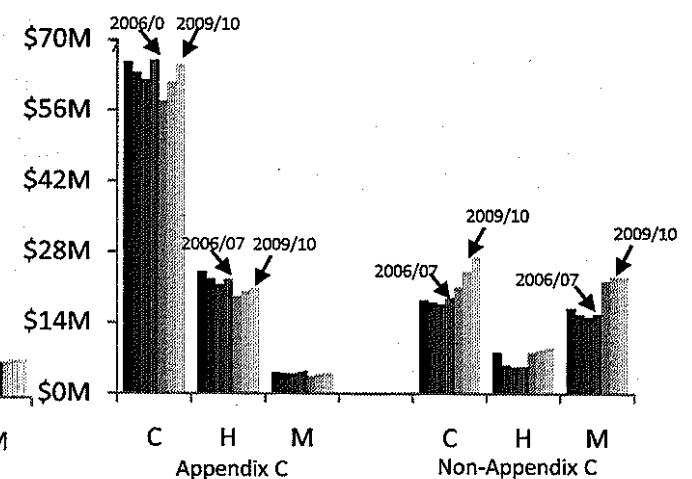


Note: These data only include tests that are in the chemistry, haematology, and microbiology subsections of the fee schedule and, therefore, the relative proportions are slightly different from those derived from all tests (e.g., including cytogenetics, anatomic pathology).

In the first fiscal year of the term of the renewed lab agreement, 2007/08, expenditure on those tests subject to volume discounting (Appendix C tests) declined. Over the subsequent three years expenditures grew to approximately the 2006/07 levels in all lab sections.

1. There were increased test volumes in all three sections for both Appendix C and non-C tests.
2. For Appendix C tests, 2009/10 expenditures increased to approximate the 2006/07 levels in all lab sections.
3. For non-Appendix C tests, 2009/10 expenditures surpassed the 2006/07 levels in all lab sections.
4. The population of B.C. residents who received lab tests grew faster than the overall BC population across all age groups, varying from +1% to +1.4%.

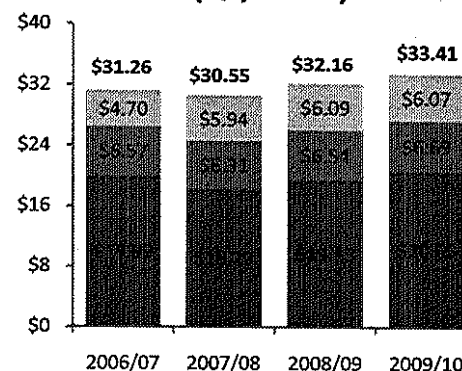
BC population 03/04 to 09/10

Lab test volume 03/04 to 09/10  
(Q1/2 data)Lab expenditure 03/04 to 09/10  
(Q1/2 data)

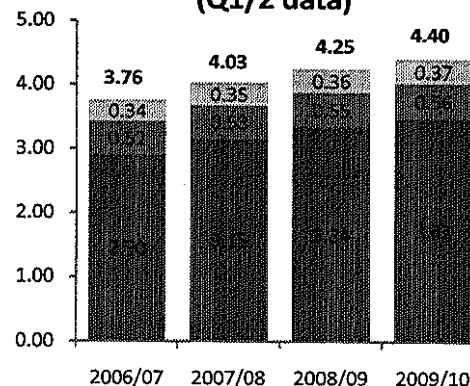
Q1/2 expenditures (top) and test volumes (bottom) per capita, before (left) and after (right) adjustment for the effect of our aging population (i.e., adjusted by applying 5-yr age group specific test per capita and expenditure per capita rates in each FY to the 2006/07 5-yr age group population distribution).

- In Q1/Q2 2009/10 the lab expenditure was \$33.41 per capita, an increase of 7% (+\$2.15) over 2006/07, and 4% (+\$1.28) after adjusting for the change in population age demographics.
  - 64% of the increase in dollar expenditure per capita was for microbiology testing, 31% for chemistry testing, and the remaining 5% for haematology tests.
- There were 4.40 tests per capita in Q1/2 2009/10, an increase of 17% (+0.64 tests) over 2006/07, and 14% after adjusting for the change in population age demographics.
  - 89% of the increase in the number of tests per capita was for chemistry testing, 6% for haematology tests, 5% for microbiology tests

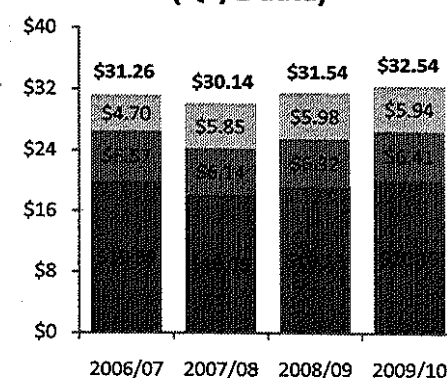
Actual expenditure per capita  
06/07 to 09/10  
(Q1/2 data)



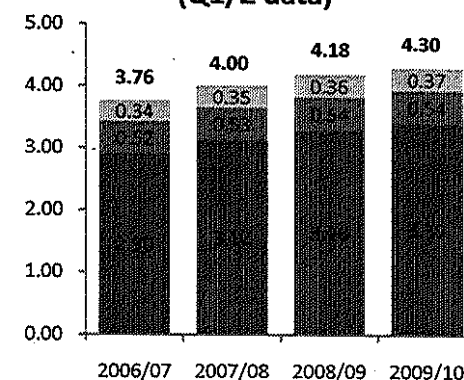
Actual test volume per capita  
06/07 to 09/10  
(Q1/2 data)



Age-adjusted expenditure per  
capita 06/07 to 09/10  
(Q1/2 data)



Age-adjusted test volume per  
capita 06/07 to 09/10  
(Q1/2 data)



Note: These data only include tests that are in the chemistry, haematology, and microbiology subsections of the fee schedule and, therefore, the aggregate data are slightly different from those derived from all tests (e.g., including cytogenetics, anatomic pathology and as shown in the overall summary on page 2).



**Regional expenditure and volume  
trend on per capita basis**

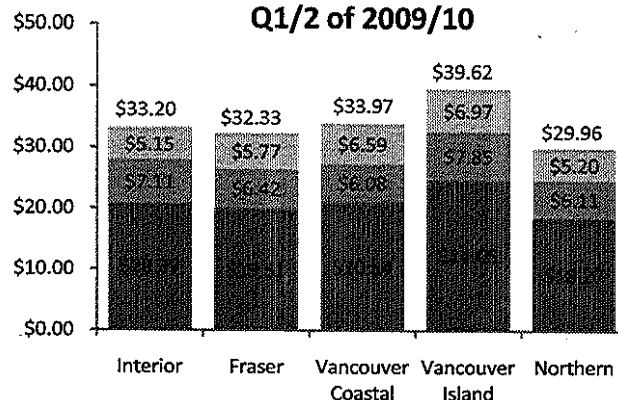
Q1/2 2009/10 per capita expenditures and test volumes by patients' HA residence - before (left) and after (right) adjustment for the effect of regional age and sex differences (i.e., applying the overall provincial age and sex specific test per capita and expenditure per capita rates to the provincial age/sex population distribution).

1. In Q1/Q2 2009/10, Vancouver Island had the highest costs per capita before (\$39.62) and after (\$35.91) normalization for regional age and sex differences. Interior had the lowest costs per capita after normalization.

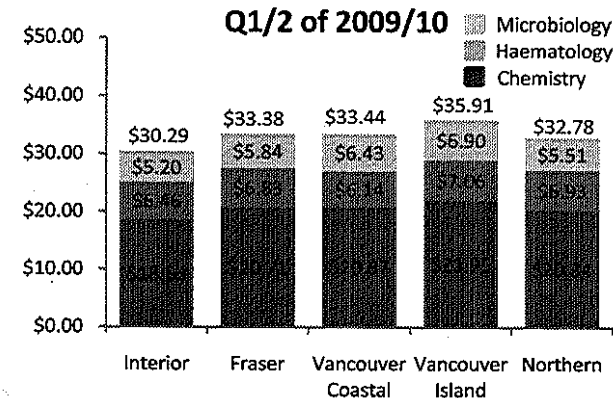
2. Northern had the highest number of tests per capita (4.74) after normalization.

**\$152M expenditure breakdown by patient's residence for Q1/Q2 of 2009/10:**  
**\$51M** – Fraser (1.6 million population)  
**\$38M** – Vancouver Coastal (1.1 million population)  
**\$30M** – Vancouver Island (0.75 million population)  
**\$24M** – Interior (0.73 million population), and  
**\$8.5M** – Northern (0.28 million population)

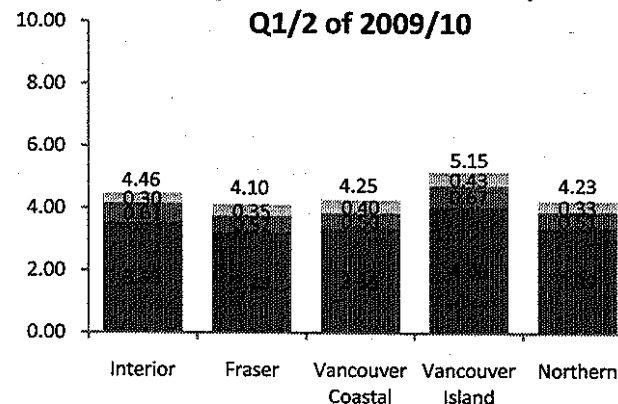
**Actual costs per capita by  
region and lab subsection,  
Q1/2 of 2009/10**



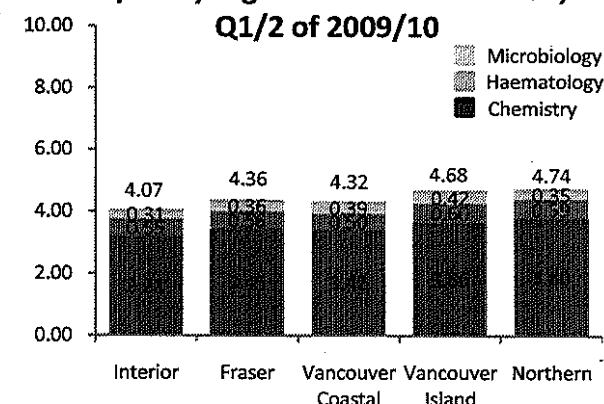
**Age-sex adjusted costs per capita  
by region and lab subsection,  
Q1/2 of 2009/10**



**Actual number of tests per capita by  
region and lab subsection,  
Q1/2 of 2009/10**



**Age-sex adjusted number of tests per  
capita by region and lab subsection,  
Q1/2 of 2009/10**



Note: These data only include tests that are in the chemistry, haematology, and microbiology subsections of the fee schedule and, therefore, the aggregate data are slightly different from those derived from all tests (e.g., including cytogenetics, anatomic pathology and as shown in the overall summary on page 2).

Summary

Volume/  
Expenditure

Cost per test

Expenditure  
TrendLab Test  
Level

In Q1/Q2 2009/10, lab tests ordered by physicians in the top 8 specialties accounted for 96% of total lab test volumes (22% increase over 2006/07). GP-referred lab tests accounted for 75% of the overall lab test volumes. In Q1/Q2 2009/10, the average GP ordered 2.2K chemistry tests, 350+ haematology tests, and 300 microbiology tests.

1. Among specialists, nephrologists, haematology-oncology specialists, endocrinologists, infectious disease specialists and rheumatologists requested relatively more tests per individual. (On average 19K tests per nephrologist, 7.6K per haematology-oncology specialist, and 5K+ for the remaining three specialties).
2. Two specialities – paediatrics and obstetrics & gynaecology - had the highest growth in lab test referrals per physician (aggregate chemistry, haematology, and microbiology lab tests) on an individual physician basis

	2009/10 Q1/2 test volumes	Average # of tests per ordering physician			Growth of the average # of tests per ordering physician			Number of physicians who ordered tests – by section		
		C	H	M	C	H	M	C	H	M
<b>1. GENERAL PRACTICE</b>	<b>14.77M</b>	<b>2,233</b>	<b>355</b>	<b>296</b>	<b>17%</b>	<b>5%</b>	<b>9%</b>	<b>5,168</b>	<b>5,050</b>	<b>4,863</b>
NEPHROLOGY	1.12M	16,894	1,864	647	No sub-specialty information available in 2006/07			58	57	56
INTERNAL MEDICINE	0.79M	2,001	344	43				334	326	278
GASTROENTEROLOGY	0.23M	3,101	566	182				60	59	59
ENDOCRINOLOGY	0.22M	5,175	118	16				41	40	37
HEMATOLOGY ONCOLOGY	0.21M	6,004	1,572	99				28	28	23
INFECTIOUS DISEASES	0.16M	5,053	724	225				26	25	26
CARDIOLOGY	0.17M	1,604	255	12				93	91	57
<b>2. INTERNAL MEDICINE</b>	<b>2.91M</b>	<b>3,898</b>	<b>546</b>	<b>127</b>	<b>20%</b>	<b>12%</b>	<b>9%</b>	<b>640</b>	<b>626</b>	<b>536</b>
3. RHEUMATOLOGY	0.36M	4,902	1,697	82	14%	16%	21%	54	54	50
4. PAEDIATRICS	0.23M	634	116	55	22%	-8%	7%	285	279	250
5. OBSTETRICS & GYNAECOLOGY	0.22M	550	173	259	24%	10%	19%	234	227	219
6. UROLOGY	0.16M	1,524	205	191	6%	-13%	11%	83	82	81
7. PSYCHIATRY	0.13M	195	43	6	10%	-18%	10%	568	525	189
8. GENERAL SURGERY	0.12M	510	105	23	25%	14%	-6%	195	196	187
<b>OTHER SPECIALISTS SUBTOTAL:</b>	<b>1.23M</b>	<b>642</b>	<b>164</b>	<b>98</b>	<b>16%</b>	<b>3%</b>	<b>16%</b>	<b>1,419</b>	<b>1,363</b>	<b>976</b>
<b>OVERALL</b>	<b>18.90M</b>	<b>2,068</b>	<b>335</b>	<b>251</b>	<b>17%</b>	<b>6%</b>	<b>9%</b>	<b>7,227</b>	<b>7,039</b>	<b>6,375</b>

# The impact of chronic disease management on lab test utilization

Summary

Volume/  
Expenditure

Cost per test

Expenditure  
Trend

Lab Test  
Level

There was increased utilization of lab testing for chronic disease management in our aging population. In Q1/Q2 2009/10, over \$20M in lab test expenditures was associated with physician compliance with CDM guidelines and flow charts.

1. There are 18 lab fee items for which utilization is directly driven by requirements for physician compliance with guidelines for GP incentive payments for chronic disease management. In 2009/10 Q1/2, MSP expenditures on these tests represented 46.6% of total expenditures.
2. Of the \$70M MSP paid to providers for these tests (excluding C-reactive protein) in 2009/10 Q1/2, \$21.4M (31%) was for testing patients enrolled in a GP incentive program.
3. While the frequency of testing per capita is highest in patients aged 50+, the highest growth rates in test utilization are, generally, in the paediatric population.

Fee items impacted by compliance with GP incentive payment program	GP chronic care flow sheet			Total MSP paid tests/1000 population			3 year CAGR			% of total MSP Q1/Q2 expenditure	09/10 average cost per test
	H T N	D M	C H F	Age 0-19	Age 20-49	Age 50+	Age 0-19	Age 20-49	Age 50+		
1. 91000 - Primary Base Fee	x	x	x	60	215	725	6.7	3.2	3.3	14.6%	\$13.75
2. 90205 - Haematology Profile	x			77	228	532	4.0	1.8	2.7	8.7%	\$9.81
3. 91421 - Creatinine, serum/plasma	x	x	x	28	129	521	10.0	7.3	5.9	0.9%	\$1.29
4. 92100 - Potassium, serum/plasma	x		x	22	84	386	12.5	6.8	5.3	0.6%	\$1.18
5. 91707 - Glucose, quantitative serum	x	x	x	26	120	370	8.1	2.8	2.6	0.7%	\$1.29
6. 92231 - Sodium, serum/plasma	x		x	19	81	366	11.7	7.0	5.7	0.6%	\$1.17
7. 92368 - Urea, serum/plasma	x			20	69	268	7.2	2.8	2.2	0.5%	\$1.39
8. 91375 - Cholesterol, total		x	x	7	79	296	9.5	3.2	3.0	2.5%	\$6.08
9. 91780 - HDL Cholesterol		x	x	6	76	292	14.0	4.1	3.3	2.8%	\$6.89
10. 92350 - Triglycerides, serum/plasma		x	x	8	77	293	9.8	4.1	3.7	2.4%	\$5.77
11. 91210 - Aspartate aminotransferase	x			26	97	264	5.0	2.1	2.9	0.6%	\$1.54
12. 92325 - TSH	x			34	133	256	7.6	4.3	4.0	3.9%	\$8.64
13. 92390 - Urinalysis, macroscopic	x	x	x	31	76	190	3.5	1.9	2.0	2.3%	\$7.35
14. 91745 - Haemoglobin, A1C		x		3	25	189	5.2	6.9	6.7	2.5%	\$10.71
15. 91985 - Micro albumin		x	x	1	21	140	14.7	19.0	14.0	1.4%	\$8.19
16. 91420 - Creatinine, random urine		x	x	2	14	89	15.9	21.4	15.1	0.6%	\$5.05
17. 91040 - Albumin, serum/plasma	x			8	23	83	6.5	5.6	6.2	0.2%	\$1.32
18. 91275 - B-type natriuretic peptide	x			0.01	0.27	4	—	—	—	0.2%	\$48.57
19. 91300 - C-reactive protein				6	19	56	34.2	32.3	36.4	0.6%	\$7.18
<b>Total</b>										<b>46.6%</b>	

MSP payments in Q1/2  
All 18 tests : \$70M  
GP incentive testing portion<sup>1</sup>: \$21.4M

Age 50+ shows highest per capita utilization.  
Age 0-19 show highest per capita utilization growth.

\$18.74 per full lipid profile

Non Appendix C tests

- High utilization growth rates
- Non Appendix C tests
- Not on current CDM flow sheet
- Test fee more than \$6

<sup>1</sup>Note: The GP incentive portion is calculated by taking the total number of claims in Q1/2 of 2009/10 for these 18 tests done on patients whose referring physician also claimed a chronic disease incentive payment for them.



*Impact of new tests and selected  
changes in the practice of pattern*

1. New lab tests insured during the term of the lab agreement contributed \$621K in Q1/Q2 expenditures.

2009/10 (Q1 + Q2)			
New Lab Tests introduced after 2006/07			
	Volume	Expenditure	
91275 - B-TYPE NATRIURETIC PEPTIDE (BNP OR NT-PROBNP)	7,562	\$367,286	New chemistry tests
91925 - LIGHT CHAINS, FREE KAPPA AND LAMBDA	1,375	\$60,730	
91761 - HELICOBACTER PYLORI STOOL ANTIGEN (HPSA)	796	\$28,107	
90068 - CYCLIC CITRULLINATED PEPTIDE ANTIBODIES	3,368	\$98,379	New haematology tests
90046 - BETA 2 GLYCOPROTEIN [(B2GPI)ANTIBODY SCREEN	800	\$32,024	
90047 - BETA 2 GLYCOPROTEIN ANTIBODIES IGG/IGM ISOTYPE	68	\$4,559	New microbiology test
90784 - TRICHOMONAS ANTIGEN TEST	1,640	\$30,471	
<b>Total new test payments</b>	<b>15,609</b>	<b>\$621,556</b>	

2. Increased testing for new drugs of abuse contributed \$21K in Q1/Q2 expenditures.

2009/10 (Q1 + Q2)		
Increases in other drugs of abuse		
	Volume	Expenditure
92521 - 1-METAMPHETAMINE	55	\$3,865
92527 - HYDROCODONE	10	\$703
92528 - HYDROMORPHONE	196	\$13,688
92529 - MEPERIDINE	8	\$541
92535 - METHYLENEDIOXYMETHAMPHETAMINE	31	\$2,179
92539 - OXYMORPHONE	3	\$121
<b>Total other drug screenings</b>	<b>303</b>	<b>\$21,097</b>

3. Utilization of new fee item codes in cytogenetics resulted in a Q1/Q2 expenditure reduction of \$141K.

Fee Item	Volume		Expenditure	
	06/07	09/10	06/07	09/10
93051 - CYTOGENETIC ANALYSIS/FLUORESCENCE IN SITU, SINGLE		388		\$74,081
93052 - CYTOGENETIC ANALYSIS/FLUORESCENCE, SUBTELOMERIC		102		\$52,103
93053 - CYTOGENETIC ANALYSIS/FLUORESCENCE, UNCULTURED		277		\$106,941
93050 - CYTOGENETIC ANALYSIS/IN-SITU HYBRIDIZATION	840		\$373,540	
<b>Total</b>	<b>840</b>	<b>767</b>	<b>\$373,540</b>	<b>\$233,125</b>



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***Appendix 1 – BCALP Response to action Items from October CLEMC meeting***

# **BCALP response to action items from October 2009 CLEMC meeting – comments on unanticipated growth in utilization**

Summary	Volume/ Expenditure	Cost per test	Expenditure Trend	Lab Test Level
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Top 25 tests	Comments from BCALP	Top 26-50 tests	Comments from BCALP
91300 - C - REACTIVE PROTEIN	Method to Chemistry Science Section? Guideline error of omission?	90630 - C. DIFFICILE TOXIN - IMMUNOLOGICAL	
92395 - URINALYSIS, MICROSCOPIC	Check for physician billing for macroscopic in office.	91405 - CORTISOL	
92266 - TESTOSTERONE TOTAL	BCALP has utilization approach and payment protocol close to final.	92230 - SODIUM, RANDOM URINE	Utilization pattern unclear. Further data analysis in progress.
91660 - FOLLICLE STIMULATING HORMONE (FSH)	Likely response to increased fertility and menopause testing.	91855 - INSULIN, FIRST SPECIMEN	Clinic testing for conditions associated with hyperinsulinism?
91645 - FERRITIN, SERUM	Section developing a simplified payment protocol.	91040 - ALBUMIN, SERUM/PLASMA	
91610 - ESTRADIOL	Utilization may reflect consequence of delayed child bearing.	92146 - PROTEIN, TIMED URINE COLLECTION	
92450 - VITAMIN B12	'Non-anemia' testing and post-treatment follow up testing?	91250 - BILIRUBIN, DIRECT	
92550 - URINE, DRUGS OF ABUSE SCREEN - PER ANALYTE	Is there lab compliance with referring physicians' request for 'screen' or specific analyte?	91805 - IGF - I (SOMATOMEDIN - C).	Specialist test - significant utilization by GPs requires explanation.
90465 - R.B.C. MORPHOLOGY	Section has new criteria for add on testing - will lead to net increase in utilization of the ad on test.	92135 - PROLACTIN	
92130 - PROGESTERONE, SERUM/PLASMA	Delayed child bearing leading to increasing fertility issues?	91650 - FIBRINOGEN, QUANTITATIVE, CHEMICAL	
90830 - VIRUS ISOLATION	Microbiology Science Section subcommittee is working on fee items for molecular methods - likely to increase expenditures.	91690 - GLUCOSE, GESTATIONAL ASSESSMENT	
91719 - GLUCOSE - 2 HR. POST-75G	Section developing proposal for rationalization of GTT fees.	90820 - SEROLOGICAL TESTS - > 4 ANTIGENS	Possible inconsistent fee code use for respiratory viruses?
92500 - PRIMARY BASE FEE (DRUG SCREEN)	More MMT patients or more tests per patient?	92185 - RENIN, SINGLE DETERMINATION	
90685 - HEPATITIS A - IGM ANTIBODY (ANTI-HAV-IGM)	Inconsistent with previous pattern. Possibly an error?	90540 - THALASSAEMIA/HAEMOGLOBINOPATHY INVESTIGATION	Heavy utilization by GPs may reflect ethnic and/or obstetrical pattern of practice.
91950 - LUTEINIZING HORMONE (LH)	Increase in infertility and andropause? Or additional providers?	91285 - C - 3 COMPLEMENT	Unanticipated increase relative to 91740 (haptoglobin). Provider issue?
92510 - METHADONE METABOLITE	More MMT patients or more tests per patient?	91290 - C - 4 COMPLEMENT	Unanticipated increase relative to 91740 (haptoglobin). Provider issue?
92511 - OPIATES	More MMT patients or more tests per patient?	91080 - ALPHA-1 ANTITRYPSIN	Unanticipated increase relative to 91740 (haptoglobin). Provider issue?
90515 - SEDIMENTATION RATE	Unlikely to provide additional value over 91300 (CRP). De-list?	92020 - OXALATE, TIMED URINE COLLECTION	Specialist ordered follow-up for recurrent kidney stones.
92507 - COCAINE/COCAINE METABOLITE	More MMT patients or more tests per patient?	91740 - HAPTOGLOBIN	Increased utilization by small group of specialists? Billing issue?
92505 - BENZODIAZEPINES	More MMT patients or more tests per patient?	91325 - CALCIUM, TIMED URINE COLLECTION	Specialist ordered follow-up for recurrent kidney stones.
91655 - FOLIC ACID	Need for testing eliminated by folate supplementation. De-list?	92148 - PROTEIN TOTAL, SERUM OR PLASMA	
92311 - T3 - FREE	Much volume unlikely to meet guidelines. Role for new SOPLR?	91494 - CITRATE, URINE	Specialist ordered follow-up for recurrent kidney stones.
92460 - VITAMIN D (25 HYDROXY-CHOLECALCIFEROL)	'Sunshine vitamin' effect. Section re-costing test. GPAC developing protocol.	91400 - COPPER, SERUM	Requires explanation. Makes no sense. Billing error?
92330 - FREE T4	May be reasonable, but continue to monitor utilization.	91115 - AMMONIA	Psychiatrist assessment of increased use of valproic acid?
91460 - DEHYDROEPIANDROSTERONE, SERUM (DHEA)	Consistent with rise in related infertility testing.	92378 - URIC ACID, TIMED URINE COLLECTION	Specialist ordered follow-up for recurrent kidney stones.

**These 50 grew at a 10% CAGR over the term of the agreement, contributed the most to unanticipated growth and accounted for 10% of total volumes and 13% of total expenditures in Q1 + Q2 2009/10.**

# BCALP Comments for October 09 CLEMC report

The yellow highlighted items are ones where the Section has undertaken specific steps to address the concerns that have arisen.

FI (Test name \$ unanticipated)	Comment
91300 (CRP \$96,026)	<p>This test has two uses: one relates to the detection and monitoring of inflammation from various causes including infection. The other use is cardiovascular risk assessment.</p> <p>The analytic requirements for these two purposes differ. However, the manufacturers are tending to address this issue. Nonetheless, we should have a position statement from the Chemistry Science Subsection on this point.</p> <p>The growth in testing suggests that it is driven by the second indication.</p> <p>I do not know in how many places the use of this test has been promoted but a brief inquiry revealed that reference to this use can be found at <a href="http://www.healthlinkbc.ca/kbase/topic/special/tx2300/sec6.htm">http://www.healthlinkbc.ca/kbase/topic/special/tx2300/sec6.htm</a></p> <p>Unfortunately, it would appear that the absence of any reference to this test in the Cardiovascular Disease – Primary Prevention Guideline might be viewed as an error of omission rather than guidance that the testing is not indicated.</p> <p>This is not a simple issue and may require more than one action to bring it to a proper level of appropriateness.</p> <p>Addendum: The new CCS Dyslipidemia Guideline refers to the use of this test in certain circumstances.</p>
92395 (Urinalysis microscopic \$35,500)	<p>The increase in microscopic urinalysis suggests a deviation from the previous pattern of macroscopic to microscopic services. This could be a change in billing pattern or a change in clinical practice.</p> <p>It might be helpful to know if the change in pattern is limited to one facility/health authority. If this were the case, it would suggest a change in billing practice. However, the revisions to the Macroscopic and Microscopic Urinalysis and the Investigation of Urinary Tract Infections Guideline could distort the previous pattern. Specifically, a physician can refer a patient to the laboratory for microscopic alone if he/she has found a positive macroscopic in the office or if he/she a culture done based on the microscopic urinalysis findings. If this were the explanation then these patients should not have had a macroscopic billed by the laboratory.</p>
92266 (Testosterone Total \$47,040)	<p>Increasingly, physicians are abandoning free testosterone in favor of total testosterone (and when indicated, a calculated bioavailable testosterone). Laboratories have tried to respond to this shift while waiting for a guideline. The BCALP understands that GPAC may not be in a position to look at this at present. Consequently, the BCALP will move this item forward through the fee modification process in the anticipation that the change will result in an expenditure reduction. The Section has developed a utilization approach and a payment protocol for testosterone that is in its final stages of development.</p>
91660 (FSH\$33,660)	The volumes (consistent with the indications) suggest testing for infertility and testing for menopause.
92135 (Prolactin, \$3,531)	The volume changes parallel the FSH volume changes, likely indicating diagnostic testing.
91610 (E2 \$43,176) 92130 (Progesterone \$23,584)	<p>E2 is more complicated: it would confirm menopause but it is more likely used during fertility assessment or treatment.</p> <p>Progesterone testing relates to fertility issues – baseline assessment; ectopic pregnancy. If the pattern of billing facilities has not changed, then I would accept this might simply reflect delayed child bearing.</p>
91645 (ferritin \$21,814)	<p>The year-end data for the past four years indicates that the ferritin and Fe/TIBC data have risen in parallel. The data on page 18 of the LIU report indicates ferritin and TIBC are used in the same proportion across all ages. The usual purpose of this test is to assess iron deficiency: as the growth in tests appears attributable to GPs (83% orders) it seems unlikely that the driver is complex disease. The data on page 12 of the LIU report indicates that less than 10% of the GPs order 40% of the tests. Two questions come to mind. Is the ordering pattern of these GPs for ferritin and TIBC similar to or different from the other 90% of GPs? If it is different, is that attributable to a different diagnostic approach or to a different patient population?</p> <p>The Section is looking at a payment protocol that may simplify the use of Fe/TIBC testing and address any illogical testing redundancy.</p> <p>We have recently had a request for a fee code for soluble transferrin receptor referred to us. We will have to review whether this test offers away out of the diagnostic dilemma that some physicians are trying to address.</p>



92450 (Vitamin B12 \$22,880) 91655 (Folic acid \$10,872)	Measurement of B12 is indicated for macrocytic anemia and various other conditions. The need for folate testing has largely been eliminated by folate supplementation. The relative volume of B12 to "folate" tests has gradually increased in recent years. This change is attributable to the simultaneous increase in B12 testing for "non anemia" reasons and the discouragement of "folate" testing. The nadir of folic acid testing was reached in 2006/07. There are two questions to consider. (1) Can we delist folic acid/ red cell folate but provide a referral option for physicians who present evidence for medical necessity? (2) To what extent are B12 measurements performed in follow-up to treatment?
92550 (UDA – per analyte) \$13,129)	An individual facility must bill using 92550 (type 1 protocol) or 92500 plus "n" from 92503-13 (type 2 protocol). In accord with the MMP program, this would mean that the usual number of 92550 billings would be 5 (and the average 5.X). No Type 1 facility should bill 6 * 92550 consistently. The maximum number of 92550 billable per day is 6. Similarly "n" from 92503-13 would usually be 5. The maximum number of analytes from (92503-13) billable per day is 7. The distinction should be made between what the doctor orders and what the laboratory performs, i.e., did the doctor order drug screen or did the doctor order each analyte specifically?
92500 Primary base fee \$13,599) 92510 (METHM \$6,710) 92511 (OPI \$7,090) 92507 (COC \$7,030) 92506 (BNZ 8,320)	The number of drug screens rose disproportionately in 08/09 (17%) and this continues into Q1 09/10. Ninety percent of the tests are performed on patients on methadone maintenance. Ten per cent are for patients entering the MM program or for other causes. Are there more patients participating in the program or has the number of tests per patient increased?
90465 (RBC Morphology) \$30,464	The Section of Laboratory Medicine has approved a new guideline for RBC Morphology add-ons. In preparing a submission for these amendments, the Section became aware that there was unexplained variability in the way that the existing guidelines were utilized. The Section is currently investigating this matter.
90830 (Virus isolation \$75,008)	This is a restricted provider test. Category IIV. I will investigate how and why the volumes have risen 76% since the baseline year. The Section is gathering information about the methods and the billing practices of the laboratories involved. It appears that molecular techniques for viral identification are the standard of practice for the most clinically significant viruses, i.e., CMV, polyoma including BK, HBV and respiratory viruses. Drivers include transplantation and hepatitis drug treatments. The Microbiology Science Subsection has formed a subcommittee to developing fee items for molecular identification of organisms. The scope includes virology and C difficile.
91719 (Glucose – 2 hr Post-75G \$23,775))	The Section is developing a proposal for rationalization of OGTT. The issue of OGTT for pregnant subjects is a contentious one as the current BC standard (which differs in dose and requires more specimens) is at variance with the Canadian standard. The Section has heard informally that this will change but no formal confirmation has been received to date. This is a complicating factor in the rationalization of OGTT fees.
92311 (T3 – free \$5,000)	The increase in this fee item is not attributable to a decrease in total T3 testing. The increased volume is out of proportion to the increases in fT4 and TSH. It appears unlikely that all requests meet the current guideline requirements. Perhaps this will change when the new SOPLR is implemented.
91960 (Luteinizing Hormone \$11,528)	Major test groups would include infertility and andropause. Is the unanticipated increase attributable to additional providers or a general increase in volumes?
90685 (Hepatitis A IgM, \$21,936)	This is not consistent with the previous pattern so it may reflect an aberration of some sort.
90515 (Sedimentation rate \$10,530)	As it is unlikely that 90515 provides value in addition to that provided by 91300, we need to look at how often these tests are ordered together so that the potential value of a payment rule could be assessed.
92460 (Vitamin D 25-hydroxy-cholecalciferol \$56,178)	Like all other jurisdictions BC has seen exponential growth in the requests for this test. The province needs a guideline. The Section is recosting this test as there are changes in technology (in addition to any potential volume impact) that can result in reduced test cost.
92330 (Free T4, \$7860)	The pattern of testing up to this quarter does not appear unreasonable. Suggest waiting for more information.
91460 (DHEA, \$9190)	Usage fairly limited to the investigation (but not the treatment) of infertility: increase parallels the rise in the other related tests.



91855 (Insulin, first specimen, \$10,920)	This test was originally introduced for the diagnosis of hypoglycemia/insulinoma. More recently use has extended to conditions associated with hyperinsulinism, e.g., polycystic ovary syndrome and the metabolic syndrome. The more recent growth in testing likely relates to the latter. The high utilization by a limited number of GPs suggests some kind of specialization or clinic approach. Is the testing distributed equally between the genders? Is there repeat testing that would suggest monitoring?
90820 (Serological tests >4 antigens, \$7526)	The data indicates that 94% of the tests were ordered by specialists. There was a notable increase evident last fiscal year. BCCH has advised the BCALP that they only use this fee code to bill for enteric adenoviruses. Previously they may have billed for respiratory viruses using this fee code. Possibly SPH virology uses it for respiratory viruses?
90540 (Thalassaemia/Haemoglobinopathy investigation, \$6486)	As 74% of the orders are GP initiated, and 93 GPs account for 40% of the orders, what aspect of practice does this reflect? Ethnicity and/or obstetrics (SOGC/CCMG guideline)
91400 (Copper, serum, \$,4875)	The pattern of copper testing is not clinically appropriate. The established role of copper testing in North American is for Wilson's disease. The proper blood or urine tests are tests are urine copper and serum/plasma ceruloplasmin. There has only been one urine copper test per year billed to MSP during the past two years. What is going on here? Is this improper coding of the service? Although there is arguably a role for serum/plasma copper, it does not make sense that there would have been so many samples for serum/plasma with only 1 for urine. (One problem with urine copper is that it is a special collection requiring collection materials that referring laboratories have to provide and absorb the cost if the test is referred out.).
91494 (Citrate, urine, \$2,444) 92020 (Oxalate, timed urine, \$5747) 91325 (Calcium, timed urine, \$543) 92378 (Uric acid, timed urine, \$453)	These tests are utilized in the follow-up of patients with recurrent kidney stones: specialist ordered testing; the utilization pattern for the past 4 y has been relatively constant. Testing involves collection of 24 h urine samples. Unlikely that there would be a utilization problem.
92230 (Sodium, random, \$1084)	The impact of this unanticipated increase in volume is not completely clear from this data. Is this increase accompanied by an increase in 91000? If so, then the impact is \$6,520. Is this a general increase? Or does one lab account for the increased volume? It is an unusual outpatient test.
91115 (Ammonia, \$738)	This is an underpriced test – if collected and handled properly. There have been no notable changes in utilization over the past so it is not clear that there is a problem. The only “new” utilization pressure might be that psychiatrists order it for patients on valproic acid.
91740 (Haptoglobin, \$1960)	The increased utilization is consistent with the pattern seen last year. It appears that the increased utilization is triggered by a small group of specialists, likely hematologists. Have the ordering physicians stumbled onto a new indication or has the provider changed billing practices?
91285 (C-3 complement, \$953) 91290 (C-4 complement, \$979) 91080 (Alpha-1 antitrypsin, \$1890)	These are other specific proteins that show an unanticipated volume increase comparable to 91740. The clinical indications for complement, alpha-1 antitrypsin and haptoglobin differ. The unanticipated increases were likely present last year. Is this a provider phenomenon?
91805 (IGF-1, \$16,374)	This test is for the diagnosis and monitoring of gigantism/acromegaly and growth hormone deficiency. It may also be used in the monitoring of growth hormone therapy in HIV (approved indication). The attribution of 28% of the orders to GPs raises the question of appropriateness. (I do not understand how no GPs caused the top 40% of GP test orders? Typo?)
tTG IgA and IgA	The growth of tTG and the growth of IgA have attracted CLEMC attention at different times during the past year. A blip in the IgA volumes was attributed to a billing error. However, there is parallel growth in both these items as the understanding of their clinical significance as increased and the realization that the accuracy of a negative tTG result depends upon the presence of an adequate amount of IgA. Aside from the doctor ordering both tests, there exists a less costly alternate approach whereby the laboratory determines IgA only on those specimens with a tTG reading below a level defined for the method. The latter is the British approach. Testing all tTG samples for IgA is the American approach. It is likely that the British method is cheaper but it does involve the initial cost of establishing the cutoff threshold. Whatever approach we adopt, I think we should establish it as an MSP policy.



**Collaborative Laboratory Expenditure Management Committee  
(CLEMC)  
12:30 – 2:00 pm  
Thursday, February 11, 2010**

**By Teleconference:** S15      **conference ID:** S15

**Agenda**

1. Action items from October 2009 meeting
2. Lab Expenditure
  - Review of MSP Billing and Utilization Report to end of Q2 2009/10.



**Collaborative Laboratory Expenditure Management Committee  
(CLEMC)**

**12:30 – 2:00 pm  
Thursday, April 8, 2010**

**By Teleconference:** S15 **conference ID:** S15

**Agenda**

1. Lab Expenditure
  - Review of MSP Billing and Utilization Report to end of Q3 2009/10.

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## **Q1 to Q3 MSP outpatient laboratory expenditure report for 2009/10**

**Prepared for:**  
**Collaborative Laboratory Expenditure Management Committee**  
**Meeting of April 8<sup>th</sup>, 2010**

**Q1 to Q3 volumes, expenditures, and trend analysis  
over the period 2006/07 to 2009/10**

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*Ministry of Health Services*

April 8<sup>th</sup>, 2010  
*Laboratory Services Office  
Health System Planning Division  
Medical Services Branch*



**2009/10 Q1 to Q3 expenditure total = \$223M**  
**(2.1% under revised target)**

## Overview

**Expenditure:** MSP payment for outpatient lab services was \$223.2M for the first 9 months of 2009/10 (i.e., Q1/2/3). Full-fiscal year expenditure is estimated to be \$307.7M<sup>1</sup>, about 1.6% below the lab agreement target of \$312.6M and 12% above the 2006/07 expenditure (\$273.9M). (4.5% 3-yr CAGR.)

**Volume:** The total volume of lab tests performed in Q1/2/3 2009/10 was 28.8M tests, and is projected to be 39.6M for the year (6.8% 3-yr CAGR or 21% over 06/07 level).

**Per capita:** 6.47 tests were done per capita in Q1/2/3 2009/10, and is projected to be 8.91 for the year, at an average cost of \$7.76 per test. Total outpatient lab service expenditure will be \$69.15 per capita (2.3% 3-yr CAGR or 7.1% over 06/07 level).

### Volume discounting effect - by lab subsection:

Of the \$223M Q1/2/3 expenditure, \$136M was spent on testing in chemistry, \$43M in haematology, \$39M in microbiology, and the remaining \$4.8M in other areas (see table).

Despite the significant increase in lab test volume, lab volume discounting (LVD) reduced the expenditure on Appendix C tests (those subject to LVD) to 3.8% under the 2006/07 level.

However, for those fee items not subject to volume discounting, expenditure increased 42.5% over the 2006/07 level.

<sup>1</sup> The full-year projected volume and expenditure were derived as follows: (1) extrapolation from the historical proportion of MSP FFS lab expenditure and volume in Q1/2/3; (2) an adjustment to Q1/2/3 volume based on the assumption that the observed drop in Q3 volume was related to this year's H1N1 flu and not a reflection of an on-going phenomenon (i.e., factoring in the historical Q3 growth trend on FY 2009/10 Q1/2 data), and: (3) adjustment for the use of an incorrect volume threshold for LVD in Q2.

## 2009/10 targets, actual Q1 to Q3 expenditures, & projected full-year expenditures

	2009/10 Q1 to Q3	2009/10 full-year
Targets set in 2007 renewed laboratory agreement	\$219.5M	\$300.3M
Revised targets after micro-allocation payments	\$227.9M	\$312.6M
Expenditures (Q1/2/3 actual & 09/10 full year projected)	\$223.2M	\$307.7M <sup>1</sup>
+/- % deviated from revised target	-2.1%	-1.6%
Test Volumes	28.8M	39.6M
Cost per test (PBFs are counted as lab tests)	\$7.75	\$7.76
# of tests per capita	6.47	8.91
MSP FFS lab test expenditure per capita	\$50.16	\$69.15

Lab subsection (Q1 to Q3 data)	2009/10 Q1 to Q3 % change over 2006/07 Q1 to Q3	Apdx. C items (subject to LVD) % change over 2006/07 Q1 to Q3	Non Apdx. C items (not subject to LVD) % change over 2006/07 Q1 to Q3
Chemistry	\$136M (+7.6%)	\$95.7M (-2.0%)	\$39.9M (+40.7%)
Haematology	\$43M (+5.6%)	\$30.7M (-7.9%)	\$12.6M (+44.7%)
Microbiology	\$39M (+33.4%)	\$5.7M (-8.4%)	\$33.6M (+64.0%)
Cytogenetics	\$2.5M (-7.1%)	—	\$2.5M (-7.1%)
Anatomical Pathology	\$1.9M (+15.0%)	—	\$1.9M (+15.0%)
Pre-analytical (with no tests done at the same facility)	\$0.5M (+90.7%)	—	\$0.5M (+90.7%)
<b>Total (% change over 06/07)</b>	<b>\$223M (+10.9%)</b>	<b>\$132M (-3.8%)</b>	<b>\$91M (+42.5%)</b>

**Analysis of annual utilization parameters****Overview of outpatients, # of lab referrals per outpatient, # of tests per lab referral, and average cost per test**

- Outpatients:** 1.89M outpatients received one or more lab tests in Q1/2/3 of 2009/10. The number of patients receiving lab tests in Q1/2/3 increased, on average, by 2.7% annually over the course of the agreement (8.4% net increase over 2006/07).
- Number of lab referrals per outpatient:** Each tested outpatient, on average, was referred for lab testing 3.13 times in Q1/2/3 of 2009/10. This rate increased by 1.5% annually over the last 3 years (4.5% net increase over 2006/07).
- Number of tests per lab referral:** Each referral for lab testing was, on average, for 4.87 tests in Q1/2/3 of 2009/10. This rate increased (over previous year) 4.0% in 2007/08, 1.9% in 2008/09, and 1.0% in 2009/10 (net increase over 2006/07 = 7%).
- Average cost per test:** The average lab test costs MSP \$7.75 in Q1/2/3. This cost declined 8.9% in 2007/08 and 0.1% in 2008/09, and increased 0.6% in 2009/10 (over previous year) (9% net decrease over 2006/07).
- Total lab expenditure:** There was a decline in total expenditure of 0.4% in 2007/08, followed by increases of 6.5% in 2008/09 and 4.7% in 2009/10 (12% net increase over 2006/07).

FY Q1/2/3 data only	# of outpatients	# of lab referrals per outpatient	# of tests per lab referral	# of tests per outpatient	Average cost per test	Total Q1/2/3 lab expenditure
2009/10	1.89M	3.13	4.87	15.2	\$7.75	\$223M
2008/09	1.86M	3.09	4.82	14.9	\$7.70	\$213M
2007/08	1.80M	3.05	4.73	14.4	\$7.71	\$200M
2006/07	1.74M	3.00	4.55	13.6	\$8.47	\$201M

Erratum: The title heading for column 3 in the corresponding table on page 3 of the Q1/2 CLEMC which report (11<sup>th</sup> Feb, 2010) should have read; "# of lab referrals per outpatient", as above.

- Number of lab referrals:** 5.91M lab referrals were made Q1/2/3 of 2009/10. The CAGR of lab referrals in Q1/2/3 was 4.2% (13% net increase over 2006/07).
- Average cost per lab referral:** On average, MSP paid \$37.75 each time a patient was referred for (any) lab testing. The decline of 2% over 2006/07 (\$38.55) was offset by the 8.4% increase in number of outpatients and the 4.5% increase in lab referrals per outpatient.

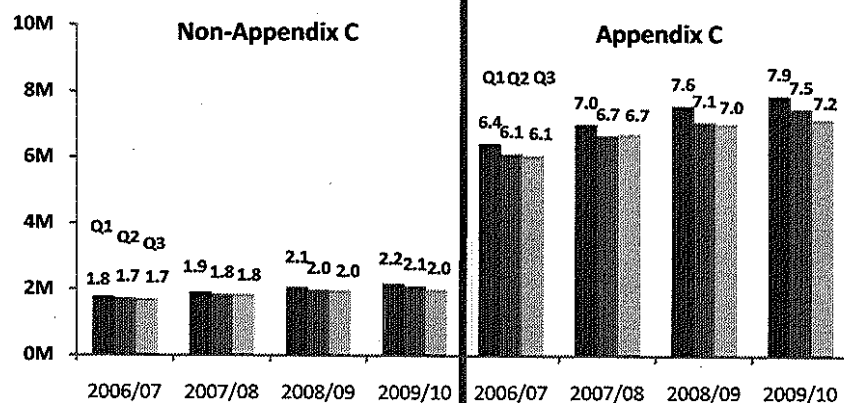
FY Q1/2/3 data only	# of lab referrals	Average cost per lab referral
2009/10	5.91M	\$37.75
2008/09	5.74M	\$37.15
2007/08	5.49M	\$36.51
2006/07	5.22M	\$38.55

Note: CAGR, the compound annual growth rate, is the geometric mean growth rate on an annualized basis.

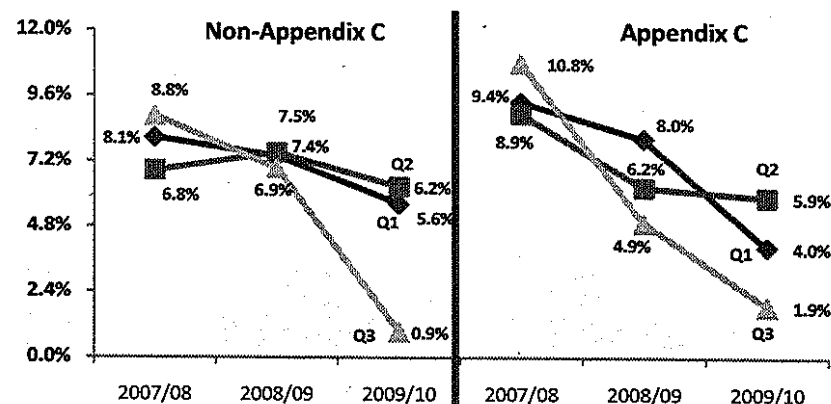


1. In Q1/2/3 of 2009/10, test volumes were 4.0% more than last year. Over the 3 yr agreement term, volume grew by 21%.
2. In Q1/2/3 of 2009/10, expenditures were 4.6% more than last year. Over the 3 yr agreement term, expenditures grew by 12%.
3. Payments for non-Appendix C tests increased to \$91M in 2009/10 (Q1/2/3) from \$64M in the same period in 2006/07 (+42.5%).
4. Payments for Appendix C tests were reduced to \$132M in 2009/10 (Q1/2/3) from \$137M in 2006/07 (-3.8%).
5. In Q3 non-Appendix C test volume grew by 2.1% instead of the 5% anticipated rate based on historical Q3 over Q3 growth. Similarly, Appendix C test volume in Q3 grew by 3.6% instead of the historical Q3 rate of 4.1%. Consequently, overall test volume was reduced by 140K tests and expenditures of \$1M potentially avoided. This reduction in services could be a result of changes in clinical and laboratory practice due to H1N1 concerns.

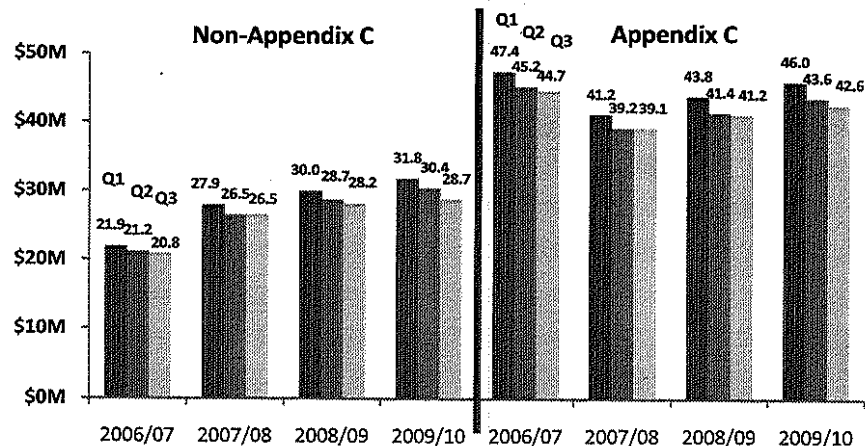
Q1 to Q3 actual MSP lab test volume



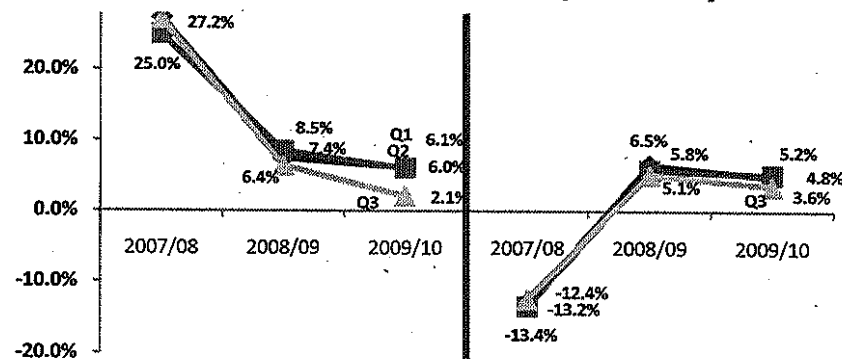
Q1 to Q3 volume growth over previous year same Q



Q1 to Q3 actual MSP lab test expenditure



Q1 to Q3 expenditure growth over previous year same Q



Note re: projecting Q4 utilization: 08/09 Q4 total test volume was 10M and 8.8% over 07/08 Q4, and 08/09 Q4 total expenditure was \$77M and 8.1% over 07/08 Q4.

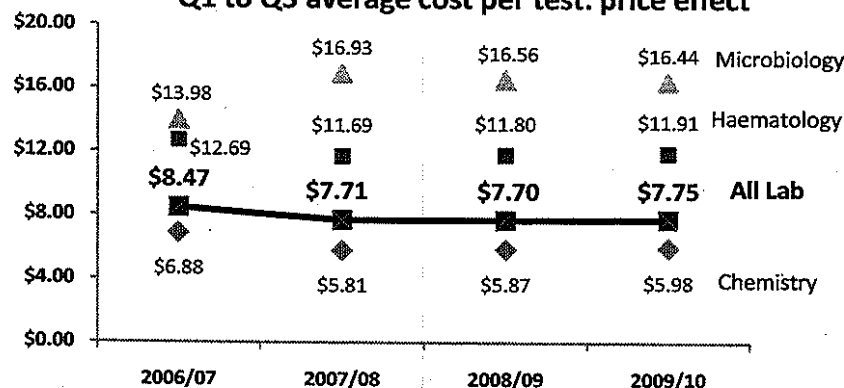


Note: lab test volume includes the count of PBF for selective chemistry tests, PBF for drug screenings, and venepuncture

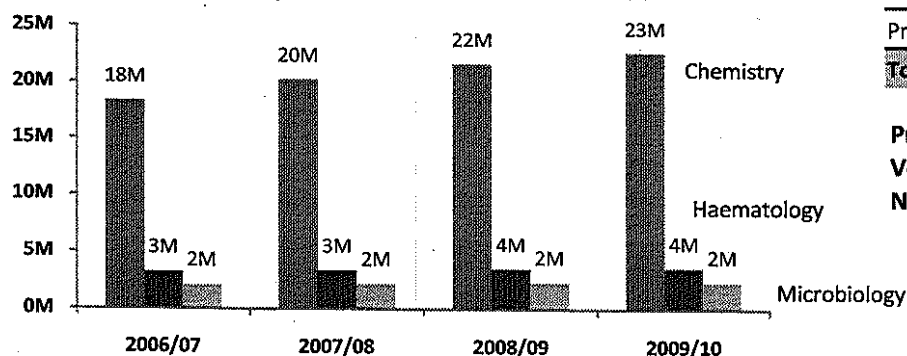
The average cost per test declined to \$7.75 from \$8.47 over the course of the 3 year term agreement (-9%), while the test volume increased to 28.8M from 23.8M (+21%) over 2006/07 level. The combined effect was an net increase of \$22M to \$223.2M over 2006/07 level. (Q1 to Q3 data only.)

1. The average cost per chemistry test declined by 90 cents or 13% (\$6.88 in 06/07 and \$5.98 in 09/10), while the Q1/2/3 chemistry test volumes increased by 4.3M or 24% (18.3M in 06/07 and 22.7M in 09/10). The net result was an increase of \$9.5M in expenditure for chemistry tests (7.5% expenditure growth).
2. A haematology test, on average, cost \$11.91, a decline of 78 cents or 6.1%. The haematology volumes increased by 400K or 12% over 06/07 level. The net result was an increase of \$2.3M in expenditures for haematology tests (5.6% expenditure growth).
3. Microbiology tests (the third largest category) cost, on average, \$16.44 per test, an increase of \$2.46 or 18%. The volumes increased by 300K or 13%. The net effect was an increase of \$9.9M in expenditure for microbiology tests (33.4% expenditure growth).

Q1 to Q3 average cost per test: price effect



Q1 to Q3 test volume: volume effect



Q1/2/3 Expenditure showing change due to cost per test and change due to test volume, by section

	2006/07 expenditure	Price effect	Volume effect	Net effect	2009/10 expenditure
Chemistry	\$126.1M	-\$18.5M	+\$28.0M	+\$9.5M	\$135.6M
Haematology	\$41.0M	-\$2.7M	+\$5.0M	+\$2.3M	\$43.3M
Microbiology	\$29.6M	+\$5.6M	+\$4.3M	+\$9.9M	\$39.4M
Cytogenetics	\$2.6M	-\$0.1M	-\$0.1M	-\$0.2M	\$2.5M
Anatomical Pathology	\$1.7M	+\$0.3M	+\$0.0M	+\$0.2M	\$1.9M
Pre-analytical	\$0.2M	+\$0.2M	+\$0.0M	+\$0.2M	\$0.5M
<b>Total</b>	<b>\$201.2M</b>	<b>-\$15.2M</b>	<b>+\$37.1M</b>	<b>+\$22.0M</b>	<b>\$223.2M</b>

Price effect by subsection = (09/10 \$ test rate – 06/07 \$ test rate) x 06/07 volumes

Volume effect by subsection = (09/10 volumes – 06/07 volumes) x 09/10 \$ test rate

Net effect by subsection = Price effect + Volume effect

# Impact of changes in population demographics and lab test referral patterns on expenditures

Summary

Quarterly  
Data

Price &  
Volume Δ

Aging  
Population

Lab Test  
Level

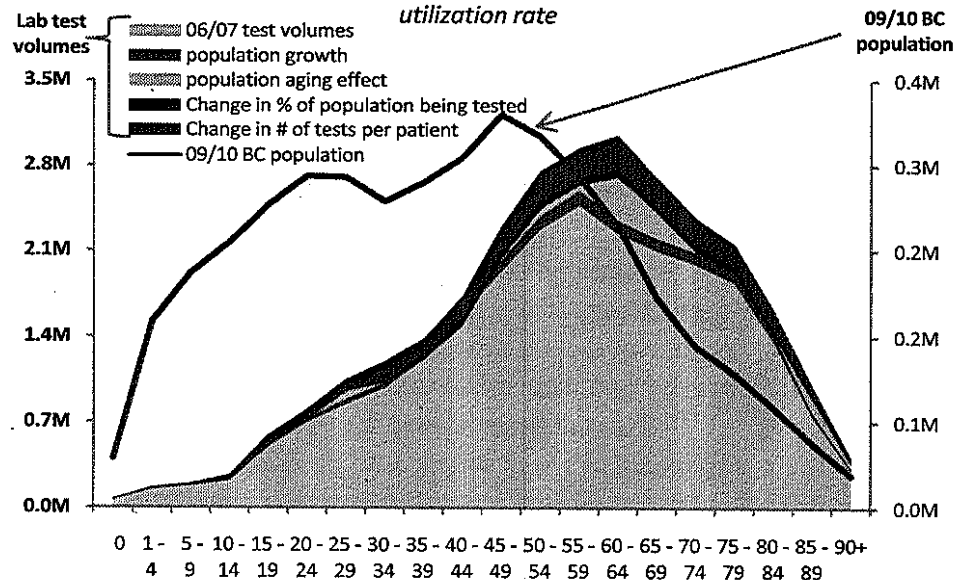
**Q1/2/3 test volume increased by 5M tests over the 3 year agreement term (23.8M in 06/07 to 28.8M in 09/10; +21% growth).**

- 1.15M in test volume increase was related to population growth and 0.6M test volume increase was related to population aging. (+7% over 06/07 or 2.4% 3-yr CAGR growth),
- 0.5M in test volume increase was due to an increased proportion of BC residents utilizing MSP FFS funded laboratory services (+2% over 06/07 or 0.7% 3 yr CAGR growth) resulting in more patients being tested,
- 2.8M of the test volume increase was due to the increase in lab testing per patient over the 06/07 level (12% over 06/07 or 3.6% 3 yr CAGR growth).

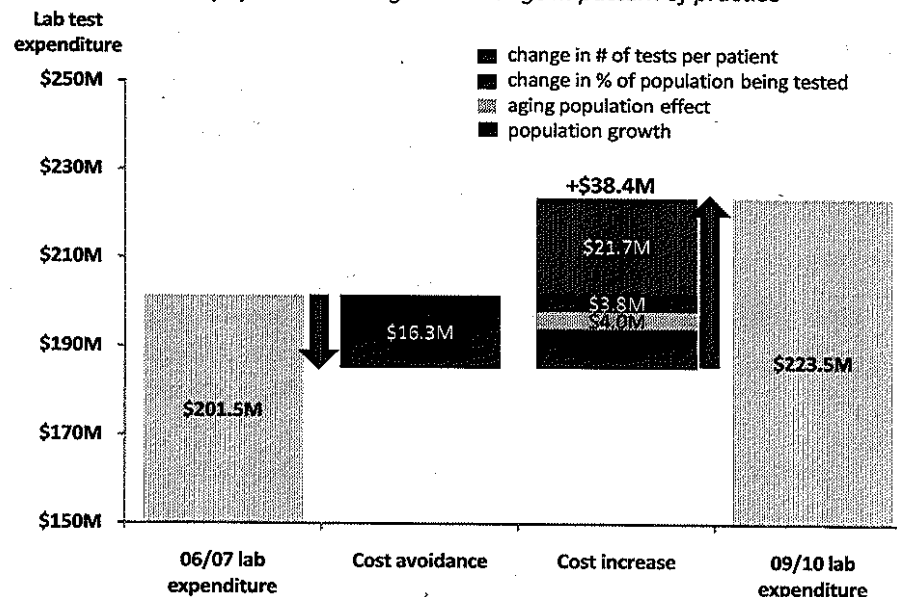
**The increase in total expenditure for outpatient lab services in Q1/2/3 was \$22M over 06/07, and is a result of:**

- \$16.3M - avoided costs when 09/10 fee item costs are applied to 06/07 test types and volumes,
- +\$9M - related to population growth, +\$4M - related to aging population,
- +\$3.8M - due to the change in the proportion of BC population utilizing MSP FFS funded laboratory services,
- +\$21.7M - related to the increase in lab testing per patient over 06/07 level.

**Distribution of lab test volumes by patient age group**  
showing effects of: aging population, change in proportion of BC  
population utilizing lab tests, and change in individual lab test  
utilization rate



**Current Q1/2/3 expenditure (\$223.5M)**  
showing increase over 06/07 level (\$201.5M) due to  
population change and change in pattern of practice



- 06/07 tested population rate = (06/07 tested outpatients) ÷ (06/07 entire BC population) x 100% at 5 yr age group
- 06/07 outpatient testing rate = (06/07 test volumes) ÷ (06/07 tested outpatients) at 5 yr age group
- Projected 09/10 tested outpatient population based on 06/07 tested population rate = (06/07 tested population rate) x (09/10 entire BC population) at 5 yr age group
- Projected 09/10 tested outpatient population assuming absolute population with no aging effect = (06/07 entire BC population in 5 year age groups, increased by 4.8%) x (06/07 tested population rate)
- Population growth effect = (D) x 06/07 outpatient testing rate
- Aging population effect = [(C) - (D)] x 06/07 outpatient testing rate
- Change in tested population rate = [actual 09/10 tested population - (C)] x 06/07 outpatient testing rate
- Change in outpatient testing rate = [09/10 outpatient test rate - 06/07 outpatient test rate] x actual 09/10 tested population



# Impact of changes in MSP fee, # of tests per GP, and # of GPs referring tests – by top 20 tests

Summary

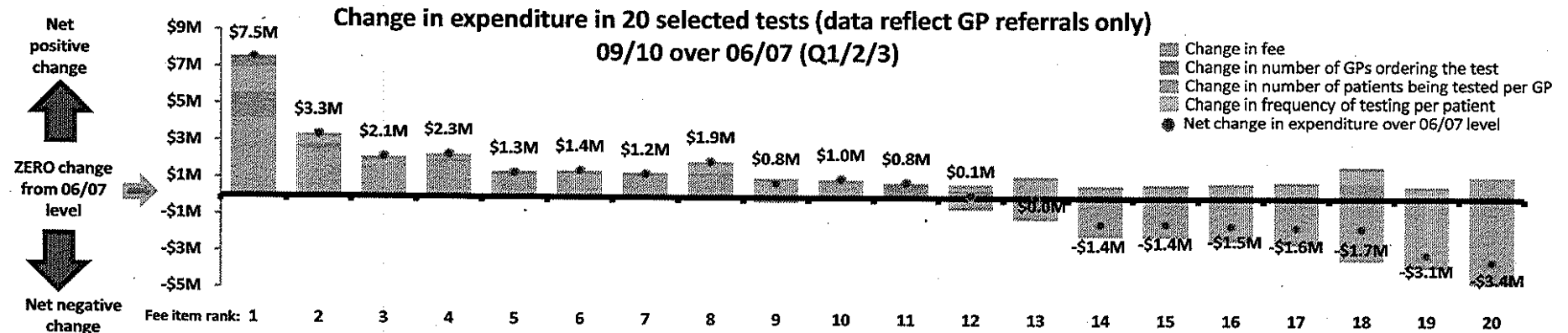
Quarterly  
Data

Price &  
Volume Δ

Aging  
Population

Lab Test  
Level

The lab test referrals made by GPs accounted for 75% (\$168M) of the total MSP lab expenditure. Almost two-thirds (\$109M) were for the 20 lab test fee items shown in the table below. The graph shows how much of the cost change from 06/07 level was attributed to (1) change in fee; (2) change in number of GPs ordering the test; (3) change in number of persons being tested per GP; and (4) change in frequency of testing per patient, at fee item level.



Ranked by price effect	Fee item	Total volumes	Total expenditure	Average fee per test	Notes	Check indicates variable(s) for which fee item ranked amongst the top 10 with the greatest increase in expenditure attributable to that variable			
						Change in fee	Change in # of GPs ordering the test	Change in # of patients tested per GP	Change in frequency of testing per outpatient
1	91000 - PRIMARY BASE FEE	1.8M	24.4M	\$13.85	LVD	✓	✓	✓	✓
2	90790 - URINE COLONY COUNT CULTURE	0.3M	6.7M	\$19.39		✓			
3	90740 - STAINED SMEAR	0.2M	3.2M	\$16.56		✓			
4	92390 - URINALYSIS, MACROSCOPIC	0.6M	4.3M	\$7.35		✓			
5	90810 - STOOL EXAMINATION - AMOEBAE	0.0M	2.1M	\$46.51		✓			
6	90465 - BLOOD FILM REVIEW	0.1M	2.2M	\$17.83		✓			
7	90800 - STOOL EXAMINATION - CONCENTRATION METHOD	0.0M	2.1M	\$46.51		✓			
8	92005 - OCCULT BLOOD-FAECES	0.4M	3.0M	\$7.20		✓			
9	90775 - THROAT OR NOSE CULTURE	0.2M	2.7M	\$18.01		✓			
10	90515 - SEDIMENTATION RATE	0.1M	1.2M	\$10.52		✓			
11	92460 - VITAMIN D (25 HYDROXY-CHOLECALCIFEROL)	0.0M	1.4M	\$93.63			✓		
12	90440 - PROTHROMBIN TIME/INR	0.7M	7.9M	\$11.03	LVD		✓		
13	91745 - HAEMOGLOBIN, A1C	0.4M	4.8M	\$10.74	LVD, GP incentive		✓	✓	
14	91375 - CHOLESTEROL, TOTAL	0.8M	5.1M	\$6.14	LVD, GP incentive		✓	✓	✓
15	92350 - TRIGLYCERIDES, SERUM/PLASMA	0.8M	4.7M	\$5.83	LVD, GP incentive		✓	✓	✓
16	91780 - HDL CHOLESTEROL	0.8M	5.6M	\$6.96	LVD, GP incentive		✓	✓	✓
17	91985 - MICRO ALBUMIN	0.3M	2.7M	\$8.19	GP incentive			✓	✓
18	90205 - HAEMATOLOGY PROFILE	1.4M	14.0M	\$9.85	LVD, GP incentive		✓	✓	✓
19	91645 - FERRITIN, SERUM	0.3M	2.6M	\$8.39	LVD			✓	✓
20	92325 - THYROID STIMULATING HORMONE, TSH	0.9M	7.7M	\$8.71	LVD		✓	✓	✓
Total		10.4M	\$108.8M	\$10.48					



Summary

Quarterly  
DataPrice &  
Volume ΔAging  
PopulationLab Test  
Level

**Q1/2/3 volume and expenditure for new tests and tests with the highest growth in volumes (minimum volume = 1,000 tests).**

Q1/2/3 data	Lab test volume				% change over 08/09	MSP Fee	FY09/10 expense	Comments
	FY06/07	FY07/08	FY08/09	FY09/10				
90046 - BETA 2 GLYCOPROTEIN I (B2GPI) ANTIBODY SCREEN	--	--	--	1,282	--	\$40.03	\$51,318	
90047 - BETA 2 GLYCOPROTEIN I ANTIBODIES IGG/IGM ISOTYPE	--	--	--	96	--	\$67.05	\$6,437	
91925 - LIGHT CHAINS, FREE KAPPA AND LAMBDA	--	--	199	2,100	955%	\$44.89	\$94,269	Uptake of new test
90784 - TRICHOMONAS ANTIGEN TEST	--	--	1,244	8,578	590%	\$18.58	\$159,379	Uptake of new test
91761 - HELICOBACTER PYLORI STOOL ANTIGEN (HPSA)	--	--	382	1,356	225%	\$35.31	\$47,880	Uptake of new test
91275 - B-TYPE NATRIURETIC PEPTIDE (BNP OR NT-PROBNP)	--	830	8,612	11,064	29%	\$47.10	\$521,114	Jupiter study effect
90068 - CYCLIC CITRULLINATED PEPTIDE ANTIBODIES	--	148	4,144	4,909	19%	\$29.21	\$143,392	Utilization levelling off
<b>Total expenditures for new tests</b>							<b>\$1.0M</b>	
90090 - EOSINOPHIL COUNT	52	72	51	4,845	9400%	\$10.53	\$51,018	Possible coding error?
92538 - OXYCODONE	9	561	1,633	5,303	225%	\$69.99	\$371,157	New choice for drug abuse
92230 - SODIUM, RANDOM URINE	688	807	991	2,157	118%	\$2.70	\$5,824	Utilization pattern unclear
90225 - HAEMOGLOBIN-CYANMETHAEMOGLOBIN	831	907	947	1,791	89%	\$3.19	\$5,713	?
90685 - HEPATITIS A - IGM ANTIBODY (ANTI-HAV-IGM)	4,318	4,714	4,921	8,783	79%	\$18.25	\$160,290	Transfer from CBS?
92550 - URINE, DRUGS OF ABUSE SCREEN - PER ANALYTE	3,565	5,677	8,035	12,988	62%	\$6.89	\$89,487	Increased drug testing
91300 - C- REACTIVE PROTEIN	79,237	96,802	125,337	180,692	44%	\$7.19	\$1,299,175	Guideline error of omission?
92460 - VITAMIN D (25 HYDROXY-CHOLECALCIFEROL)	5,512	8,011	15,491	20,284	31%	\$93.63	\$1,899,191	Inappropriate?
91719 - GLUCOSE - 2 HR, POST-75G	8,072	7,957	12,467	16,296	31%	\$15.83 higher than 91715 @ \$11.31	\$257,966	Discrepant coding issue?
91855 - INSULIN, FIRST SPECIMEN	2,291	2,734	3,757	4,877	30%	\$27.30	\$133,142	Emerging specialty clinic effect?
91930 - LIPASE	13,516	20,405	23,985	30,841	29%	\$9.10	\$280,653	?
92266 - TESTOSTERONE TOTAL	24,511	27,651	28,594	36,304	27%	\$15.67	\$568,884	BCALP clarifying indications
91162 - ANTI-TISSUE TRANSGLUTAMINASE ANTIBODIES (ANTI-TTG)	16,870	23,197	27,850	35,042	26%	\$23.96	\$839,606	?
91460 - DEHYDROEPIANDROSTERONE, SERUM (DHEA)	8,318	9,964	10,859	13,425	24%	\$18.38	\$246,752	Increased fertility testing
92130 - PROGESTERONE, SERUM/PLASMA	16,609	17,523	18,976	23,311	23%	\$14.73	\$343,371	Delayed childbearing effect?
92311 - T3 - FREE	18,607	23,526	28,976	35,355	22%	\$7.00	\$247,485	Some testing outside guidelines?
91610 - ESTRADIOL	27,465	29,342	31,403	38,080	21%	\$18.20	\$693,056	Delayed childbearing effect?
91935 - LIPOPROTEIN(A)	1,292	1,323	1,226	1,471	20%	\$29.34	\$43,159	?
90830 - VIRUS ISOLATION	11,197	14,240	20,335	24,216	19%	\$46.88	\$1,135,246	Molecular testing for viruses
<b>Total expenditure due to tests with highest volume growth</b>							<b>\$8.7M</b>	



Top 5 tests in each Health Authority with utilization patterns most discrepant from the Provincial pattern - ranked by the highest proportion of BC test volume performed in the region. The total expenditure on these 19 tests was \$2.3M.

Interior 16% of BC popl'n	% of BC volume  Regional test volumes	Fraser 35% of BC popl'n	% of BC volume  Regional test volumes	Vancouver Coastal 24% of BC popl'n	% of BC volume  Regional test volumes	Vancouver Island 16% of BC popl'n	% of BC volume  Regional test volumes	Northern 6% of BC popl'n	% of BC volume  Regional test volumes
90090 - EOSINOPHIL COUNT Less than 100/year to nearly 5,000 tests in Q3 2009/10. Co-billing with haematology profile. +\$50K billing error?	<b>97.70%</b> 4,735 @ \$10.53 = \$50K	91600 - ELECTROPHORESIS, PROTEIN, QUALITATIVE Basis for regional disparity? What is being done elsewhere?	<b>95.10%</b> 1,980 @ \$26.30 = \$52K	90815 - SEROLOGICAL TESTS - 1-3 ANTIGENS Role for harmonization of methods? (See 90830 below)	<b>72.80%</b> 1,854 @ \$36.50 = \$68K	91761 - HELICOBACTER PYLORI STOOL ANTIGEN (HPSA) Basis for regional disparity?	<b>97.10%</b> 1,316 @ \$35.31 = \$46K	92512 - PHENOXYCLIDINE (PCP) Regional drug abuse population preference?	<b>89.60%</b> 2,109 @ \$3.47 = \$7.3K
93090 - CYTOLOGIC INTERPRETATION OF PRE- SCREENED CYTOLOGY Rationale for discrepant utilization of pre-screening? (See: 93093 - Vancouver Island)	<b>72.80%</b> 3,656 @ \$64.94 = \$237K	90655 - CLOSTRIDIUM DIFFICILE TOXIN - TISSUE CULTURE METHOD Rationale for use of culture vs. immunological (\$16.49) detection?	<b>83.50%</b> 3,311 @ \$17.93 = \$59K	92103 - POTASSIUM, WHOLE BLOOD	<b>70.70%</b> 1,870 @ \$1.03 + PBF (\$12.02) = \$24K	91900 - LACTATE DEHYDROGENASE, CSF Basis for regional disparity?	<b>96.30%</b> 1,340 @ \$1.05 + PBF (\$2.22) = \$4.4K	92513 - METHADONE Obsolete billing rule: Not billable if lab has capability of performing methadone metabolite test - the cost per methadone metabolite is \$6.74 double the fee of 92513.	<b>75.70%</b> 2,114 @ \$3.47 = \$7.3K
90784 - TRICHOMONAS ANTIGEN TEST Skewed utilization of antigen test 90784 @ \$18.58 vs. direct examination 90785 @ \$11.52	<b>41.90%</b> 3,596 @ \$18.58 = \$67K	92165 - QUANTITATIVE HCE (INTACT) See 92130 - Interior	<b>75.60%</b> 1,816 @ \$24.95 = \$38K	92550 - URINE, DRUGS OF ABUSE SCREEN - PER ANALYTE payable when laboratories performing tests on <1000 patients per year (max of 6 per patient per day)	<b>70.40%</b> 9,148 @ \$6.92 = \$63K	93095 - CYTOLOGIC INTERPRETATION - UNSCREENED CYTOLOGY Rationale for no pre- screening?	<b>76.30%</b> 3,065 @ \$84.74 = \$260K	91356 - CELL COUNT - FILM/DIFFERENTIAL Basis for regional disparity?	<b>58.50%</b> 4,604 @ \$11.65 = \$54K
91930 - LIPASE Reason for regional disparity?	<b>38.00%</b> 11,721 @ \$9.10 = \$107K	91715 - GLUCOSE TOLERANCE TEST, 2 - 5 HOURS Billing rule / guideline clarification?	<b>63.60%</b> 13,888 @ \$11.25 = \$156K	90830 - VIRUS ISOLATION Correct fee code for molecular tests?	<b>51.20%</b> 12,388 @ \$46.88 = \$581K	90755 - STREPTOCOCCAL ENZYME SLIDE TEST Basis for regional disparity?	<b>64.00%</b> 2,653 @ \$12.41 = \$33K	92382 - URINALYSIS, SCREENING AND MICROSCOPIC Potential ambiguity in urinalysis billing codes?	<b>51.40%</b> 1,528 @ \$5.58 = \$8.5K
92110 - PREGNANCY TEST - SERUM Need for harmonization of pregnancy testing? (See 92165 - Fraser)	<b>36.20%</b> 4,663 @ \$14.61 = \$68K	91650 - FIBRINOGEN, QUANTITATIVE, CHEMICAL How is this test done elsewhere?	<b>61.10%</b> 1,894 @ \$28.42 = \$54K	92345 - TRANSFERRIN	<b>46.80%</b> 6,669 @ \$19.76 = \$132K	90741 - GENITAL CULTURE - OTHER SITE 1600 GC/CT NAAT co-billed with 90741 - \$40K Inappropriate billing?	<b>52.60%</b> 6,815 @ \$25.05 = \$171K		

## Further assessment of selected fee items

Summary

Quarterly  
Data

Price &  
Volume Δ

Aging  
Population

Lab Test  
Level

1

### Urinalysis billing issue

	MSP Fee	Interior	Fraser	Vancouver Coastal	Vancouver Island	Northern	Grand Total
92390 - URINALYSIS, MACROSCOPIC	\$7.35	16%	34%	26%	19%	5%	696K
92385 - URINALYSIS - OR ANY PART OF (SCREENING)	\$2.03	8%	3%	37%	32%	21%	28K
92395 - URINALYSIS, MICROSCOPIC	\$7.10	13%	41%	25%	17%	5%	280K
92391 - URINALYSIS-MICROSCOPIC EXAM OF CENTRIFUGED DEPOSIT	\$4.15	1%	3%	47%	44%	5%	6K
92382 - URINALYSIS, SCREENING AND MICROSCOPIC	\$5.58	33%	1%	14%	0%	52%	3K

#### 92390 versus 92385

92385 – Urinalysis – or any part of (screening) is paid at \$2.03 per test, while 92390 – Urinalysis, macroscopic is paid at \$7.35 per test. The pattern of utilization of these two fee items varies significantly amongst the five BC regions. In Fraser and Interior regions, 92385 is rarely used (3% and 8% of the total BC test volumes).

2

### Glucose, serum billing issue

	MSP Fee	Interior	Fraser	Vancouver Coastal	Vancouver Island	Northern	Grand Total
91707 - GLUCOSE, QUANTITATIVE SERUM/PLASMA	\$6.23 (PBF adjusted)	16%	36%	25%	18%	6%	1.2M
91690 - GLUCOSE, GESTATIONAL ASSESSMENT	\$10.36	15%	42%	22%	12%	8%	25K
91715 - GLUCOSE TOLERANCE TEST, 2 - 5 HOURS	\$11.25	5%	64%	14%	10%	7%	22K
91719 - GLUCOSE - 2 HR, POST-75G	\$15.83	16%	14%	35%	30%	3%	16K

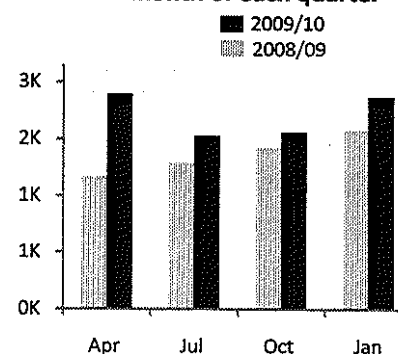
The ambiguity of using the glucose billing codes has been previously noted.

3

Month	# of ordering physicians		# of vitamin D tests (92460)		# of vitamin D tests per ordering physician	
	08/09	09/10	08/09	09/10	08/09	09/10
Apr	523	735	1,636	2,650	3.1	3.6
Jul	592	710	1,801	2,136	3.0	3.0
Oct	617	749	1,996	2,183	3.2	2.9
Jan	688	889	2,214	2,621	3.2	2.9

Population screening for vitamin D continues.

#### 92460 Vitamin D Test volume 1<sup>st</sup> month of each quarter



The number of monthly vitamin D tests ordered per physician fell from an average of 3.6 (Apr 2009) to 2.9. However, 400+ more physicians ordered vitamin D in Jan 2010 than the same month last year.

In Q1/2/3 of 09/10 the number of ordering physicians increased to 2,552 from 2,058 in 08/09, and 850 in 06/07.



**Collaborative Laboratory Expenditure Management Committee  
(CLEMC)  
12:30 – 2:00 pm  
Thursday, July 8, 2010**

**By Teleconference:** S15 **conference ID:** S15

**Agenda**

1. Lab Expenditure
  - Review of MSP Billing and Utilization Report – Fiscal Year 2009/10 .

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# **MSP outpatient laboratory expenditure report for FY 2009/10**

## **Annual volumes and expenditures**

Including trend analysis over the period 2006/07 to 09/10 – the full-term of the Renewed Lab Agreement

**Prepared for: Collaborative Laboratory Expenditure Management Committee**

**Meeting of July 8<sup>th</sup>, 2010**

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*Ministry of Health Services*

June 30<sup>th</sup>, 2010  
*Laboratory Services Office  
Health System Planning Division  
Medical Services Branch*





**2009/10 annual expenditure total = \$304M**  
**(1.6% under revised target)**

Summary

## Overview

### 2009/10 expenditure:

MSP payment for outpatient lab services was \$304M, paid through May 15<sup>th</sup> 2010. This is 1.6% below the revised lab agreement target of \$309M and 12% above the 2006/07 expenditure (\$272.6M, paid through May 15<sup>th</sup> 2007). (3.7% 3-yr Compound Annual Growth Rate.)

### Expenditure target revision (new):

Incorrect billings for GC NAAT in 2006/07 resulted in an inflated target. This has now been corrected and accounted for. The revised 2009/10 target expenditure is \$309.0M.

### Volume:

39.1M tests were billed to MSP in 2009/10. (6.4% 3-yr CAGR or 21% over 06/07 level).

### Per capita data:

8.78 tests were billed per BC resident in 2009/10, at an average cost of \$7.77 per test. The annual outpatient lab service expenditure was \$68.23 per capita (2.3% 3-yr CAGR or 7.1% over 06/07 level). (Note: 49% of the BC population received a lab test in 2009/10 and thus the annual lab test expenditure per tested patient was \$138.49 for 17.82 tests (compared to \$132.77 for 15.08 tests in 06/07).

### Volume discounting effect - by lab subsection:

Of the \$304M expenditure for outpatient lab tests, \$185M (31M tests) was spent on testing in chemistry, \$59M (4.9M tests) in haematology, \$53M (3.2M tests) in microbiology, and the remaining \$7M (127K tests) in other areas (see table).

Despite the significant increase in lab test volume, expenditure on discounted tests (Appendix C tests) was 1.4% lower in 2009/10 than in 2006/07. However, for those fee items not subject to volume discounting, expenditure in 2009/10 was 37.6% higher than in 2006/07.

### 2009/10 targets and actual expenditures - paid through May 15<sup>th</sup> 2010

Summary	2009/10 full-year	1 <sup>st</sup> qtr 2010/11
Target set in 2007 renewed laboratory agreement	\$300.3M	<b>The look ahead</b> A projected 10.87M tests will be done Q1 of 2010/11, at an average cost of \$7.63 per test, resulting in a total cost to MSP of \$83M.  Based on the Q1 utilization, the annual expenditure for 2010/11 is projected to be \$326.2M (+7.3% over 09/10).
Revised target after micro-allocation payments	\$312.6M	
Further revised target due to GC NAAT billing correction	\$309.0M	
Actual Expenditure (paid through May 15 <sup>th</sup> 2010)	\$304.0M	
+/- % deviated from revised target	-1.6%	
Test Volume	39.1M	
Cost per test	\$7.77	
# of tests per capita (PBFs are counted as 'lab tests')	8.78	
MSP FFS lab test expenditure per capita	\$68.23	

Target s vs. actual expenditure over the 3-yr agreement term	2007/08	2008/09	2009/10
Actual expenditures vs. targets (in \$ millions)	\$271.8 vs. \$272.4	\$290.5 vs. \$291.3	\$304.0 vs. \$309.0
Deviation from the annual target	-0.22%	-0.27%	-1.6%

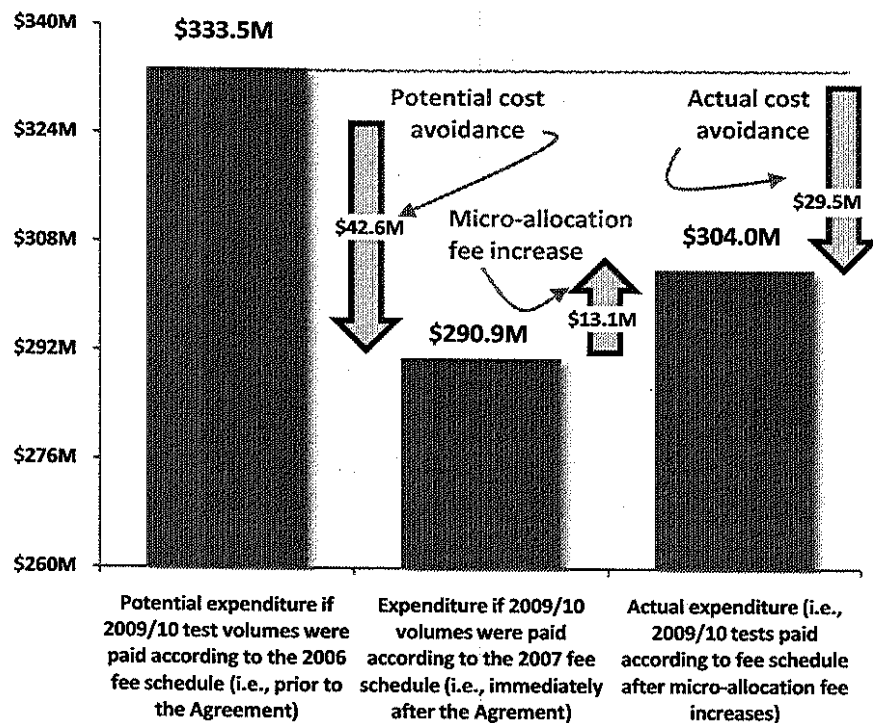
Breakdown of expenditure - by lab subsection	Expenditure (% change, 2009/10 over 2006/07)		
	Total	LVD tests	Non-LVD tests
Chemistry	\$185.2M (+9.5%)	\$130.8M (+0.3%)	\$54.4M (+40.7%)
Haematology	\$58.8M (+6.2%)	\$41.6M (-5.3%)	\$17.1M (+50.9%)
Microbiology	\$53.3M (+26.8%)	\$7.78M (-6.0%)	\$45.5M (+34.9%)
Cytogenetics	\$3.48M (-3.4%)		\$3.48M (-3.4%)
Anatomical Pathology	\$2.68M (+16.7%)		\$2.68M (+16.7%)
Pre-analytical (no tests done at the same facility)	\$0.62M (+83.3%)		\$0.62M (+83.3%)
<b>Total expenditure</b>	<b>\$304M (+11.5%)</b>	<b>\$180.2M (-1.4%)</b>	<b>\$123.8M (+37.6%)</b>
<b>Total volume</b>	<b>39.1M (+20.6%)</b>	<b>30.6M (+20.6%)</b>	<b>8.5M (+20.4%)</b>

## Overview of a potential \$29.5M cost avoidance under the term of the Renewed Lab Agreement and of the major drivers of the overall \$31M annual expenditure increase

### \$29.5M avoided costs under the Renewed Lab Agreement

In 2009/10, the total annual avoided costs due to price cuts and volume discounts in the 2007 Renewed Lab Agreement was \$42.6M prior to micro-allocation fee increases, and \$29.5M after their inclusion. Cost avoidance is derived from the actual costs and the potential expenditure based on what would have been paid for the 09/10 test volumes (by fee item) under the fee structure in existence prior to the 2007 Agreement.

**2009/10 lab expenditure overview showing drivers of potential cost avoidance**



### \$31M annual expenditure increase over the course of the Agreement

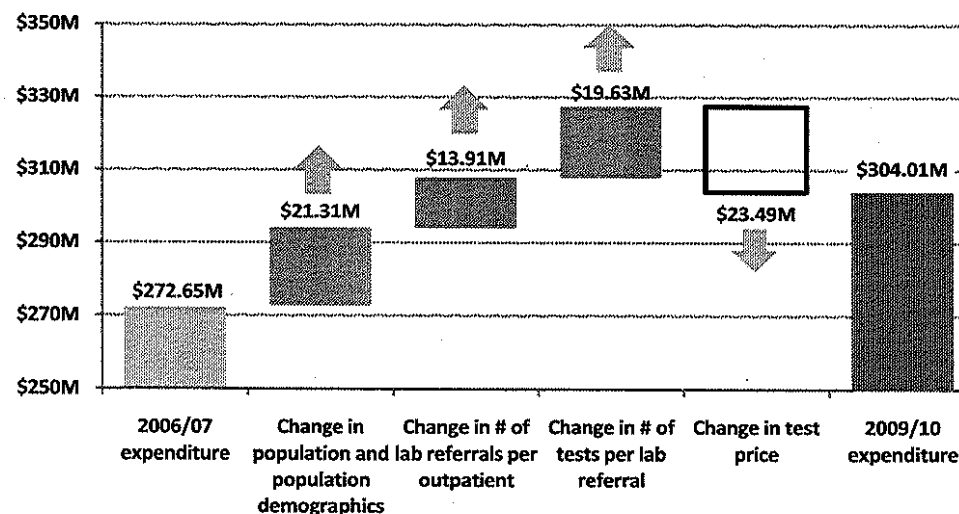
In 2009/10, 2.2M persons (49.3% of BC's population) received outpatient laboratory tests. On average, each tested outpatient was referred for lab testing 3.63 times and had 4.9 tests per lab referral, resulting in a total of 39.1M tests. The average fee paid was \$7.77 per test. The total MSP expenditure was \$304M.

Overall, expenditure in 2009/10 was \$31M higher than in 2006/07.

Three variables increased costs by \$54.9M - the impact of population growth and demographics (accounting for 39% of the increase), the increase in number of lab referrals per outpatient (25%), and the increase in the number of tests per lab referral (36%). (See page 5 for further analysis.)

The net effect of LVD and changes in the fee schedule was a \$23.5M decrease in total expenditures, offsetting the above \$54.9M increased costs by 43%.

**Distribution of the net expenditure increase of \$31M in 2009/10 over 06/07**





**Volume and expenditure by quarter and  
analysis of historical quarterly variation in test volumes**  
(See also Appendix 3)

**Lab test volume and expenditure – by quarter**

**Volume:** In 2009/10, 39.1M tests were billed, 1.3M more than in 08/09 and 6.7M more than prior to the agreement (in 2006/07).

In 2009/10, as in previous years, Q4 test volume was the highest amongst all quarterly reporting periods in the fiscal year (10.3M tests) and, as is the case for Q3, 2009/10 volume was greater than that of the same quarter last year.

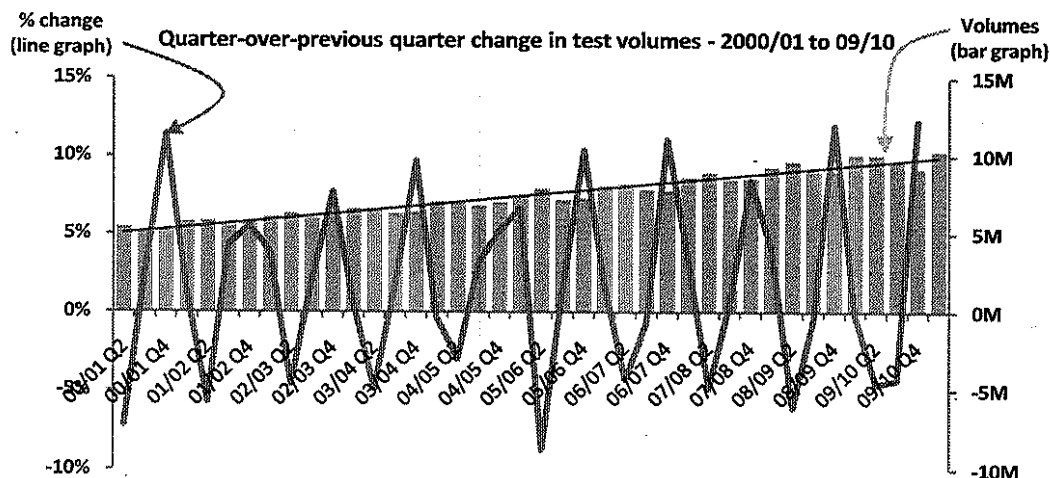
**Expenditure:** In 2009/10, \$304M was spent on outpatient laboratory testing, \$13.5M more than in 2008/09 and \$31.4M more than in 2006/07.

In the first two quarters of 2009/10, MSP expenditures were \$77.8M and \$74.6M, respectively; \$4M and \$4.5M over the corresponding 2008/09 expenditures.

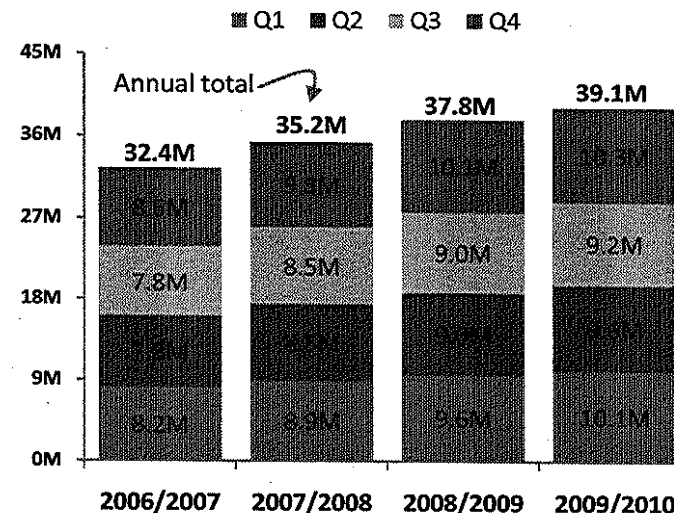
In the last two quarters of 2009/10, expenditures were \$71.7M and \$79.9M, respectively; \$2.4M and \$2.7M over the corresponding 2008/09 expenditures.

**Quarter-over-previous-quarter volume growth**

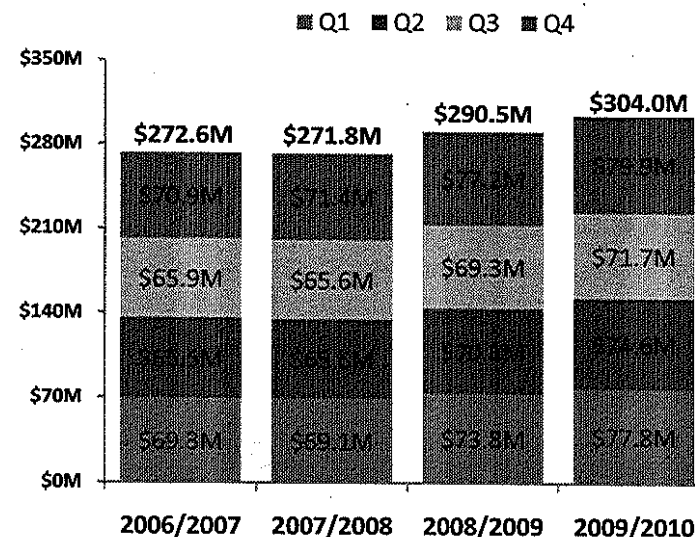
In 2009/10, 9.8M tests were done per quarter, on average, compared to 5.3M tests/Q a decade ago. The lab test ordering pattern exhibits an upward trend and a strong seasonal pattern. Test volumes billed in Jan to Jun (Q1 and Q4) are larger than those of the other two quarters (Q2 and Q3).



**Quarterly lab test volumes - 2006/07 to 09/10**



**Quarterly lab test expenditures - 2006/07 to 09/10**



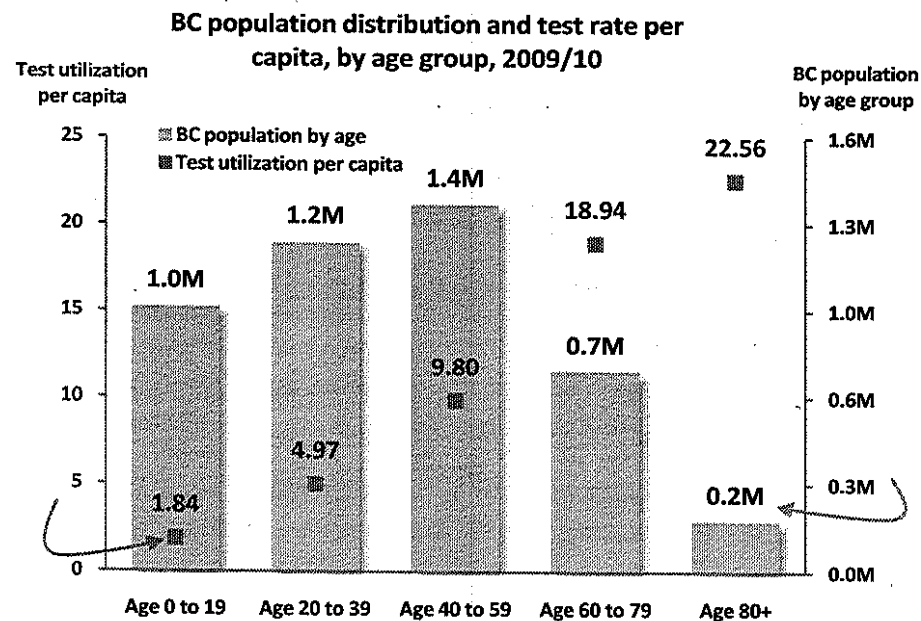
## Impact on expenditure of; population change, test utilization per capita change, and price change - by age group

### Test utilization drivers - BC population demographic factors and the exponential increase in test utilization with patient age (See also Appendix 3)

In 2009/10, 1.4M persons (31% of the total population) were aged 40-59 and, on average, received 9.8 tests per capita (or 17.90 tests per tested outpatient, compared to 16.10 tests per tested outpatient in 2006/07).

0.7M persons (16% of the total population) were aged 60-79 and, on average, received 18.94 tests per capita (or 24.58 tests per tested outpatient, compared to 22.34 tests per tested outpatient in 2006/07).

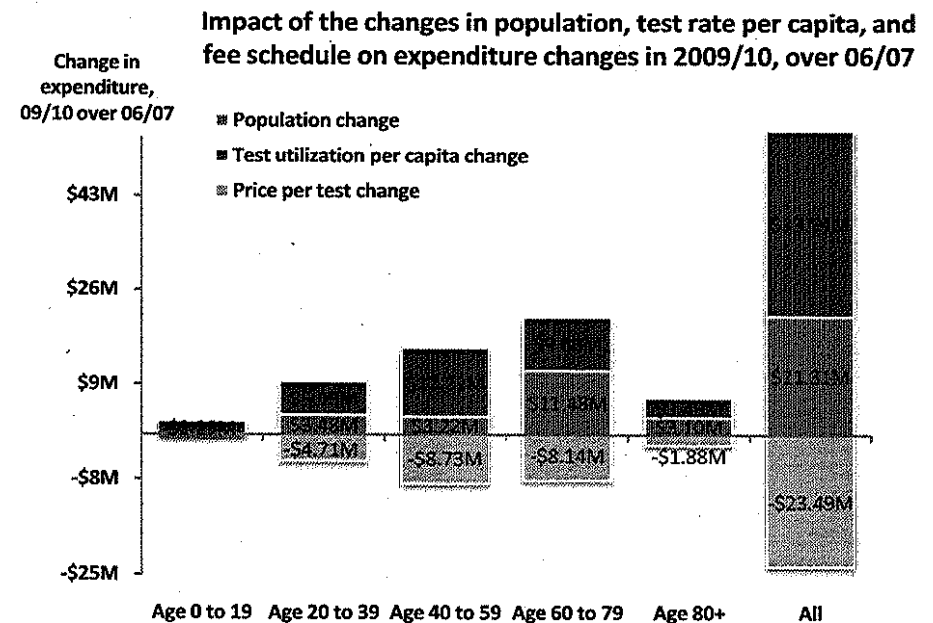
- Note: Presently, the 40-59 age group is 100% larger than the 60-79 age group, and the latter utilize 100% more lab tests per capita than the former.



### Expenditure drivers - population change, test utilization per capita change, and price per test change - in 2009/10 over 06/07

The \$31M additional annual expenditure in 2009/10 (over 06/07) is the net of +\$33.5M attributable to population growth, +\$21.3M to increased test utilization, and -\$23.5M derived from fee reductions.

- The most significant impact of population growth was in expenditures in the 60-79-yr age group. This accounted for \$11.48M or 54% of overall increase due to population growth.
- The largest impact of increased test utilization per capita was in the 40-59-yr age group. This accounted for \$12.22M or 36% of the overall increase in expenditure due to increased testing per capita.
- The largest cost-reducing effect of the LVD and fee schedule changes was also in the 40-59-yr group. This accounted for \$8.73M or 37% of the overall decrease in expenditure due to price/test changes.



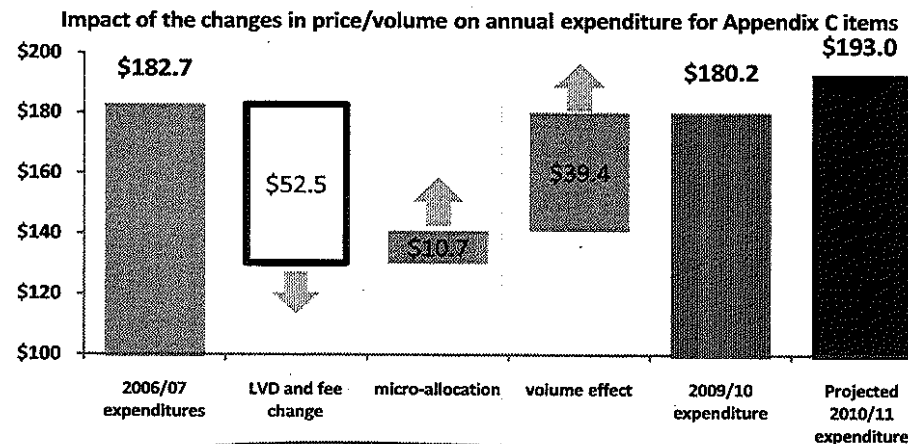


## Impact on expenditure of the 2007 lab agreement and micro-allocation fee increases for Appendix C (LVD) fee items

Under the LVD model, 44 chemistry tests, 7 haematology tests, and 4 microbiology tests were subjected to volume discounting.

In 2009/10, expenditure for LVD fee items alone was \$180.2M, compared to \$182.7M in 2006/07. The breakdown by section is shown below, along with effects of fee item price and volume changes on overall expenditures.

Changes in expenditure - 2009/10 over 06/07						
Section	# of LVD fee items	Effect of LVD and initial fee change	Effect of micro-allocation fee change	Effect of volume change	Net change in expenditure	Total expenditure 09/10
Chemistry	24	-\$46.04M	+\$4.02M	+\$23.17M	-\$18.85M	\$66.34M
	20	+\$6.84M	+\$3.47M	+\$8.91M	+\$19.21M	\$64.48M
Haematology	7	-\$10.53M	+\$2.78M	+\$5.41M	-\$2.33M	\$41.63M
Microbiology	4	-\$2.79M	+\$0.41M	+\$1.89M	-\$0.50M	\$7.78M
<b>Total</b>	<b>55</b>	<b>-\$52.52M</b>	<b>+\$10.68M</b>	<b>+\$39.37M</b>	<b>-\$2.47M</b>	<b>\$180.23M</b>



**Projections:** In 2010/11, the MSP annualized expenditure for outpatient lab testing is projected to be \$326.2M based on the 2010/11 Q1 utilization. Currently, Apdx C (LVD) fee items comprise 59% of billings and, by extrapolation, the 2010/11 expenditure on them is likely to be about \$193M, \$10.3M above the 06/07 level. (Note: utilization of the year-3 threshold for LVD (94%) is partially accounting for the relatively large increase expected in 2010/11, compared to the \$2.5M decline observed during the 3-yr term of the Agreement.)

**Note:** Not all LVD tests were actually paid at lower net fees. For some tests there was a net increase in the fee paid under the 2007 agreement compared to that paid in 2006/07.

For example, 91000 the Primary Base Fee: In 2006, 91000 was paid at \$11.76. It was initially revised to \$14.89 under the Agreement and, after micro-allocation fee increases, it was further increased to \$15.48. While LVD reduced the average fee paid to \$13.93, this is still 18.5% above the \$11.76 paid in 2006/07.

20 of the 44 chemistry tests had similar net incremental increases in actual fee paid, as shown in the table below.

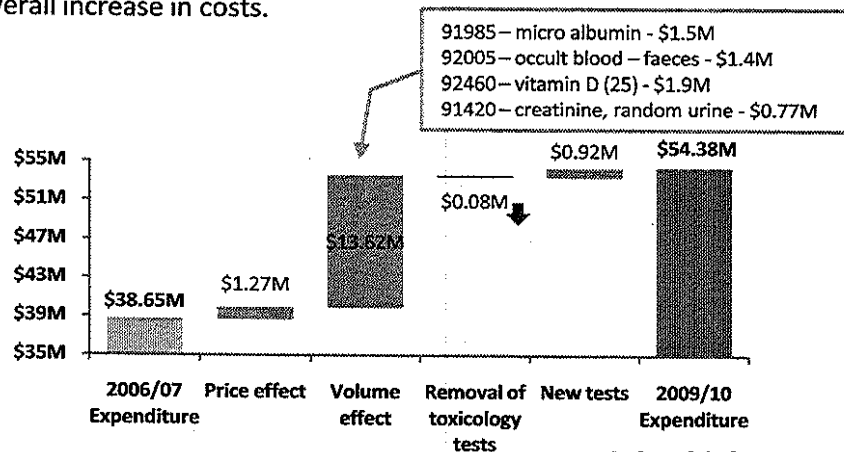
Lab test	Test volume	Test expenditure	Average 09/10 paid per test	2006 MSP fee
91000 - PRIMARY BASE FEE	3,191,413	\$44,466,653	\$13.93	\$11.10
91421 - CREATININE, SERUM/PLASMA	2,184,240	\$2,848,213	\$1.30	\$1.04
91707 - GLUCOSE, QUANTITATIVE SERUM/PLASMA	1,658,015	\$2,168,031	\$1.31	\$1.04
92100 - POTASSIUM, SERUM/PLASMA	1,576,506	\$1,885,779	\$1.20	\$1.04
92231 - SODIUM, SERUM/PLASMA	1,499,507	\$1,771,748	\$1.18	\$1.04
91065 - ALANINE AMINOTRANSFERASE	1,271,702	\$1,596,691	\$1.26	\$1.04
91210 - ASPARTATE AMINOTRANSFERASE	1,249,089	\$1,942,922	\$1.56	\$1.04
92368 - UREA, SERUM/PLASMA	1,139,504	\$1,608,893	\$1.41	\$1.04
91070 - ALKALINE PHOSPHATASE	647,140	\$916,047	\$1.42	\$1.04
91725 - GLUTAMYL TRANSPEPTIDASE (GTP)	614,881	\$891,979	\$1.45	\$1.04
91245 - BILIRUBIN TOTAL, SERUM/PLASMA	421,104	\$597,307	\$1.42	\$1.04
91415 - CREATINE KINASE	363,775	\$597,611	\$1.64	\$1.04
91040 - ALBUMIN, SERUM/PLASMA	362,956	\$484,626	\$1.34	\$1.04
91366 - CHLORIDE, SERUM/PLASMA	352,948	\$450,908	\$1.28	\$1.04
91326 - CALCIUM TOTAL, SERUM/PLASMA	347,158	\$457,122	\$1.32	\$1.04
91235 - BICARBONATE, SERUM/PLASMA	322,600	\$654,311	\$2.03	\$1.04
91901 - LACTATE DEHYDROGENASE, SERUM/PLASMA	238,397	\$362,937	\$1.52	\$1.04
92071 - PHOSPHATES, SERUM/PLASMA	233,970	\$327,552	\$1.40	\$1.04
92376 - URIC ACID, SERUM/PLASMA	200,016	\$306,015	\$1.53	\$1.04
92148 - PROTEIN TOTAL, SERUM OR PLASMA	100,691	\$140,668	\$1.40	\$1.04
<b>Grand Total</b>	<b>17,975,612</b>	<b>\$64,476,013</b>		

## Expenditures on non-Appendix C fee items and analysis of the impact of the 2007 lab Agreement and micro-allocation fee increases

Non-Appendix  
C(non-LVD)

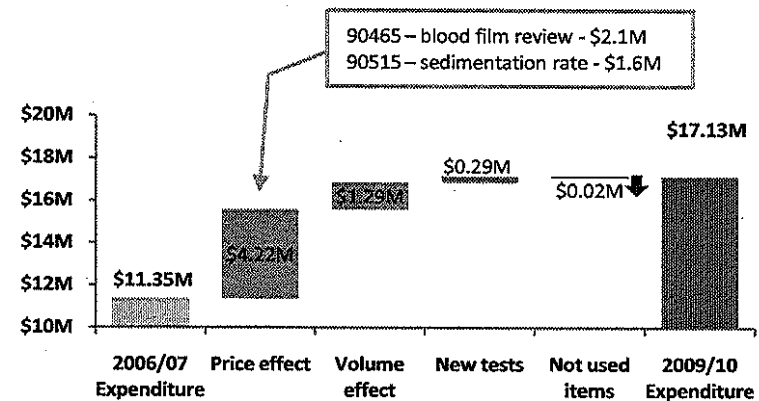
### Chemistry Section

In 2009/10, MSP paid \$54.4M for 4.8M non-Apdx C tests, compared to \$38.7M in 2006/07 for 3.7M tests (+\$15.7M). The major factor contributing to the increase in lab costs of non-LVD chemistry testing was the increase in test volumes, which accounted for 87% of the overall increase in costs.



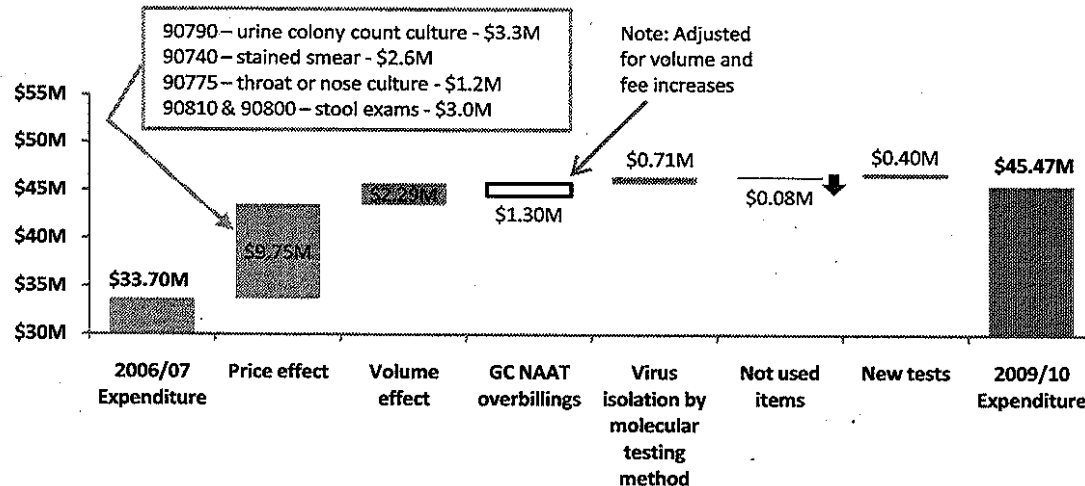
### Haematology Section

In 2009/10, MSP paid \$17.13M for 808K non-Apdx C tests, compared to \$11.35M in 2006/07 for 718K tests (+\$5.78M). The major factor contributing to the increase in lab costs of non-LVD haematology testing was the increase in price per test, which accounted for 73% of the overall increase in costs.



### Microbiology Section

In 2009/10, MSP paid \$45.47M for 2.8M non-Apdx C tests, compared to \$33.70M in 2006/07 for 2.5M tests (+\$11.8M). The major contributing factor to the increase in lab costs of non-LVD microbiology testing was the increase in price per test, which accounted for 83% of the overall increase in costs.



#### Expenditures on new non-Appendix C tests

91275 - B-TYPE NATRIURETIC PEPTIDE(BNP OR NT-PROBNP)	\$714,604
91925 - LIGHT CHAINS, FREE KAPPA AND LAMBDA	\$132,109
91761 - HELICOBACTER PYLORI STOOL ANTIGEN (HPSA)	\$72,350
90047 - BETA 2 GLYCOPROTEIN I ANTIBODIES IGG/IGM ISOTYPE	\$9,521
90046 - BETA 2 GLYCOPROTEIN I (B2GPI)ANTIBODY SCREEN	\$74,336
90068 - CYCLIC CITRULLINATED PEPTIDE ANTIBODIES	\$202,659
90784 - TRICHOMONAS ANTIGEN TEST	\$397,370
<b>Grand total</b>	<b>\$1,602,949</b>



## Report to CLEMC on provider responses to action items identified in Q3 report

## Appendix 1

Fee item	Provider response	Status (09/10 annual volume growth)	Total volumes billed in 2009/10	Q4 2009/10 volumes
90090 - EOSINOPHIL COUNT	<b>Acknowledged billing error</b> due to computer billing software issue. Programming corrected in Jan 2010	Issue resolved. <b>+ 7363% growth</b>	4,851	Utilization declined from 4,819 in Q3 to 5 tests in Q4
91600 - ELECTROPHORESIS, PROTEIN, QUALITATIVE	<b>Acknowledged using incorrect code</b> 91600 for electrophoresis instead of 91601	Remain the same in Q4 <b>+19% growth</b>	2,919	840
91650 - FIBRINOGEN, QUANTITATIVE, CHEMICAL	<b>Responded that the increase is due to the investigation of the pregnancy protocol</b> Raised the issue: is there a need to review test utilization criteria given regional disparity in pregnancy protocols?	<b>+31% growth</b>	4,214	1,107
90755 - STREPTOCOCCAL ENZYME SLIDE TEST	<b>Acknowledged use of wrong code</b> The correct code will be used (\$12.41 - 90755 vs. \$12.91 - 90760).	Remain the same in Q4 <b>14% decline in volume</b>	5,677	1,419
90741 - GENITAL CULTURE - OTHER SITE	<b>Responded that this fee item combination has been used for genital/urine samples in the absence of a 'definitive' code.</b> Lab director will check with tariff committee.	Remained the same in Q4 <b>+12% growth</b>	17,403	4,401
91900 - LACTATE DEHYDROGENASE, CSF	<b>Acknowledged use of wrong code</b> Specific lab notified to bill the correct code	Error fixed. <b>22% decline in volume</b>	1,403	Utilization declined from 450 tests in Q3 to 11 in Q4
93095 - CYTOLOGIC INTERPRETATION - UNSCREENED CYTOLOGY	<b>Acknowledged use of wrong code for many years</b> Will be corrected to bill 93090 - CYTOLOGIC INTERPRETATION OF PRE-SCREENED CYTOLOGY @ \$64.94 a test rather than \$84.74	Remained the same in Q4 <b>+10% growth</b>	6,584	1,774
91356 - CELL COUNT - FILM/DIFFERENTIAL	No response yet	<b>+44% growth</b>	11,271	3,396
92512 - PHENOXYCLIDINE (PCP)	No response yet	<b>5% decline in volume</b>	3,134	779



## Potential action items for provider follow-up arising from 2009/10 Q4 report

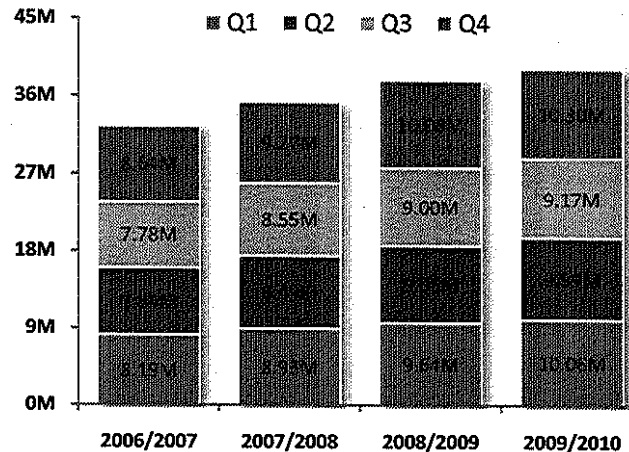
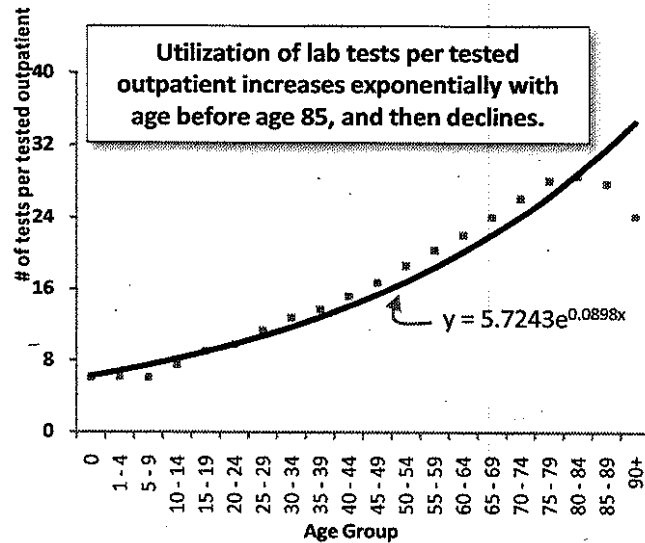
### Appendix 2

Fee Item	09/10 Annual volume	09/10 Annual volume growth	Average cost per test	Comments
91162 - ANTI-TISSUE TRANSGLUTAMINASE ANTIBODIES(ANTI-TTG)	48,904	+26.4%	\$23.96	Are there projections on annual utilization, given continued growth?
90640 - CANDIDA CULTURE	39,950	+22.7%	\$6.75	22.7% growth in 2009/10 compared to 4.1% a year prior.
91170 - APOLIPOPROTEIN B - 100	24,444	+16.8%	\$19.86	17% growth in 2009/10 compared to 9.6% a year prior.
91275 - B-TYPE NATRIURETIC PEPTIDE(BNP OR NT-PROBNP) New test since 2008	15,630	+27.7%	\$45.72	Uptake continues to grow. What is the anticipated volume of BNP tests?
91502 - CLOZAPINE	6,511	+65.3%	\$27.67	Declined to about half of the 2009/10 volumes in the last two years then reverted to 6.5K in 2009/10. Why?
90046 - BETA 2 GLYCOPROTEIN I(B2GPI)ANTIBODY SCREEN New test since 2009	1,857	+1138.0%	\$40.03	Is the uptake of this new test in line with expectations?
90055 - CIRCULATING INHIBITOR SCREEN - UNINCUBATED-SIMPLE	1,164	+456.9%	\$30.26	Less than 400 tests a year for the last three years. Why the increase?
91930 - LIPASE	42,902	+26.2%	\$9.10	Section to address. Update?
91300 - C - REACTIVE PROTEIN	249,017	+35.5%	\$7.18	Section to address. Update?
90515 - SEDIMENTATION RATE	254,020	+4.2%	\$10.52	Section to address. Update?
92538 - OXYCODONE	7,881	+211.7%	\$70.03	Section proposed a new test with a \$12 fee (vs. \$70).
92460 - VITAMIN D (25 HYDROXY-CHOLECALCIFEROL)	28,327	+24.5%	\$93.63	Section proposed a new \$61.50 fee (vs. \$93.63) .
92266 - TESTOSTERONE TOTAL	49,528	+20.7%	\$15.67	Section proposed testing guidelines including a new fee item application for SHBG.
92265 - TESTOSTERONE FREE	16,792	+4.3%	\$41.29	
90830 - VIRUS ISOLATION	32,738	+17.0%	\$46.88	Microbiology is preparing a fee item proposal for molecular genetic based testing in microbiology. Update?
90815 - SEROLOGICAL TESTS - 1-3 ANTIGENS	3,439	-11.6%	\$36.50	



## Statistical analysis of variation in monthly lab test volumes from April 2001 to March 2010

### Appendix 3



Quarterly volume variation in 2009/10, the final year of the agreement

Despite a postulated Winter Olympics effect on test volumes in Q4 2009/10, Q4 test volumes remained the highest amongst the four quarters (10.3M tests).

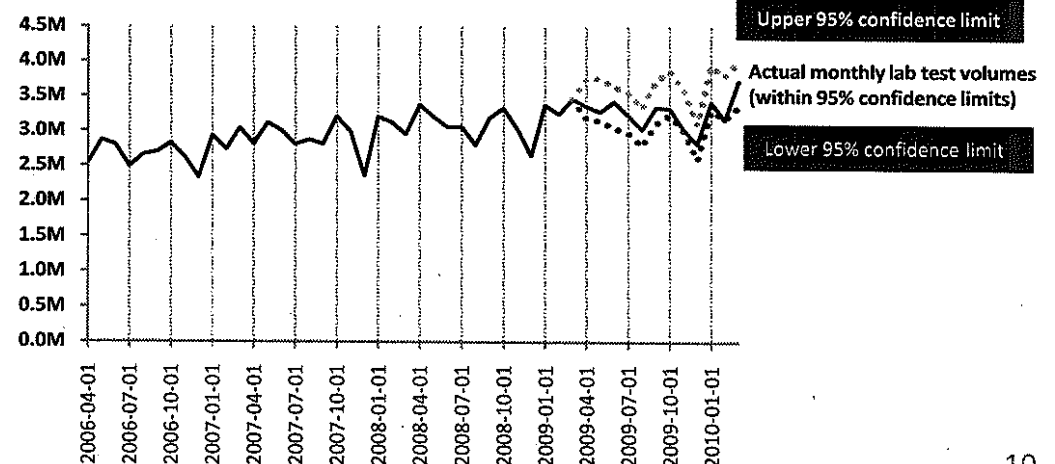
Despite the H1N1 concern in Q3 2009/10, Q3 volume was greater than in the same quarter last year.

### Statistical analysis of test volume variance using an Autoregressive Integrated Moving Average Model

- The autocorrelation of the data series represented by the monthly lab test volumes dies out slowly, indicating that the process is non-stationary.
- A log transformation of the monthly lab test volumes is used to address exponential growth of test volumes over the last decade, as well as for the purpose of stabilizing the variability.
- A 2-span difference, that is the current period test volumes minus test volumes from two periods ago, was created. The series analyzed is the difference between the current period-to-period change in test volumes and the change 12 periods ago. This is valid because test utilization had both a trend over time and a seasonal pattern.
- The autocorrelation functions have the pattern characteristic of a first-order moving average process combined with a seasonal moving average process with lag 12.

The bottom line is that test volumes during Nov 2009 to Feb 2010 is within the lower 95% confidence limit.

The upper and lower 95% confidence limits for the most recent 4 quarters are projected based on the historical data from Apr 2001 to Mar 2009





# **MSP Fee-for-Service Outpatient Laboratory Services and Expenditures**

## **2010/11 Q3 Report**

**Prepared for**

**Collaborative Utilization and System Improvement Committee**

**Revised Draft**

*Prepared by: Ministry of Health, Lab Office  
May 2<sup>nd</sup>, 2011*

## Overview ( Q3, year-to-date, and FY projections)

In **Q3 2010/11**, 9.5M outpatient laboratory tests were billed (+ 3.9% over same quarter last year) at a cost of \$70.4M (-1.3%).

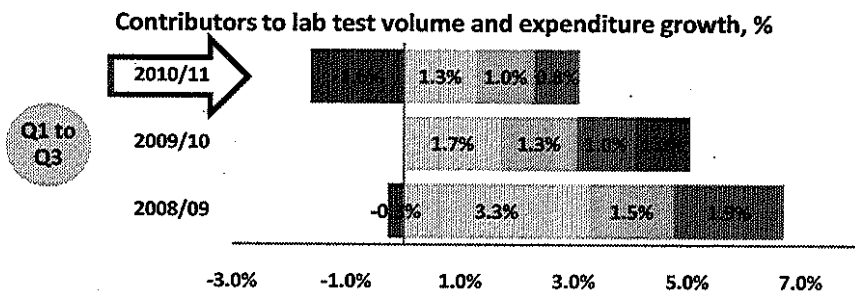
- Total expenditure for Q1 to Q3 2010/11 was \$226.8M for 29.7M tests.
- Total 2010/11 annual expenditure is projected to be \$304.8M (0.4% below target) for 40.2M tests.
- The proportion of tests paid under volume discounting (i.e., at 50%) increased from 17% in 2009/10 to 24% this year, and is projected to be 21% in 2011/12.

### 2010/11 utilization and growth rate measures (Q1/2/3):

- 1.91M unique patients utilized outpatient lab tests.
- On average, each tested outpatient had 3.16 sample collections, 4.91 tests per collection, and each test cost \$7.64.

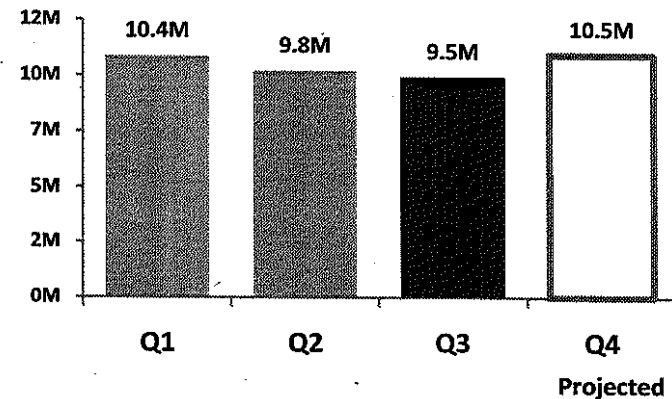
#### Growth

- The volume of lab tests increased by 3.1% over the same period last year. Of this, outpatient population increase accounted for 1.3%, growth in # sample collections/patient for 1.0%, and growth in # tests/collection for 0.8% .
- The cost/test was 1.6% lower than last year and, therefore, the overall expenditure growth was 1.5%. (Volume ↑3.1%, cost↓1.6%.)

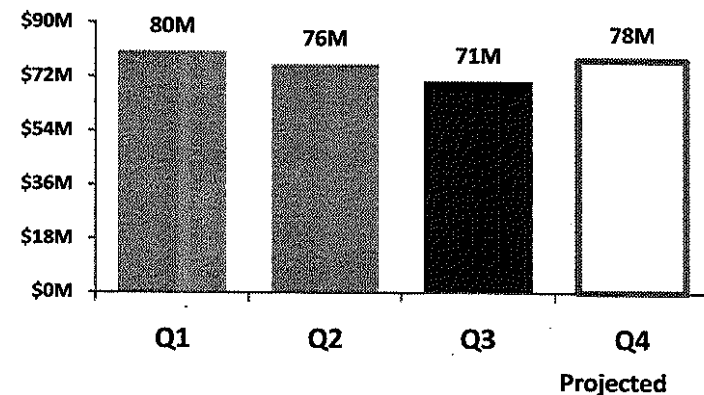


Growth Drivers	2008/09	2009/10	2010/11
■ Tested outpatients	3.3%	1.7%	1.3%
■ # collections/patient	1.5%	1.3%	1.0%
■ # tests/collection	1.9%	1.0%	0.8%
■ Cost/test	-0.3%	1.0%	-1.6%
<b>Expenditure growth</b>	<b>6.4%</b>	<b>5.0%</b>	<b>1.5%</b>

2010/11 outpatient laboratory test volume



2010/11 outpatient laboratory test expenditure



#### Note:

The Q4 projections are based on an average historical 10% increase in Q4 utilization compared to Q3 during the fiscal periods 2006/07 to 2008/09. (2009/10 data set for annual growth was excluded because it met the statistical definition of 'outlier'.)

## Long-term expenditure overview

### Over the last 12 years:

- The proportion BC's population aged > 50yrs increased from 29% to 36%, an increase of 24.1%.
- Per capita cost increased from \$54.63 per capita to \$70.13, an increase of 28.4%.
- Per capita test rate increased from 5.36 to 9.04 tests per capita, an increase of 68.6%.
- Total lab expenditure (including MM, MB, and MN types<sup>1</sup> and HA payments) increased from \$221M to \$322M, an increase of 45.7%.
- Total test volume increased from 21.6M tests to 41.1M, an increase of 89.8%.

### The major factors contributing to lower expenditure growth than test volume growth are:

- 20% fee reduction in 2004/05.
- The introduction of volume discounting. This resulted in 6 to 7M tests per year being paid at 50% during the terms of 2007 Renewed Agreement.
- Fee schedule changes.

### The look ahead:

- Under the LVD terms in the 2010 Renewed Agreement, 9.7M tests will be paid at the 50% discount rate in FY 10/11 vs. 6.5M in FY 09/10. For FY 11/12, the significantly higher threshold for discounting<sup>2</sup> will result in 8.5M discounted tests (1.2M fewer than this year).

#### Notes:

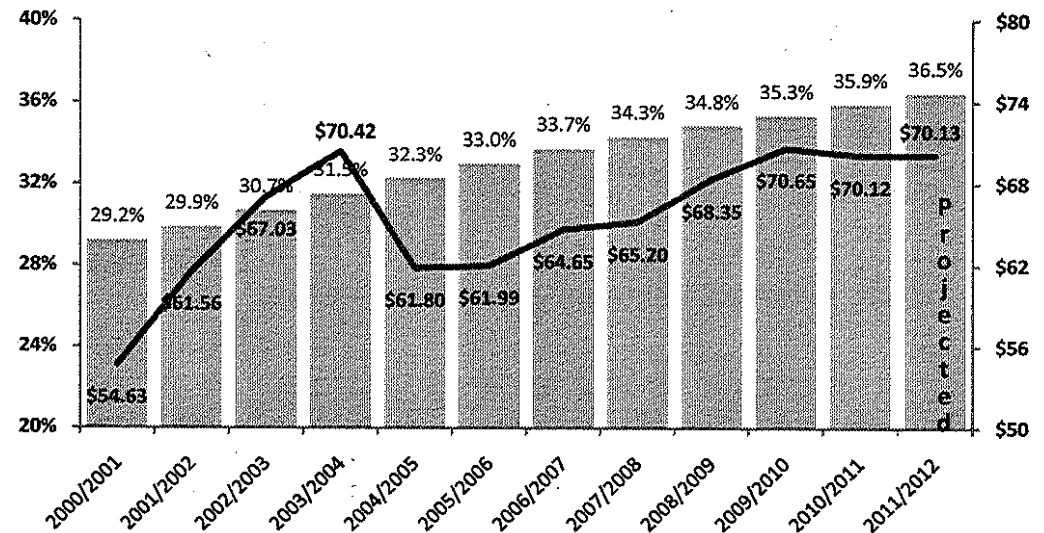
<sup>1</sup>MM – MSP insured lab services ordered by GPs/SPs

MB – MSP insured lab services ordered by midwives

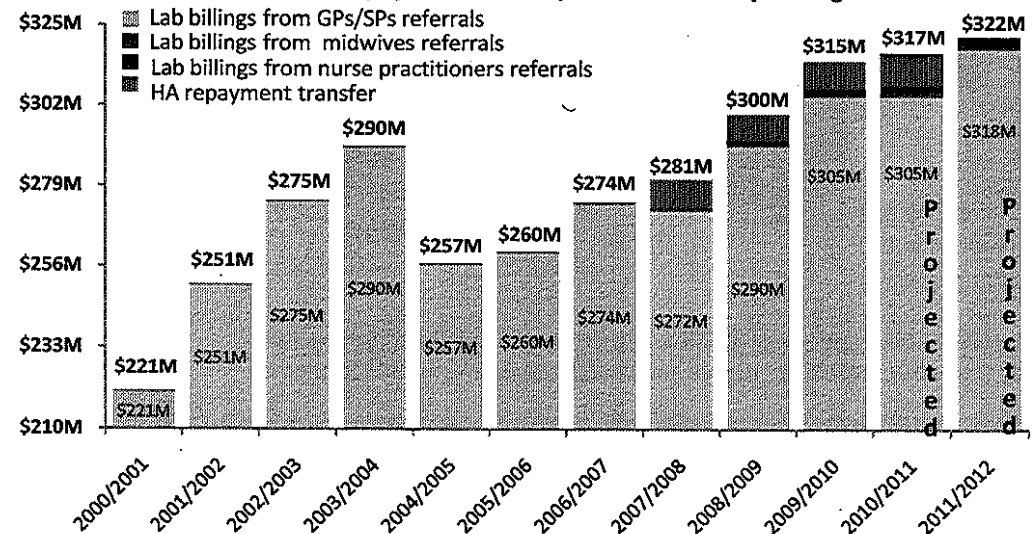
MN – MSP insured lab services ordered nurse practitioners

<sup>2</sup>(LVD thresholds: 97% in FY 11/12; 94% in Q1/2; and 81% in Q3/4 FY09/10)

Proportion of BC population age 50 and above (left axis) and the annual per capita lab testing cost (right axis)



Total payments for outpatient laboratory testing





## Analysis of drivers of utilization growth

Further analysis of utilization growth (for the period from 2010/01 to 2009/10) shows:

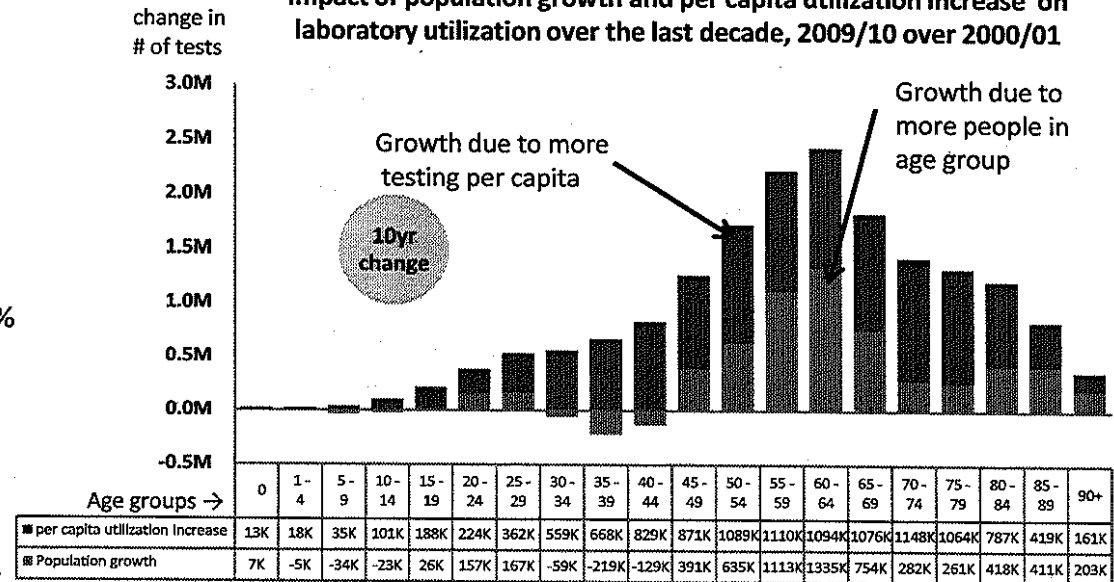
- Population growth alone contributed an average of 1.1% annual increase in lab test utilization (determined by holding population age distribution and the per capita test rate constant at 2000/01 levels).
- Overall increase lab test utilization, not due to increased testing per capita, contributed an average annual 2.2% increase in lab test utilization. This deviates from the 1.1% absolute population growth rate (above) because of the aging population effect.
- The real change in per capita utilization contributed an average annual increase in lab test utilization of 4.6%.
- The overall 11-yr<sup>1</sup> annualized lab test volume growth rate is: 1.1% population growth + 1.1% aging effect + 4.6% per capita test rate growth = 6.8% lab test volume growth<sup>1</sup>.

On average, lab test volume is increasing by 6.1% per year. (This includes the 2010/11 and 2011/12 forecasts.) Total outpatient lab test volume increased by 91.6% from 21.7M in 2000/01 to 41.5M (projected for 2011/12).

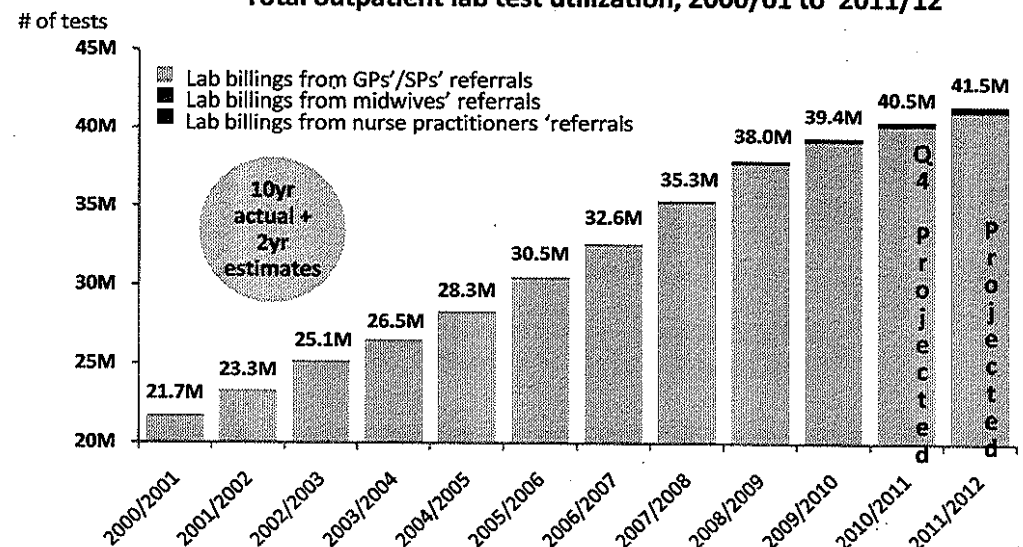
### Additional details:

- While the per capita test rate increased substantially for the 30 to 44 age group, this was the only group to exhibit negative population growth (see graph above; population growth effect in blue and the per capita test rate increase in red).
- The increase in per capita testing was most positively correlated with age group increase for the 55 to 64 age groups.
- Per capita testing increased significantly more than the increase in population for the 70 to 84 age groups. (> 60% increase over 10 yrs in per capita testing for 70 – 84 yrs.)

Impact of population growth and per capita utilization increase on laboratory utilization over the last decade, 2009/10 over 2000/01



Total outpatient lab test utilization, 2000/01 to 2011/12



## Impact of the Lab Agreement renewal in Q3 2010/11

9.5M tests were billed in Q3 2010/11 at a cost of \$70.4M, representing a test volume increase of 355K (+3.9%) tests and an expenditure decline of \$929K (-1.3%) over the same period last year.

### Rule changes, deletions, and fee reductions:

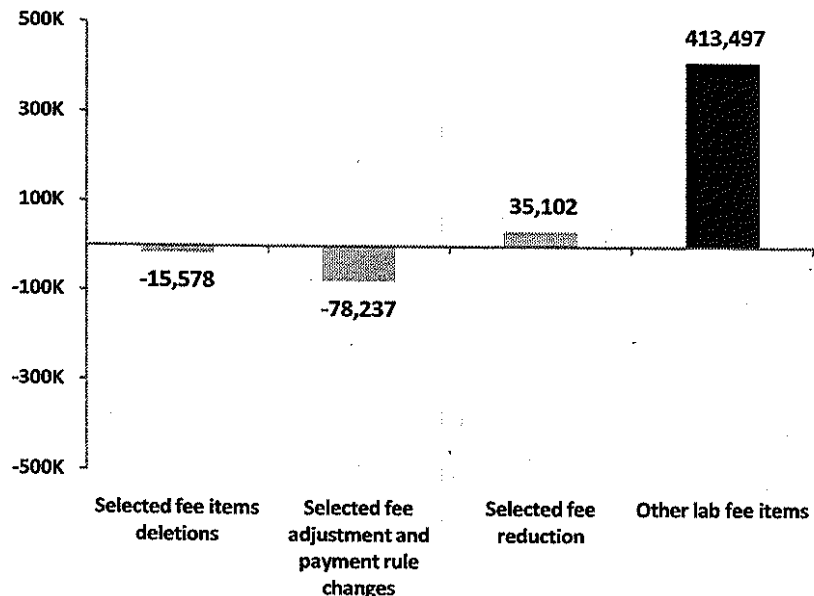
A decline of \$1.27M expenditure in Q3 over the same period last fiscal year is attributed to selected fee items that were subject to billing rule changes, fee items deletions and fee reductions. The details are as follows:

- -\$590K for fee items that underwent fee adjustment and billing rule changes
  - (including Fee item 91719 glucose – 2 hour, post 75 g deletion, excluding lipid tests and base fee - both 91000 & 91005)
- -\$232K due to fee item deletions
- -\$449K for fee items that underwent fee reductions.

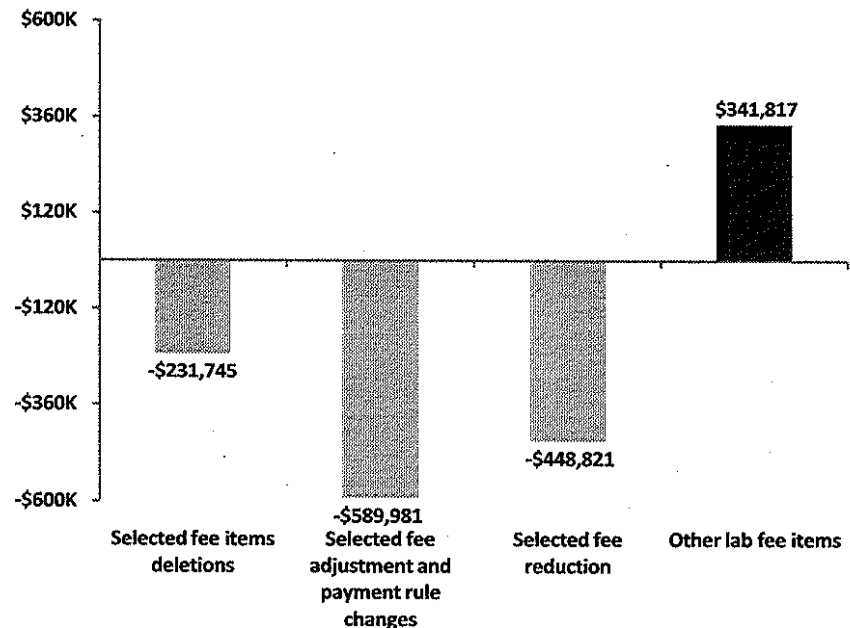
### Other fee items with increased test volume:

- Payments increased by \$342M for other fee items for which test volumes increased by 413K over Q3 in FY 2009/10.

Changes in test volumes, Q3 2010/11 over Q3 2009/10



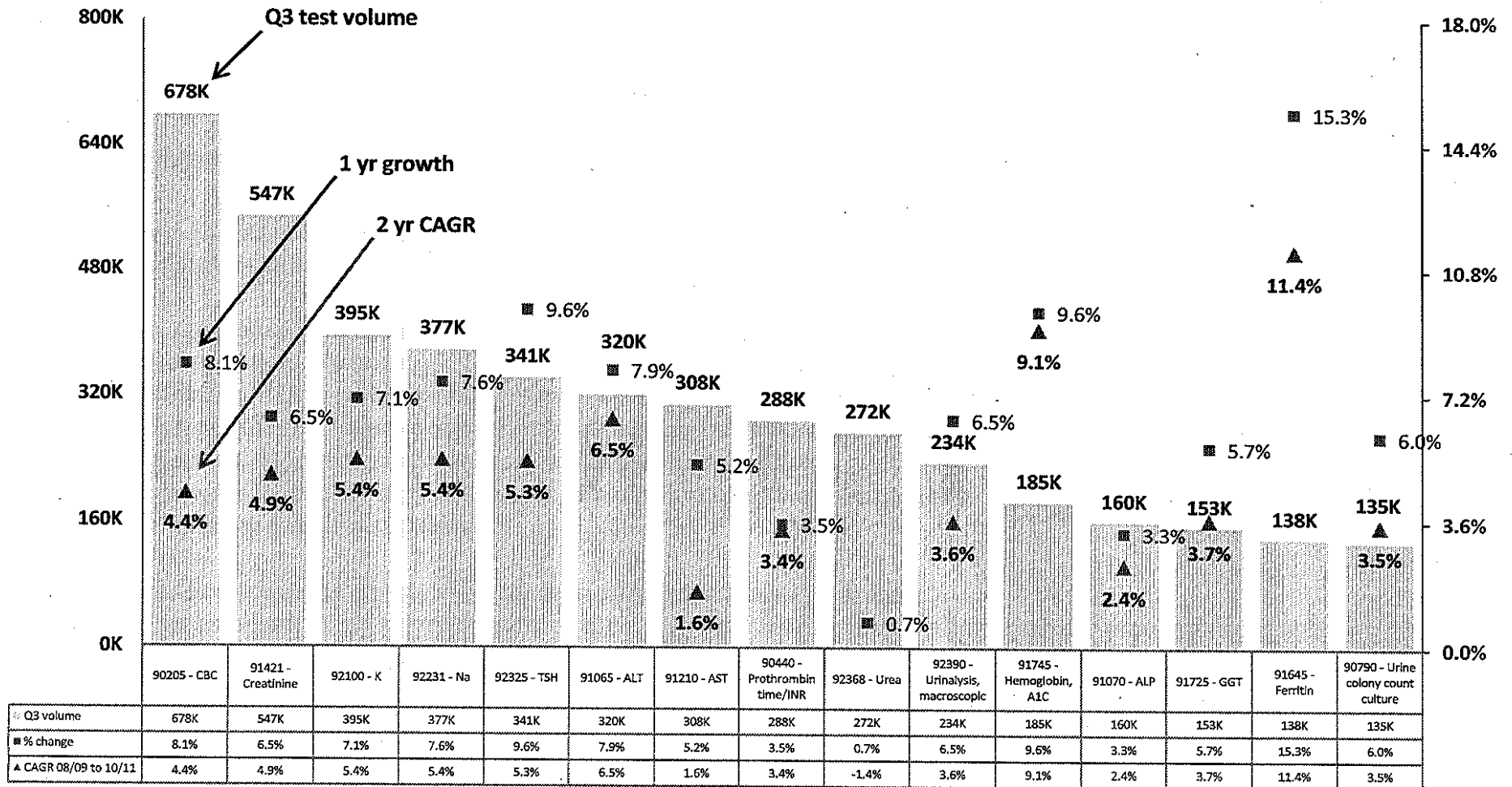
Expenditure change, Q3 2010/11 over Q3 2009/10



## Fee item level analysis – the top 15 fee items

**Q3 growth was 6.8% over last year's for the 15 tests with the highest volumes in 2010/11.** (Note: test volumes in last year's Q3 were unusually low, potentially distorting the growth rate. The 2-year compounded annual growth rate (CAGR) figure of 4.4% may be a more reliable indicator and is also shown.)

**2010/11 Q3 test volume (left axis) for the 15 most utilized lab tests and their volume growth (right axis)**  
(excluding tests subject to billing rule changes/fee reduction such as glucose, lipid tests, and occult blood feces)





Approved: June 10, 2011

## **Collaborative Utilization and System Improvement Committee**

### **Terms of Reference**

#### **1.0 Authority**

This document sets out the Terms of Reference for the Collaborative Utilization and System Improvement Committee (CUSIC) pursuant to the Second Renewed Laboratory Agreement ("the Agreement"), signed on October 12, 2010, by the Government of British Columbia and the British Columbia Medical Association ("the parties").

#### **2.0 Goal**

- 2.1 The goal of CUSIC is to provide a vehicle where representatives from the Government, Health Authorities, the British Columbia Medical Association (BCMA) and the British Columbia Association of Laboratory Physicians (BCALP) can work together on matters affecting the provision of services by laboratory physicians in BC.
- 2.2 In the course of fulfilling its goal, CUSIC, within the time and the operational budget available, will:
  - a) monitor and report on utilization of clinical laboratory services;
  - b) develop utilization measures for recommendation to their principals;
  - c) monitor implementation of the Agreement;
  - d) investigate and advise on initiatives that may optimize the efficiency of various aspects of laboratory medicine;
  - e) liaise with the General Practice Services Committee and the Specialist Services Committee;
  - f) make recommendations to the parties on a simplified approach to meeting the MSC requirements for requisition standards, within the term of this Agreement;
  - g) liaise on Clinical Care Management activities, including the Guidelines and Protocols Advisory Committee, in order to understand the cost impact to laboratories as a result of new guidelines and protocols prior to their implementation; and,
  - h) include any other matter which the members of the committee agree upon;
- 2.3 The Government and the Health Authorities will consult with CUSIC on initiatives related to laboratory integration and redesign.

### **3.0 Consensus**

3.1 The Committee will make decisions by consensus.

3.2 Consensus is defined as a resolution of the Committee passed by at least a majority of the members of the Committee after the Committee has gone through a reasonable process to reach unanimous approval of the resolution by the members of the Committee; and, either,

- a) the Government and BCMA both express in writing their support of the resolution by notice in writing to the other; or
- b) the resolution is not objected to in writing by either the Government or the BCMA by notice in writing to the other within 30 days after the date such resolution is passed by the Committee.

### **4.0 Structure**

#### **4.1 Membership**

The Committee will be comprised of ten (10) members: five (5) members appointed by the Government/Health Authorities, and five (5) members appointed by the BCMA/BCALP.

#### **4.2 Chair**

The Committee will be co-chaired by one of the Government/Health Authority members and one of the BCMA/BCALP members. The co-chairs will chair meetings on an alternate basis.

#### **4.3 Secretariat**

The Government will provide secretariat support to the Committee. The secretariat will be responsible for booking meeting space; distributing agendas, minutes and related information in a timely manner; taking minutes; and, maintaining a work plan.

#### **4.4 Support Staff**

The Government and the BCMA may provide two support staff each to attend the meetings. The number of support staff can be increased upon agreement of the parties.

### **5.0 Meetings**

#### **5.1 Frequency**

Meetings will be held on a quarterly basis. Additional meetings may be held with agreement, and at the call, of the co-chairs. Meetings may be held in person or by teleconference.

#### **5.2 Quorum**

The Committee is required to make decisions by consensus.

## 6.0 Funding

The cost for physician member participation on the Committee (other than employees of the Government, BCMA, Health Authorities), shall be paid by funds allocated and method identified pursuant to the Agreement.

### CUSIC Membership

Jane Crickmore	Co-Chair, MOHS/Health Authorities
Jeremy Higgs	MOHS/Health Authorities
John Andruschak	MOHS/Health Authorities
Mal Griffin	MOHS/Health Authorities
Pam Ganske	MOHS/Health Authorities
Dr. Chris Sherlock	Co-Chair, BCMA/BCALP
Dr. Frances Rosenberg	BCMA/BCALP
Dr. Gordon Hoag	BCMA/BCALP
Dr. Jim Cupples	BCMA/BCALP
Dr. Michael Moss	BCMA/ BCALP



**Collaborative Utilisation System  
Improvement Committee (CUSIC)**

**Draft Agenda**

Friday, June 10, 2011

9 am – 12 pm

In Person: 420 – 700 West Pender, Vancouver – Large Boardroom

Teleconference: S15      Conference ID: S15

1. Introductions
2. Additions to Agenda
3. Review and confirmation of draft Terms of Reference
4. Review and discussion on 2010/11 Annual Report
5. Committee priorities for action
6. Next meeting



## **Collaborative Utilization System Improvement Committee**

### **2010/11 Annual Report on Lab Test Volume and Expenditures**

Prepared by the Ministry of Health's Lab Office  
for the meeting of June 10<sup>th</sup>, 2011

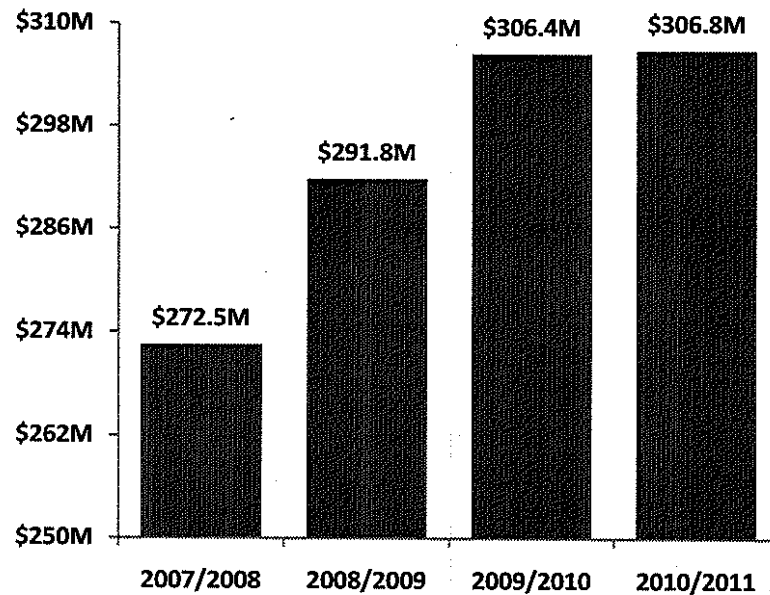
The data and analysis in this report are provided by the Ministry of Health solely for use by CUSIC members under the terms of the Second Renewed Laboratory Agreement between the BCMA and the Government of BC (October, 2010). The Ministry considers use of the content of this report for any other purpose as inappropriate and contrary to the terms and/or spirit of the Agreement.

## MSP FFS outpatient lab test utilization and expenditure overview

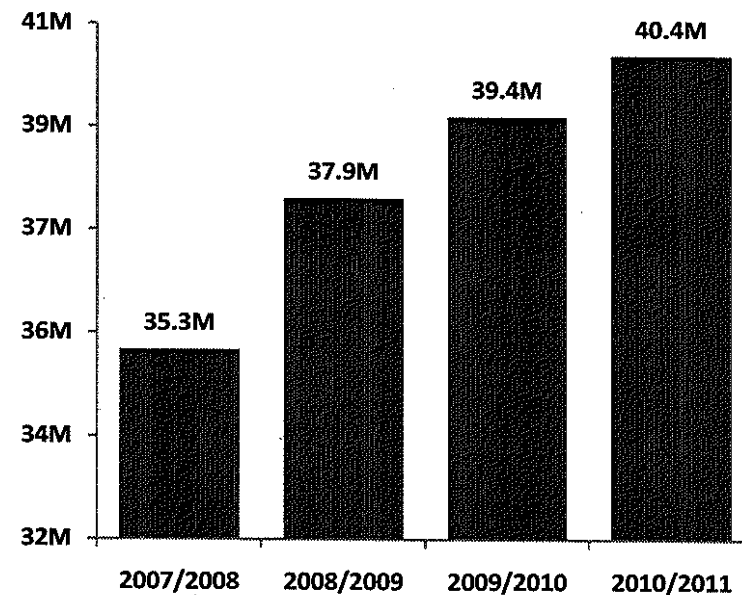
In 2010/11, expenditures on FFS outpatient laboratory testing was \$306.8M; a 12.6% increase over the 4 yrs of Lab Agreements.

In 2010/11, the volume of outpatient lab tests performed under FFS was 40.4M; a 14.6% increase over the 4 yrs of Lab Agreements.

Annual laboratory test expenditures



Annual laboratory test volumes

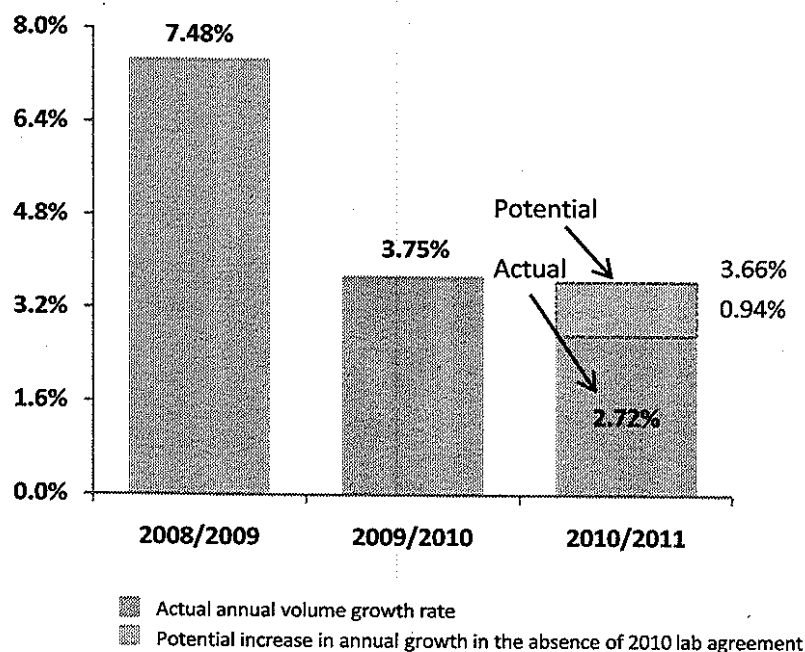


Data include all FFS MSP payments to public and private providers for outpatient laboratory tests (excluding rural retention payments) paid up to May 15<sup>th</sup>, 2011, 45 days after the fiscal year-end. HA repayments under the Renewed Agreement are not included in the above data.

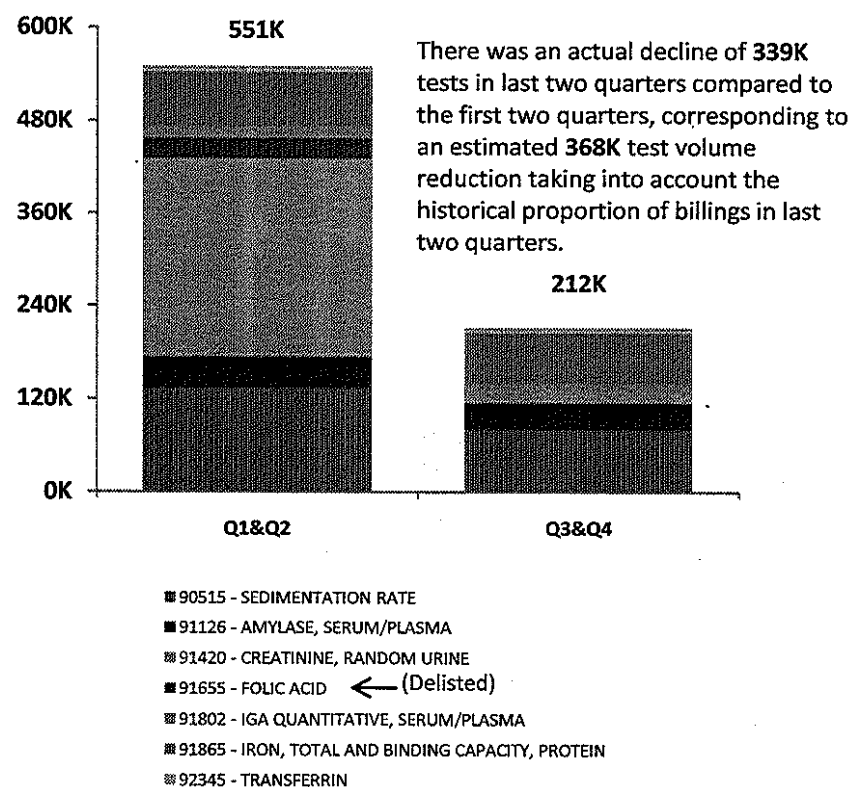


Test volumes grew by 2.72% in 2010/11, compared to 3.75% and 7.48% in 2009/10 and 2008/09, respectively. The change in billing rules (or delisting in one case) for 7 tests done as part of the 2010 Renewed Lab Agreement and effective October 1<sup>st</sup>, 2010, avoided approximately 370K tests (and potentially an additional 0.94% to the 2010/11 test volume growth).

## Annual volume growth



## Impact of revised billing rules on test volumes

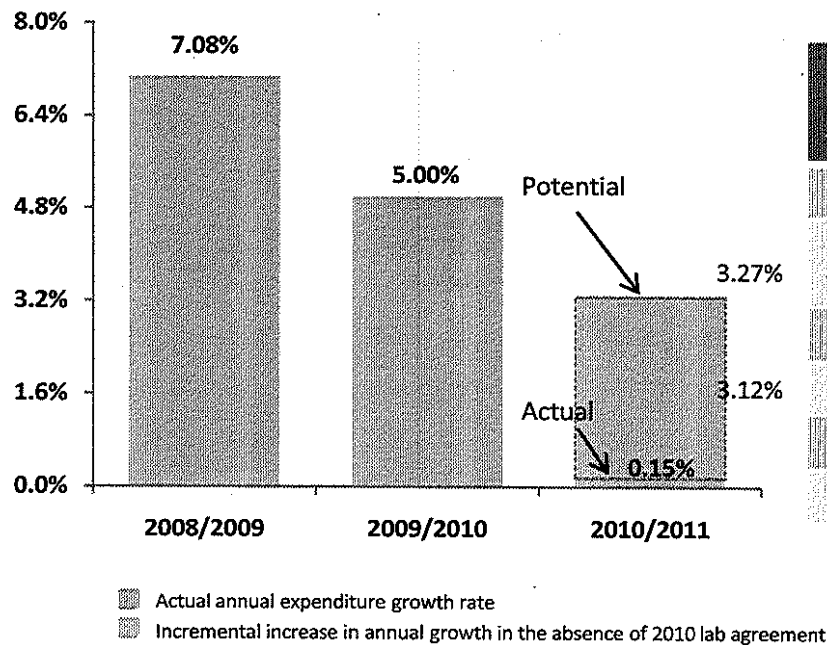


## MSP FFS outpatient lab test utilization and expenditure overview

Expenditures grew by 0.15% in 2010/11, compared to 5.00% and 7.08% in 2009/10 and 2008/09, respectively.

- Annual expenditures could potentially have been \$316.4M in 2010/11 in the absence of a Renewed Agreement, representing a 3.27% annual increase.
- Approximately \$9.6M in expenditures were avoided as a result of implementation of the 2010 Renewed Lab Agreement.

Annual expenditure growth

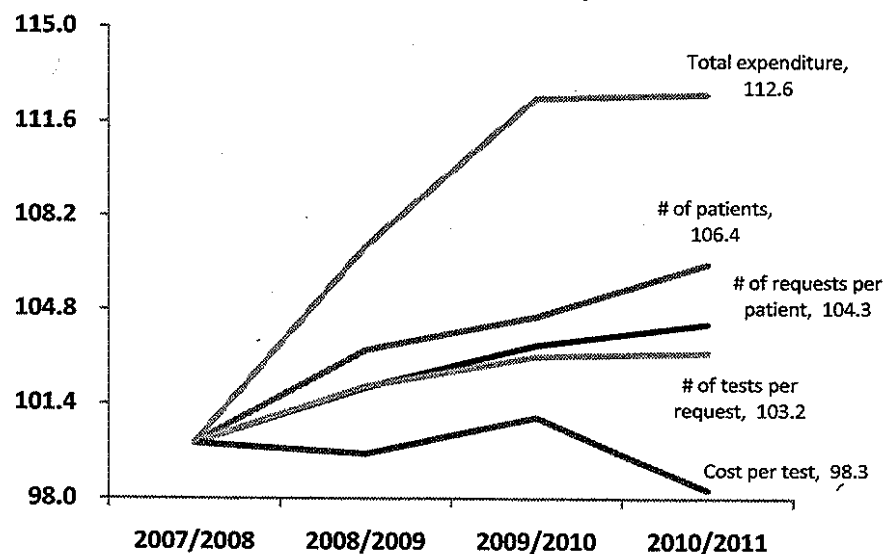


Impact of 2010 provisions in the 2010 Agreement implementation (over the terms of the previous agreement)	Impact (Change)	Total
2010/11 actual annual expenditure		\$306.8M
Impact of adjusting to 81% volume threshold for discounting	\$5.51M	
New fee items added to LVD	\$0.15M	
Billing rule changes and fee items deletion	\$2.50M	
Fee reduction on selected fee items	\$1.40M	
Potential expenditure in 2010/11		\$316.4M

## MSP FFS outpatient lab test utilization and expenditure overview

Over the 4 yr term of Lab Agreements expenditure has grown by 12.6%, despite the reduction in average cost per test to 98.3% of the 2007/08 cost. The key factors contributing to this growth are: Patient population growth and increases in both the number of requests per patient and the total number of tests per request.

**Growth of the key expenditure drivers**  
(2007/08 level = 100)



Key expenditure drivers	2010/11
# of patients	2.24M
# of requests per patient	3.68 requests
# of tests per request	4.90 tests
# of tests per patient	18.02 tests
Cost per test	\$7.60
Total expenditure	\$306.8M

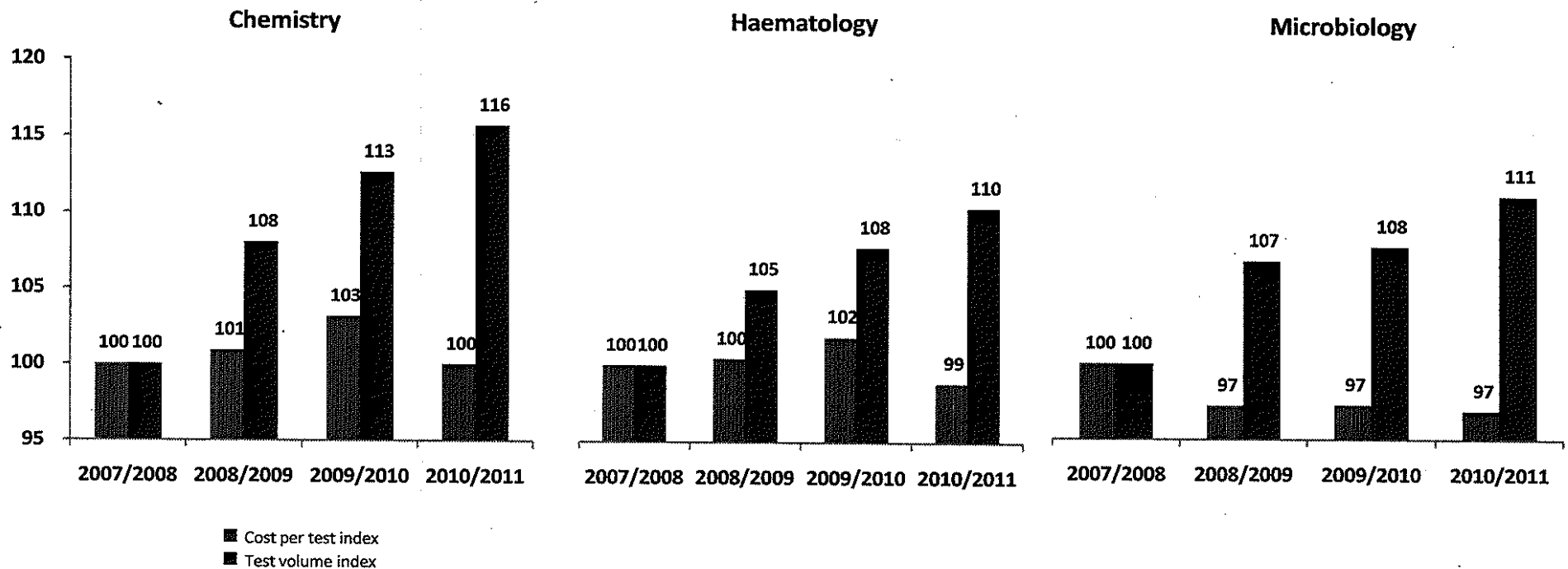


## Laboratory Section – Cost per Test/Volume Index (2007/08 to 2010/11)

Relative test volumes increased for all major lab sections over the 4 yr term of the agreement, with chemistry showing a 16% increase, haematology 10% and microbiology 11%.

Relative cost per test remained generally the same as in 2007/08.

### Test volume index and Cost per test index (2007/08 = 100), by section

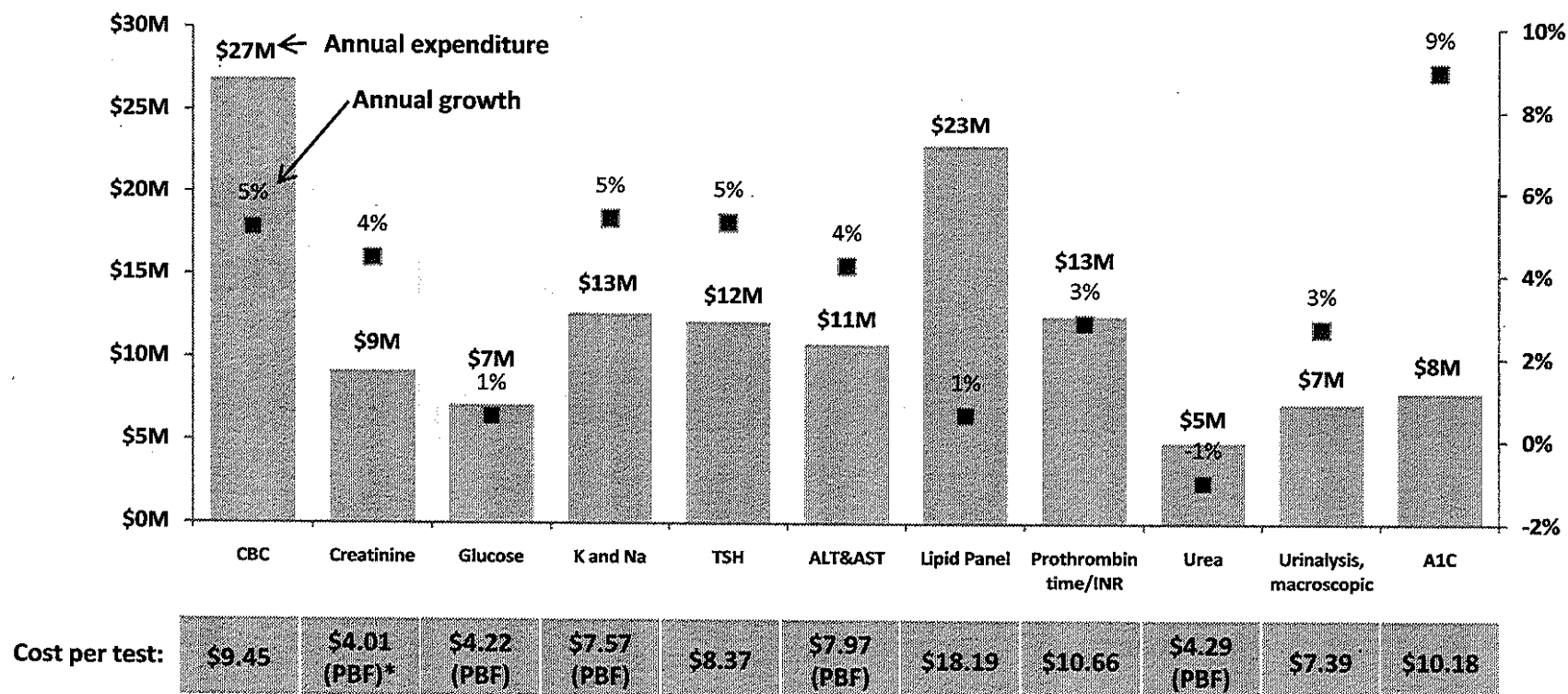


## Top 15 tests, expenditure and utilization growth, 2010/11 over 2009/10

### Highlights:

- 44% (\$134M) of total expenditure was for 15 tests.
- \$27M was for CBC testing (at \$9.45 per request).
- \$23M for lipid panel testing (at \$18.19 per request).
- \$13M for K and Na tests (\$7.57 per request).
- \$13M for prothrombin time/INR (\$10.66 per request).

### Top 15 test expenditures, volume growth, and cost/panel, 2010/11



\*Primary base fees are included when applicable.

Follow-up issues from the last CLEMC meeting

Population demographics

Vitamin D

BNP

Apo B

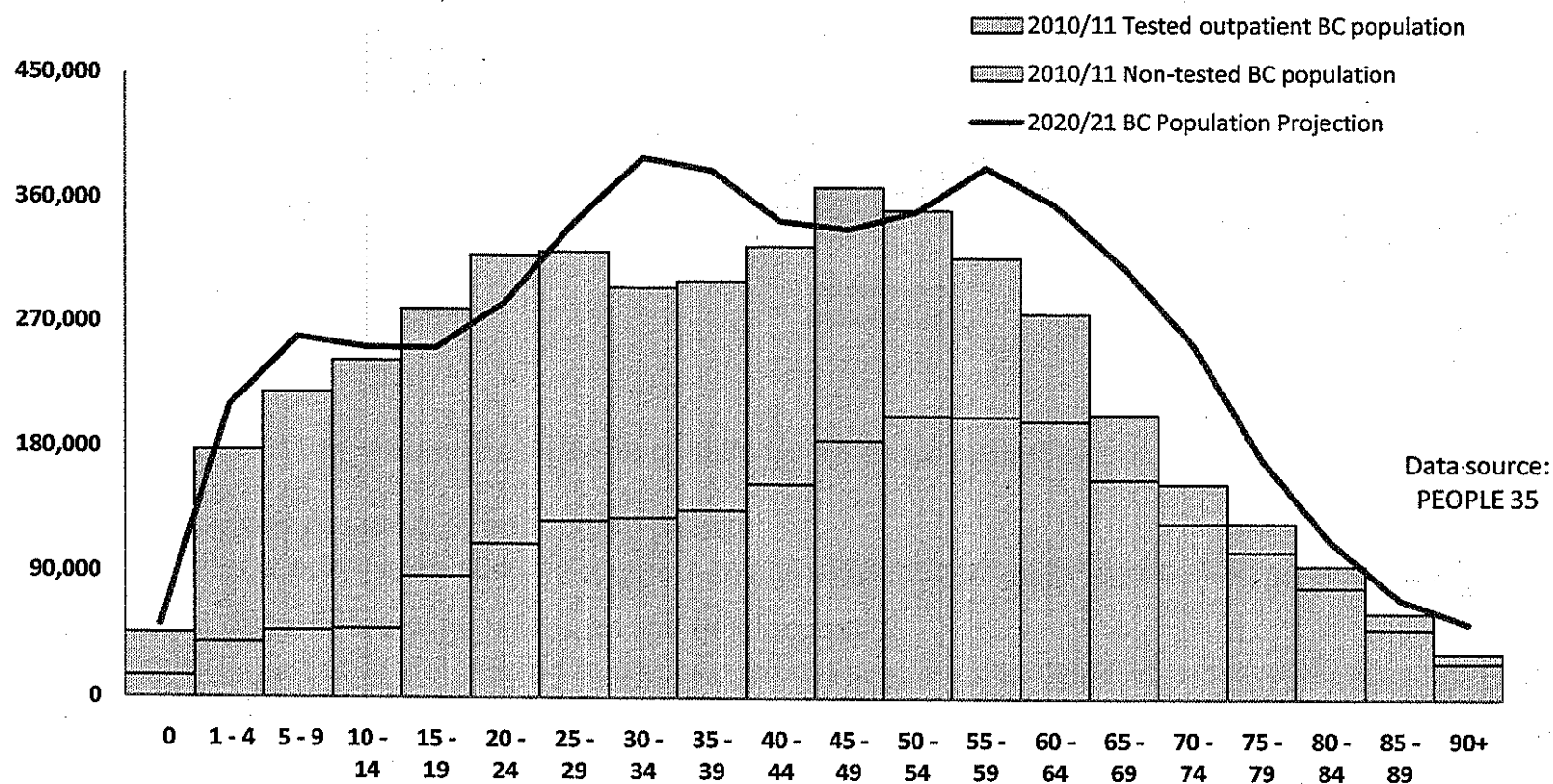


## BC population demographics 2010/11, and 2020/21

In 2010/11, BC's population was 4.52M and the largest 5yr-age group was the 45-49 yr group. By 2020/21 the two largest groups will be the 30-34yr and 55-59yr age group.

The proportion of BC's residents receiving outpatient lab tests increases with age.

### 2010/11 BC population, by tested/non-tested outpatient and the 2020/21 BC population projection, by age group

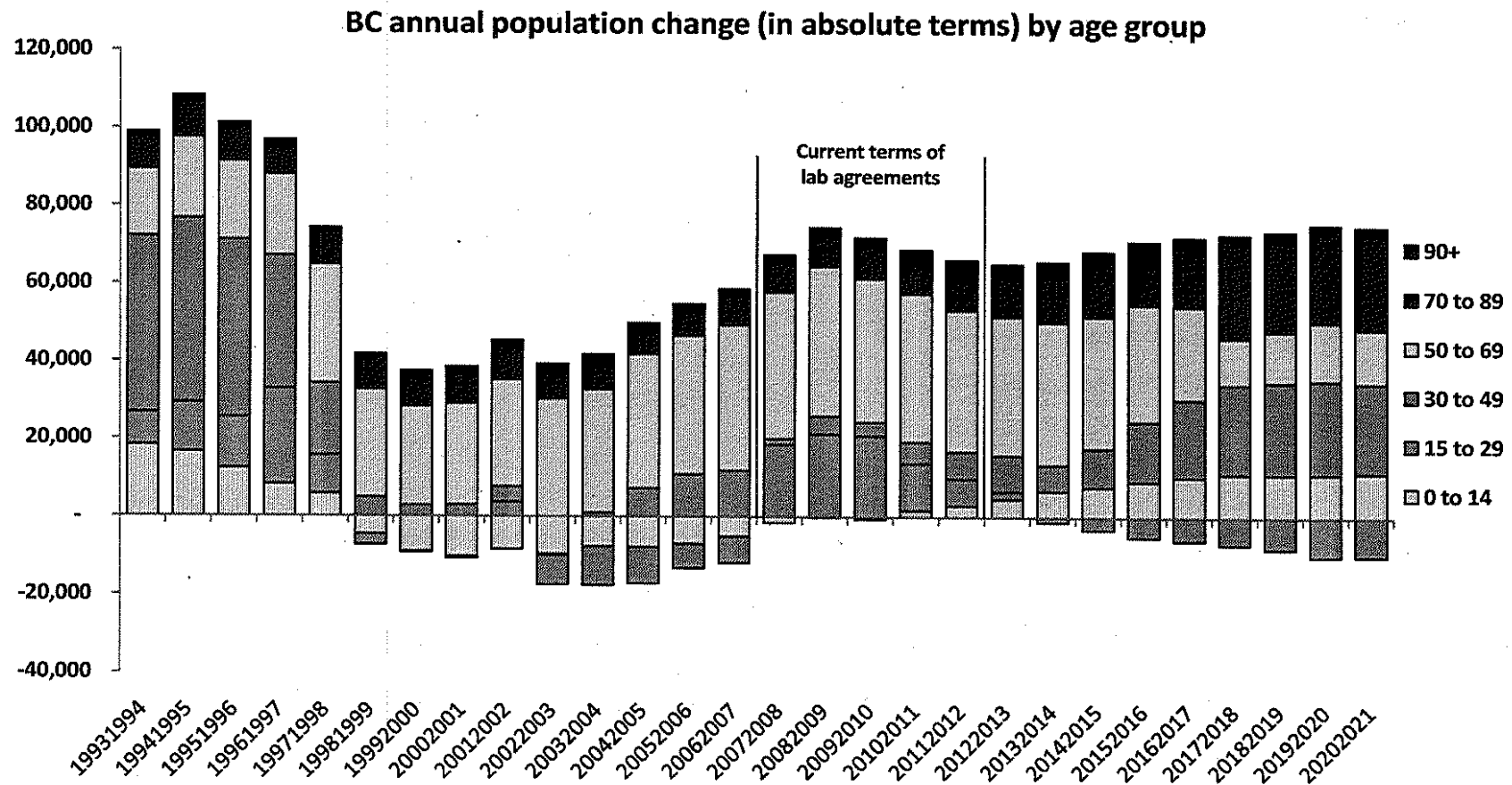


## BC population demographic factors – 1993/94 to 2020/21

Over the last 2 decades, the most significant population growth in BC was in the 1990s, particularly by those aged 30 to 49 years.

Starting in 1998/99 the population age 50 and above increased the most, rising year-over-year until 2008/09 and then levelling off at about +70K a year for the next decade.

In the near future, the population aged 30 to 49yrs will increase and by 2017, those aged 70 to 89 years are projected to contribute the most to population growth.



## Vitamin D testing – utilization data

Increased utilization of vitamin D testing was monitored closely by CLEMC. The following initiatives were undertaken to curtail unnecessary vitamin D testing:

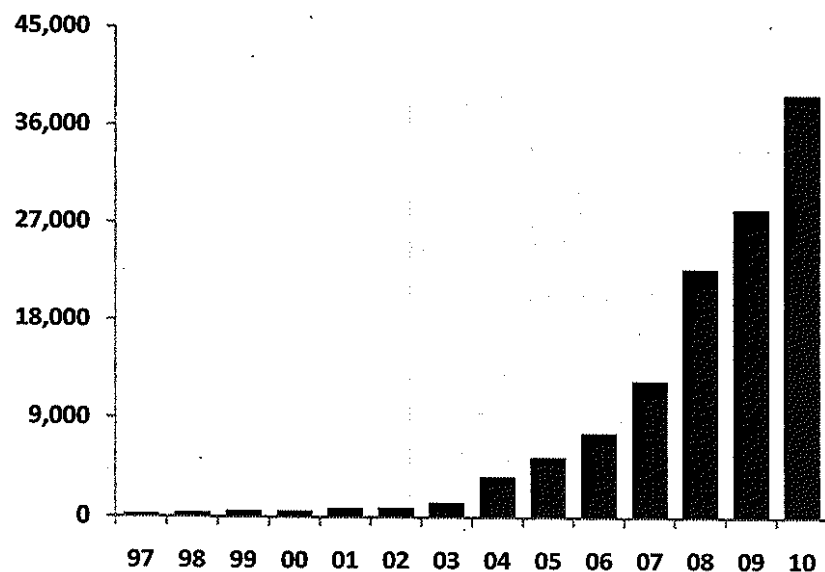
- A broadcast message sent to all physicians in Jun 2009,
- GPAC developed a vitamin D testing protocol, effective Oct 2010,
- In Feb 2011, the Pattern of Practice Committee sent letters to the top 29 vitamin D ordering physicians (based on 2009/10 ordering volumes) requesting an explanation for their high volume of testing (see next page).

The vitamin D test cost was reduced from \$94.10 to \$61.50 effective July 31, 2010 and further adjusted to \$61.07 after the 2010 Agreement.

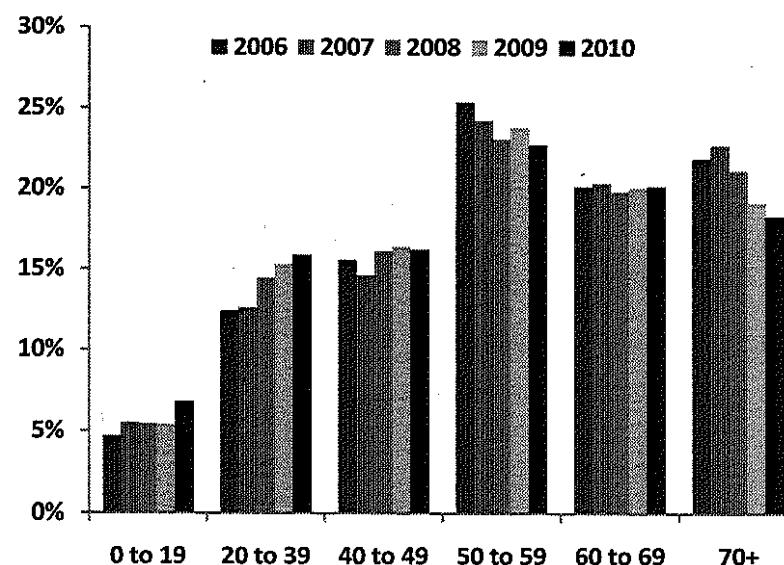
**Despite the above, vitamin D test utilization increased by 36% over last fiscal year (39K tests at a total cost of \$2.78M).**

- 43% of vitamin D tested outpatients were not evaluated for 91070 alkaline phosphatase, 91040 albumin serum, 91326 calcium total serum, or 92071 phosphates serum within 60 days prior to their vitamin D test.

92460 vitamin D test volumes by fiscal year



% Distribution of vitamin D test volumes by age group

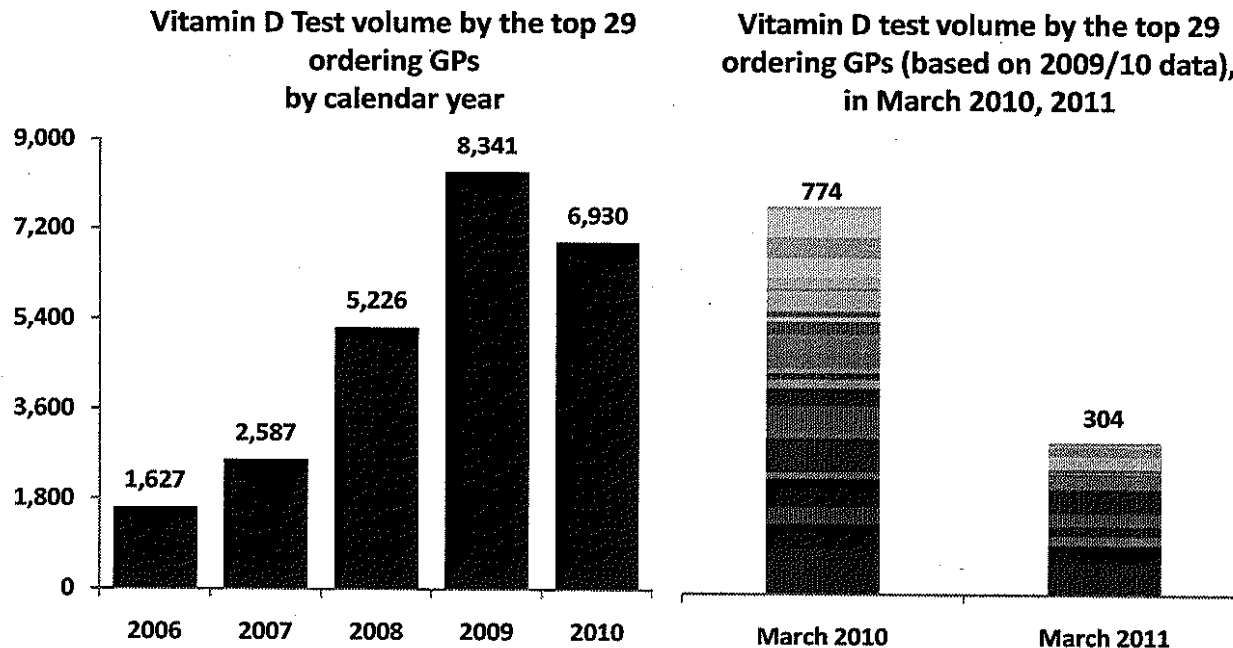




## Effectiveness of letters sent by Pattern of Practice Committee.

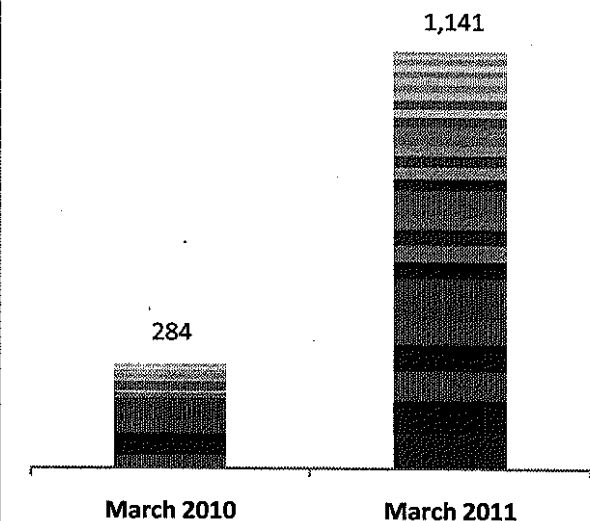
Vitamin D test volumes for the top 29 vitamin D ordering GPs (based on 2009/10 data) declined by 16.9% in 2010 (prior to Pattern of Practice Committee letters).

In March 2011, one month after letters were sent, the vitamin D test volume ordered by letter recipients declined by 61%, compared to the volume of testing ordered in March 2010 by the same 29 GPs.



The 61% decline in tests ordered in March 2011 by the physicians (all GPs) who ranked 1 to 29 based on 2009/10 vitamin D test volume, was completely abrogated by an increase in tests ordered by a largely new group of physicians who ranked 1 to 29 in 2010/11 (22 GPs).

**Vitamin D test volume by ordering physicians ranked in the top 29 based on 2010/11 data**



\*Each shaded bar represents one physician's vitamin D test ordering in the respective period.

## Brain natriuretic peptide (BNP) – further assessment of unanticipated uptake of testing

### Background.

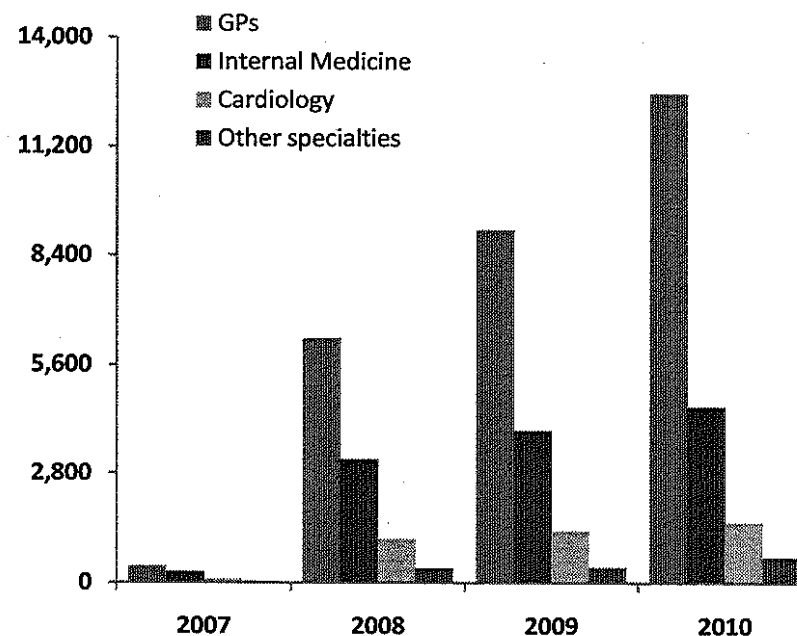
- GPAC guidelines indicate that BNP testing is appropriate in the initial investigation of heart failure and that “testing in non-acute heart failure and community outpatient practice remains to be clarified”.
- BNP was added as a new fee item in Nov 2007, paid at a rate of \$42.56 per test and with an expected test volume of 12K tests/yr.
- Uptake of BNP testing exceeded expectations and analysis of utilization was requested.

### Test utilization data.

- In 2010, 19K BNP tests were performed at a cost of \$818K. This volume represented an increase of 31% from 14.7K in 2009.
- 64% of the patients were age 70 and above.
- 65% of the tests were requested by GPs, 23% by Internal Medicine, and 8% by Cardiology.
- 76% of the increase in test volume was ordered by GPs.
- Since the introduction of BNP test in Nov 2007, 35K patients had BNP testing. 77% had one test, 14% had 2 tests, and 9% had 3 or more tests. One case had 61 tests since Nov 2007.
- 12.1% of the 2010 BNP tested outpatient were admitted to hospital in the same year. 1.5% had FFS ER visits, 0.5% had both. The remaining 85.9% of the 2010 BNP tested outpatients are most likely the community outpatients.

**These data suggest BNP testing is largely used as a biomarker in the primary care setting.**

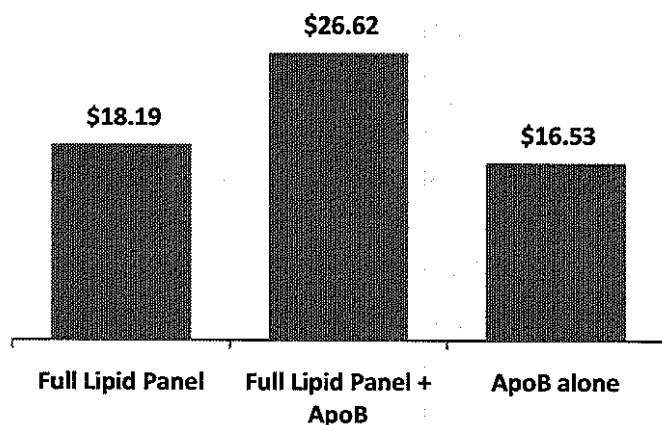
**BNP Test volume by physician specialty and calendar year**



## Apolipoprotein B – analysis of utilization after billing rule changes

Under the 2010 Renewed Laboratory Agreement, apolipoprotein B is payable at \$16.53 when ordered without lipid co-testing and at a 50% discount when ordered with one or more of the lipid panel tests (91375, 91780, 92350).

Average cost for combinations of lipid testing shown, 2010/11 data



In 2010/11, 29.8K Apo B tests were billed (22% increase over 2009/10) at a total cost of \$509K.

The average cost per Apo B test when ordered alone was \$1.66 less than that of a full lipid panel and \$8.46 more when ordered concurrently with a full lipid panel.

53.4% of Apo B requests were ordered concurrently with a full lipid panel.

72.3% of Apo B tested outpatients had full lipid panel testing within the same fiscal year.

47.2% of Apo B tested outpatients were NOT on statins (determined by counts of patients who had statin prescriptions in the same fiscal year).

The current utilization pattern of Apo B testing is inconsistent with guidelines and the net cost of assessing lipids has increased instead of decreasing, as anticipated.

### GPAC Cardiovascular Disease - Primary Prevention (Appendix D)

Effective Date: 2008

*".....measurement of plasma apoB is superior as a follow up to the full lipid profile specifically in patients in whom the major abnormality is hypercholesterolemia and who are treated with statins. It is less expensive than the lipid profile and can be done on a non-fasting specimen."*

### GPAC Diabetes Care

Effective Date: September 1, 2010

*".....ApoB can be used in place of lipid profiles for ongoing monitoring of therapy."*



**Collaborative Utilization and System Improvement Committee (CUSIC)**  
**Lab Office, 420-700 West Pender St**  
**Vancouver, BC**

**June 10, 2011 – Draft Minutes**

**Attendees**

Dr Chris Sherlock, British Columbia Medical Association (BCMA), co-chair  
Jane Crickmore, Ministry of Health (MOH), co-chair  
Dr Jim Cupples, BCMA  
Dr Gordon Hoag, BCMA  
Dr Frances Rosenberg, BCMA  
Dr Michael Moss, BCMA  
Jeremy Higgs, MOH  
John Andruschak, Provincial Health Services Authority  
Pam Ganske, Vancouver Island Health Authority  
Mal Griffin, Interior Health Authority  
Peter McClung, BCMA  
Ian Dube, MOH

**1.0 Additions to Agenda**

- Insured PSA request - added as item for discussion.

**2.0 Terms of Reference**

- Terms of Reference – approved with one modification: correction to spelling of one name under the CUSIC members' list of names.
- Discussion on expectations in relation to section 2.2 of the terms of reference. It was noted that some consideration should be given to the inpatient lab requirements in relation to 2.2 (b) develop utilization measures for recommendation to their principals.
- General discussion on laboratory medicine physician involvement on the Requisition Committee (committee of the Medical Services Commission), and guideline development through two divisions of MOH (Medical Services and Health Human Resources Division, and the Health Authority Division).
- Pam Ganske suggested that the lower than expected service volume increase could be attributable to a shift in patient visits from community clinics and offices to emergency departments.
- Dr Sherlock recommended that the CUSIC meet more frequently in order to take advantage of opportunities to examine utilization management issues.
  - Dr Sherlock asked for further information regarding the means by which anomalous fee item utilization patterns were identified for the Collaborative Laboratory Expenditure Management Committee (CLEMC).

### **3.0 Review and Discussion of the Monitoring and Utilization Report for 2010/11**

- The committee discussed the use of the information provided in the quarterly and annual reports by CUSIC members for committee purposes only. Committee members asked MOH staff to identify the elements of the reports that can be shared with colleagues and the elements that are confidential.
- Total laboratory expenditures for 2010/11 are \$306.8 million for 40.4 million paid services and this is \$0.8 million greater than the negotiated target of \$306 million.
  - The volume of paid services in 2010/11 represents a 2.72% increase over the 2009/10 level of 39.4 million.
  - This is a service volume increase that is lower than the increases of the past several years (ranging from 5% to 9%).
  - These figures include laboratory services ordered by physicians, midwives and nurse practitioners (NP's). Excluding midwives and NP's lowers expenditures to \$304 million.
- The committee discussed the ordering practices of midwives, NP's and registered nurses in certified practice [RN(C)].

#### **Action Items**

1. A breakdown of laboratory expenditures and services by claim type (i.e. ordering provider) will be distributed to CUSIC members.
2. MOH staff will identify the elements of each CUSIC report that are for CUSIC members only.
3. The list of tests that may be ordered by nurse practitioners, midwives and registered nurses in certified practice will be provided to CUSIC. The list will indicate which tests are subject to laboratory volume discounting.
4. A forecast of the impact of RN(C) on laboratory utilization will be brought forward when available.
5. A separate laboratory requisition form to be developed for RN(C).
6. MOH will provide an update on the status of naturopaths ordering laboratory tests in BC.
7. Jeremy Higgs will liaise with Pam Ganske to investigate the link in service volume changes between laboratory testing volumes and emergency department visits.
8. A formalised process was requested for following up on specific utilisation issues – MOH staff will summarize the process the CLEMC used to determine which fee items to focus on for utilization management.
9. Update the data (from CLEMC) showing that lab test volume related to CDM is at a plateau, potentially due to attaining maximum uptake.
10. With regard to specific items in the 2010/11 annual report:

- a. Referring to page 5 (left) of the 2010/11 Annual Report, include the total volumes and expenditures (as well as the index).
- b. Referring to page 6, present the overall impact in one graph showing total volumes and expenditures by section (different colours for chemistry, etc).
- c. Referring to page 7, expand the data presented on page 7 to:
  - Show the ratio of creatinine to urea over the last 3 to 4 years.
  - Start tracking ACR.
  - Show the ratio of ALT to AST and look for evidence of inappropriate utilization based on guidelines.
- d. For the demographics data presented on page 9, gender is to be added with the intention of looking further for the potential effect of more young women smoking.
- e. Regarding vitamin D testing:
  - i. Do a detailed analysis on vitamin D testing in NHA (comparison of test utilization to other regions and a determination of where the NHA testing is being done).
  - ii. Determine what has happened to test volumes in Ontario after the MOH there acted to curtail vitamin D testing (last 6 months of data).
- f. Regarding BNP testing:
  - i. Determine if more BNP testing is resulting in lower ECHO testing.
  - ii. Determine the effect of BNP introduction on specialist referrals.
- g. For ApoB testing, present data to show the ordering physicians (eg. GPs or specialists).

11. Insured PSA request – deferred to next meeting for discussion.

12. MOH staff will arrange for next meeting in July.



# **Collaborative Utilisation System Improvement Committee (CUSIC)**

## **Agenda**

**Friday, September 23, 2011**

**9 am – 12 pm**

**In Person: 420 – 700 West Pender, Vancouver – Large Boardroom**

**Teleconference: S15      Conference ID: S15**

- 1. Approval of Agenda**
- 2. Approval of June 2011 Minutes**
- 3. Business arising from June 2011 Minutes**
  - **RNs in certified practice**
  - **Naturopaths**
- 4. Discussion of CUSIC Q1 2011/12 Report**
- 5. Vitamin D – next steps**
- 6. Update on Lower Mainland Consolidation**
  - a. Lower Mainland**
  - b. Ministry**
- 7. Cancer Pathology Improvement Program**
- 8. Next meeting**



## **Collaborative Utilization System Improvement Committee**

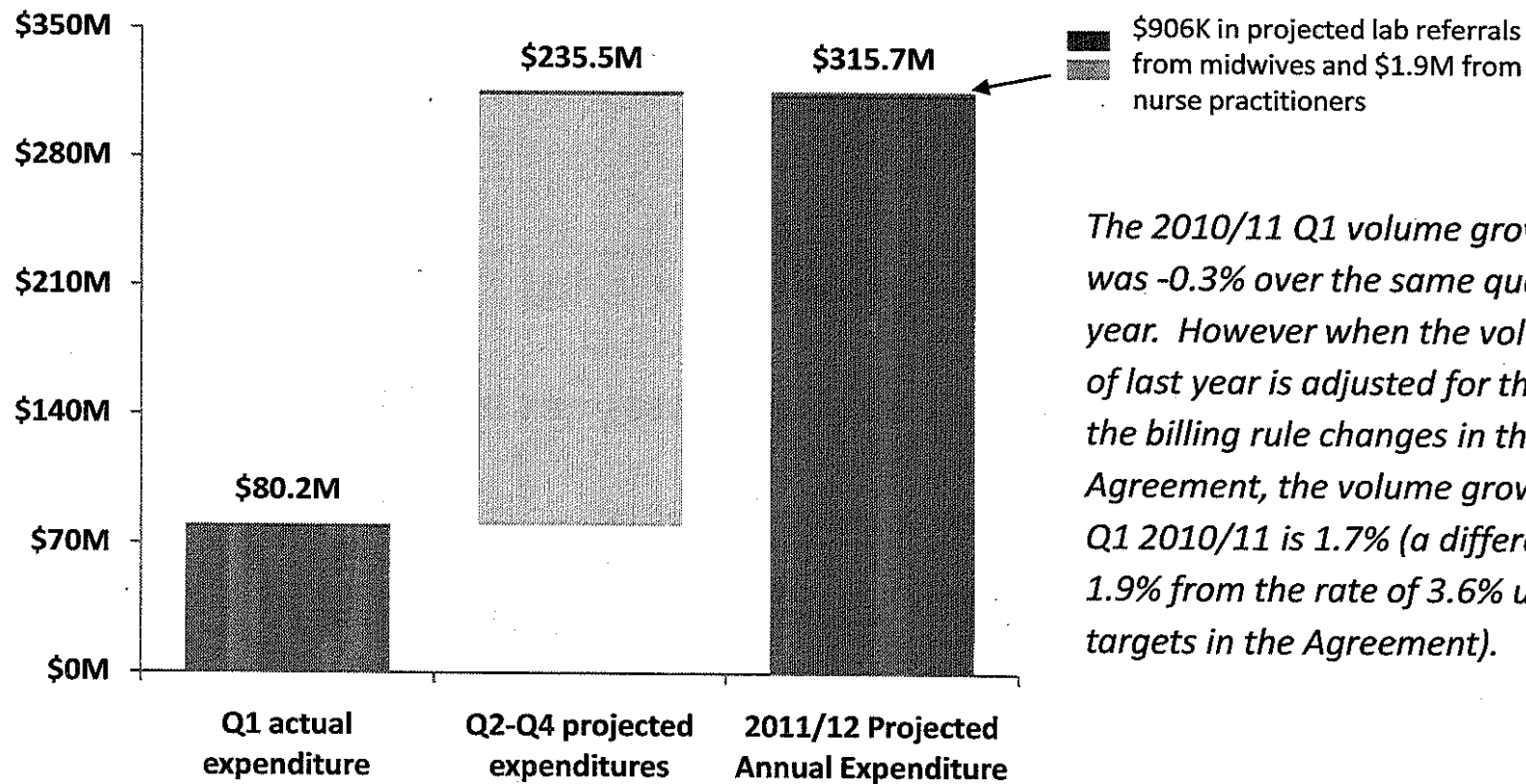
### **2011/12 Q1 Report on Lab Test Volume and Expenditures**

Prepared by the Ministry of Health's Lab Office  
for the meeting of Sep 23<sup>rd</sup>, 2011

The data in this report are provided by the Ministry of Health solely for use by CUSIC members under the terms of the Second Renewed laboratory Agreement Between the BCMA and the Government of BC (October, 2010). The Ministry considers use for any other purpose as inappropriate and contrary to the terms and/or spirit of the Agreement.

**\$80.2M** was spent on outpatient lab testing in Q1 2011/12. Based on the current volume growth rate and the historical proportion of billings represented by Q1 claims, the annual lab test expenditure is projected to be **\$315.7M** or 1% below the targeted expenditure of **\$319.8M**.

**2011/12 Q1 Actual Outpatient Lab Expenditure and Annual Projection**



*The 2010/11 Q1 volume growth rate was -0.3% over the same quarter last year. However when the volume in Q1 of last year is adjusted for the effects of the billing rule changes in the 2010 Lab Agreement, the volume growth rate in Q1 2010/11 is 1.7% (a difference of 1.9% from the rate of 3.6% used to set targets in the Agreement).*

Data include all FFS MSP payments to public and private providers for outpatient laboratory tests (excluding rural retention payments) paid up to Aug 15<sup>th</sup>, 2011, 45 days after the end of the first quarter.

## Key Factors Driving Lab Test Utilization and Expenditure

1.05M outpatients received lab tests in Q1 2011/12, a 1.6% increase over same quarter last fiscal year.

The average number of encounters per tested outpatient increased marginally by 0.2% to 2.03.

The total number of patient encounters with lab testing increased by 1.8% to 2.1M, similar to the growth in the same quarter last year.

The average # of tests per encounter declined by 2% compared to the same quarter last fiscal year.

The 2011/12 Q1 test volume growth rate was -0.3%.

The average cost per test was \$7.69, representing a decline of 0.3% compared to the same quarter last fiscal year.

The 2011/12 Q1 test expenditure growth rate was -0.5%.

### Definitions:

*Tested outpatient* = # of unique MSP enrollees who had one or more of outpatient lab test in a given period.

*# of encounters* = number of unique service dates in MSP financial records for each unique outpatient in a given period.

*Average # of encounters per tested outpatient* = total number of encounters divided by total number of tested outpatients in the same period.

*Average # of tests per encounter* = total number of outpatient lab tests divided by total number of encounters in the same period.

*Average Cost per test* = total expenditure divided by total number of outpatient lab tests.

*Tests* = number of lab services (including primary base fee claims).

Tested outpatient population		Change over prior yr		(%)
Q1 2011/12	1,052,395	16,963		+1.6%
Q1 2010/11	1,035,432	10,945		+1.1%

	Average # of encounters/ tested outpatient	Change over prior yr	(%)	# of encounters	Change over prior yr	(%)
Q1 2011/12	2.030	+0.004	+0.2%	2,135,883	+38,182	+1.8%
Q1 2010/11	2.026	+0.018	+0.9%	2,097,701	+40,171	+2.0%

	Average # of tests per encounter	Change	(%)	Q1 Test Volume	Change	(%)
Q1 2011/12	4.88	-0.102	-2.0%	10,433,305	-26,419	-0.3%
Q1 2010/11	4.99	+0.082	+1.7%	10,459,724	+370,020	+3.7%

	Average cost per test	Change	(%)	Q1 Test Expenditure	Change	(%)
Q1 2011/12	\$7.69	-0.022	-0.3%	\$80,196,325	-\$438,097	-0.5%
Q1 2010/11	\$7.71	-0.012	-0.2%	\$80,634,422	+\$2,732,903	+3.5%

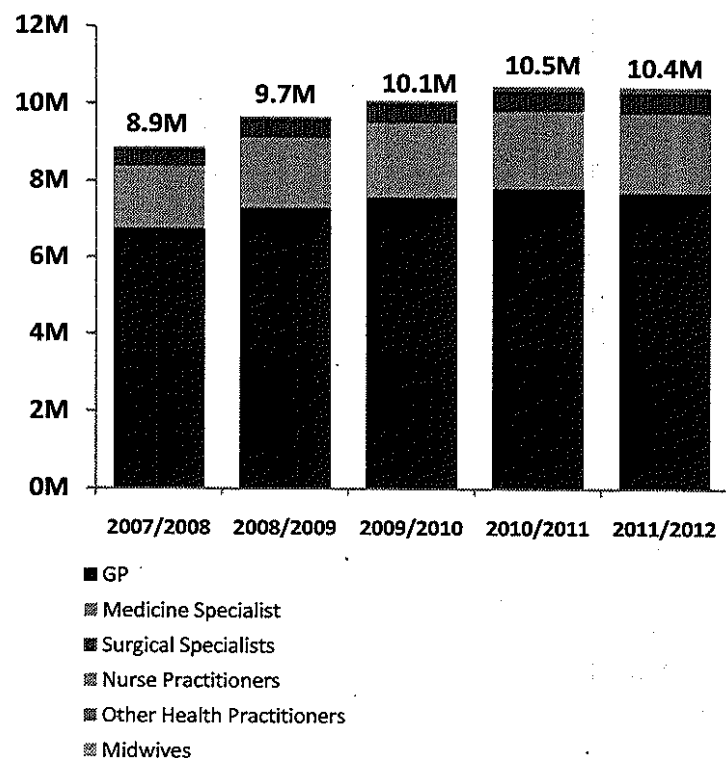
Data include all FFS MSP payments to public and private providers for outpatient laboratory tests (excluding rural retention payments) paid up to Aug 15<sup>th</sup>, 2011, 45 days after first quarter end.



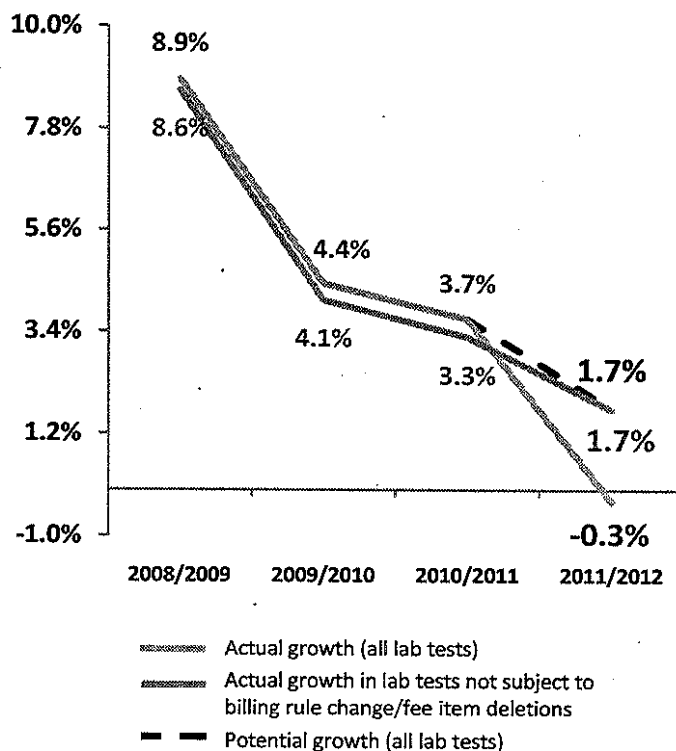
# MSP FFS Q1 Outpatient Lab Test Volumes 2007/08 to 2011/12 & Impact of the Agreement on Volume Growth

Over the last 5 years the rate of increase in Q1 lab test volume consistently declined from a high of 8.9% in 2008/09 over the prior year's Q1. In 2011/12 Q1 growth was negative for the first time. The terms of the 2010 lab Agreement resulted in Q1 MSP test volume of 10.4M tests, down from potentially 10.6M in the absence of the Agreement. The actual growth rate was -0.3%, vs. potentially 1.7% without the terms of the 2010 lab Agreement.

Q1 Outpatient lab test volumes



Q1-over-Q1 volume growth rates



Q1 LVD fee items	(HIBC report, July 31 <sup>st</sup> cut-off)		
	2011/12	2010/11	2009/10
Total LVD services	8.4M	8.1M	7.9M
% paid at 50%	26.5%	26.1%	24.0%
% paid at 100%	73.5%	73.9%	76.0%

## Definitions:

*Actual growth (all lab tests)* = Percentage change in the absolute volume of all lab fee items. Q1 2011/12 vs. Q1 2010/11.

*Actual growth in lab tests not subject to billing rule change/fee item deletions* = 1.7%

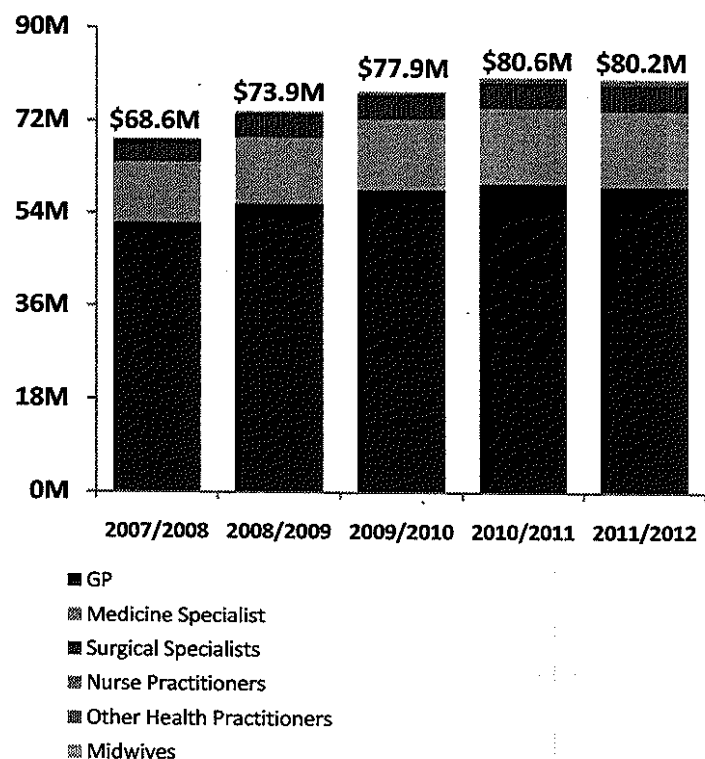
*Potential growth (all lab tests)* = Percentage change in the absolute volume of all lab fee items over the last fiscal year = 1.7%

Data include all FFS MSP payments to public and private providers for outpatient laboratory tests (excluding rural retention payments) paid up to Aug 15<sup>th</sup>, 2011, 45 days after first quarter end.

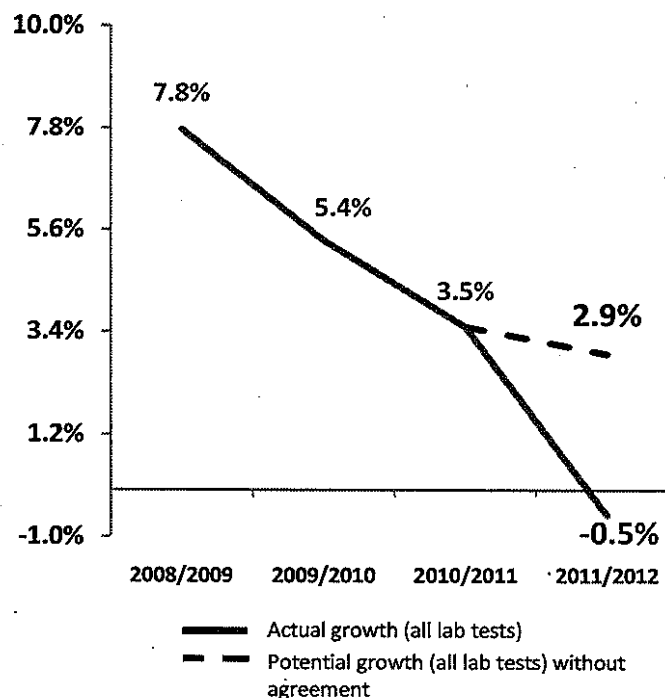
# MSP FFS Lab Test Expenditures 2007/08 to 2011/12 & Impact of the Agreement on Expenditure Growth

Over the last five years the rate of increase in Q1 expenditures for outpatient lab testing consistently declined from a high in 2008/09 of 7.8% over the prior year's Q1 expenditures. In 2011/12 Q1 the growth rate was negative for the first time. Lab costs were \$80.2M, representing a 0.5% decline over Q1 in the previous year. In the absence of the terms of the 2010 lab agreement lab costs would have been \$83.0M, representing a Q1/Q1 growth of 2.9%.

Q1 Outpatient lab test expenditure



Q1-over-Q1 expenditure growth rates



Q1 LVD fee items	(HIBC report, July 31 2011 cut-off)
Actual total LVD test expenditure	\$49.4M
Potential test expenditure (on same items) in the absence of LVD	\$56.8M
Average cost per LVD test	\$6.74 (without LVD) \$5.86 (with LVD)
Q1 non-LVD fee items	MSP data
Actual total non-LVD test expenditure	\$30.8M
Average cost per non-LVD test	\$15.43

Data include all FFS MSP payments to public and private providers for outpatient laboratory tests (excluding rural retention payments) paid up to Aug 15<sup>th</sup>, 2011, 45 days after first quarter end.

## Outpatient Demographics

**In 2011/12 Q1, 1.05M outpatients had lab tests, an increase of 17K over same quarter last year.** The age group specific growth is as follows:

An increase of 16K in age 55 and over in Q1 2011/12, compared to an increase of 16.9K in Q1 2010/11.

A decline of 2.4K in age 40-54 in Q1 2011/12, compared to a decline of 1.1K same quarter last year.

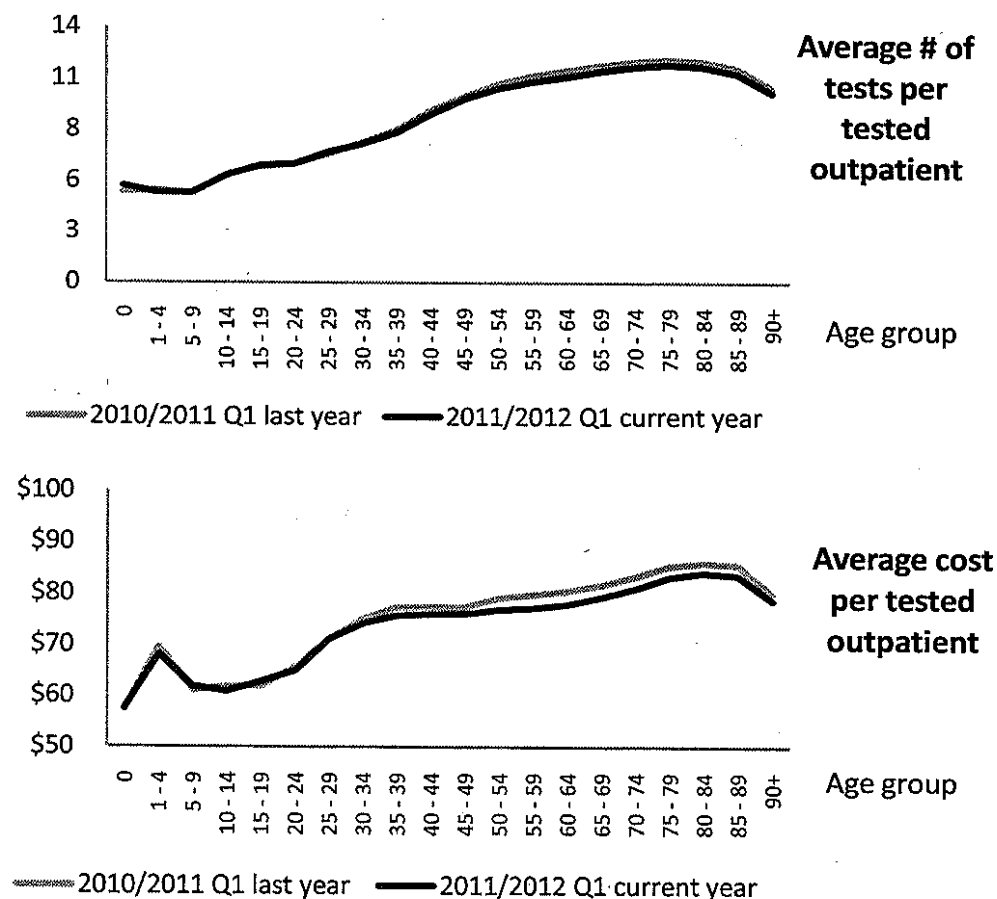
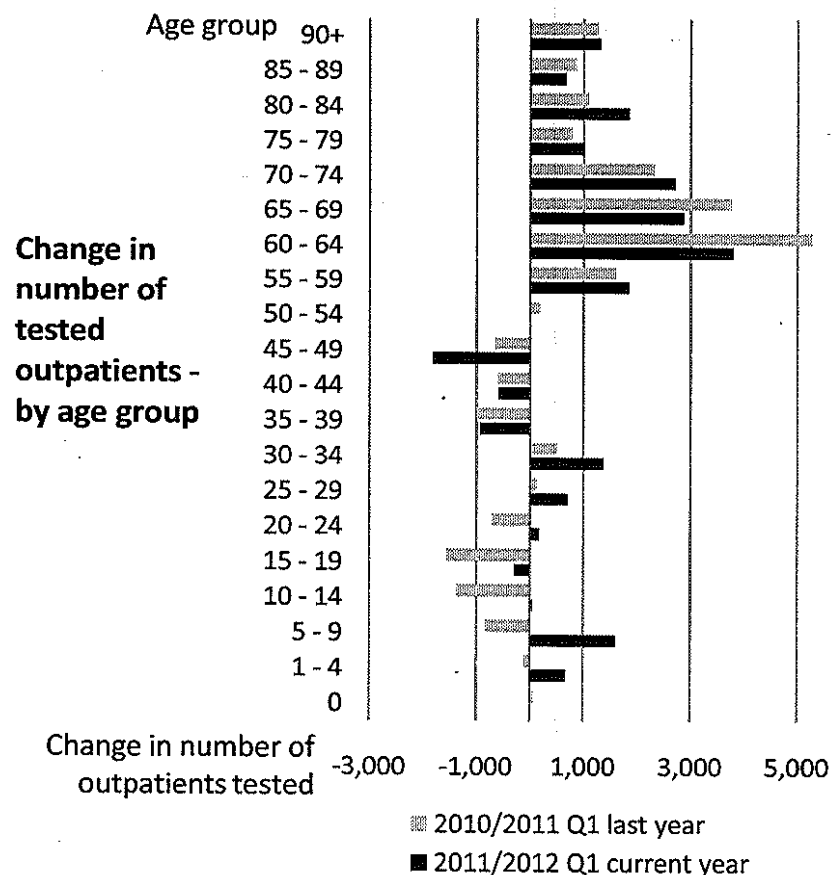
An increase of 1.3K in age 20-39 in Q1 2011/12, compared to a decline of 1.1K same quarter last year.

An increase of 2.0K in age 0-19 in Q1 2011/12, compared to a decline of 3.8K same quarter last year.

**The average # of tests per outpatient was 9.91, representing a decline of 1.9% (-0.19) and largely attributed to billing rule changes of the 2010 Agreement. The test rate per outpatient age 50 and above dropped on average by 0.29 to 11.38.**

**The average lab costs per outpatient was \$76.20, representing a decline of 2.1% over same quarter last year and 0.2% above 2009/10 Q1.**

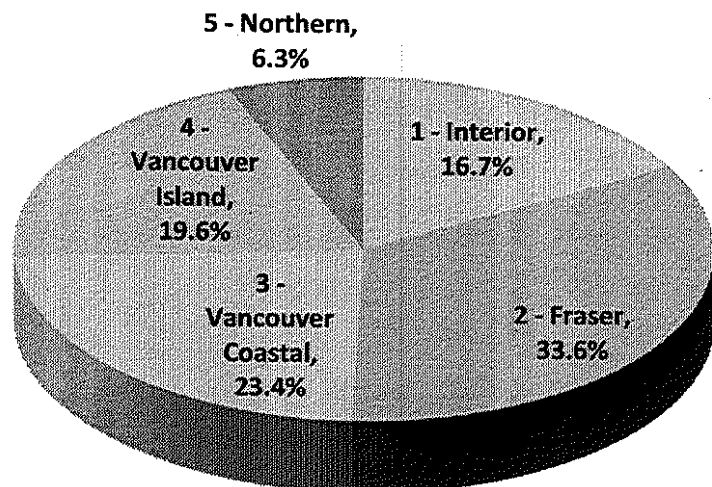
**The average cost per outpatient age 50 and above fell by \$2.34 to \$79.56.**



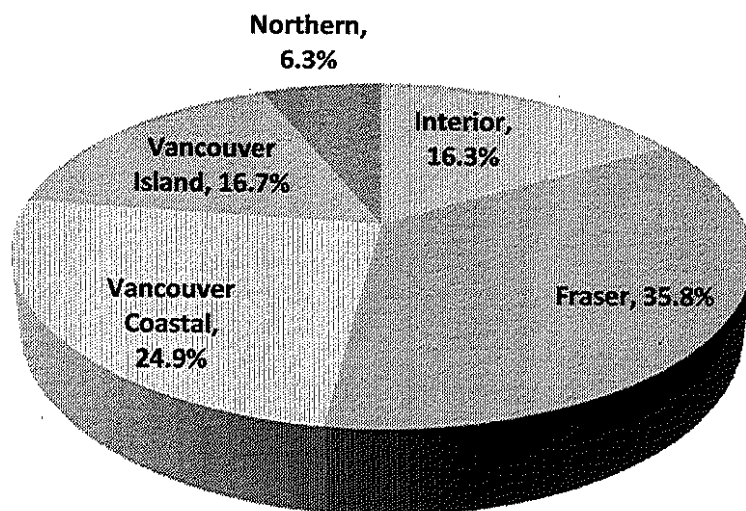


The regional utilization of lab tests reflects the regional population distribution. Change in regional population was correlated with change in lab test utilization over the last four years (note: no adjustment was made for age or gender).

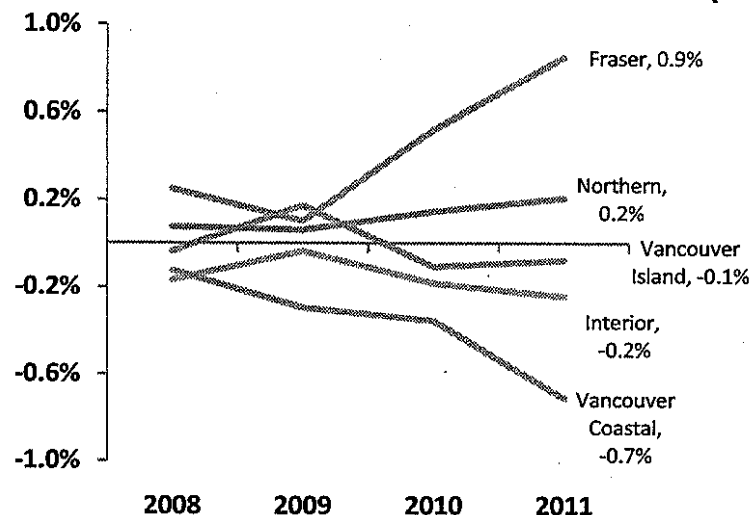
**HA Utilization Distribution  
(test volumes), %**



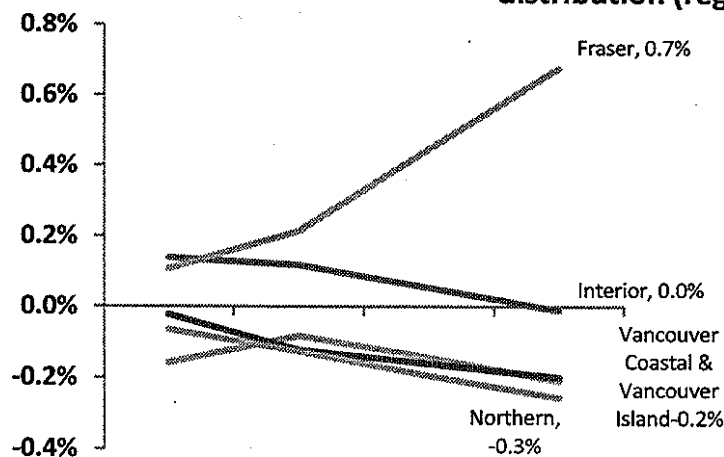
**HA Utilization Distribution  
(regional population), %**



**Cumulative Change in HA  
distribution (lab test volumes), %**



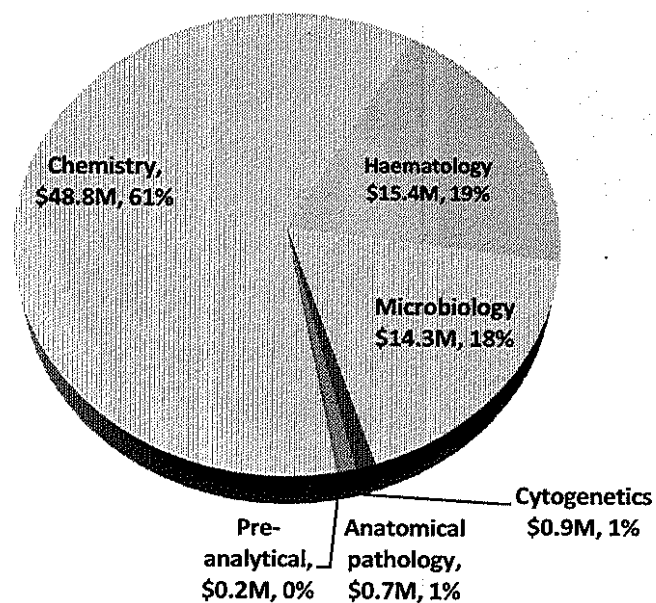
**Cumulative Change in HA  
distribution (regional population), %**



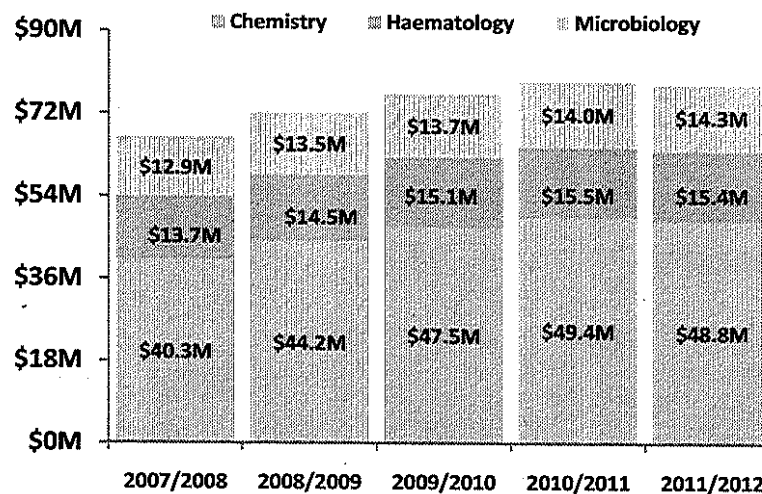


61% of the lab expenditure was for chemistry testing, 19% for haematology and 18% for microbiology.

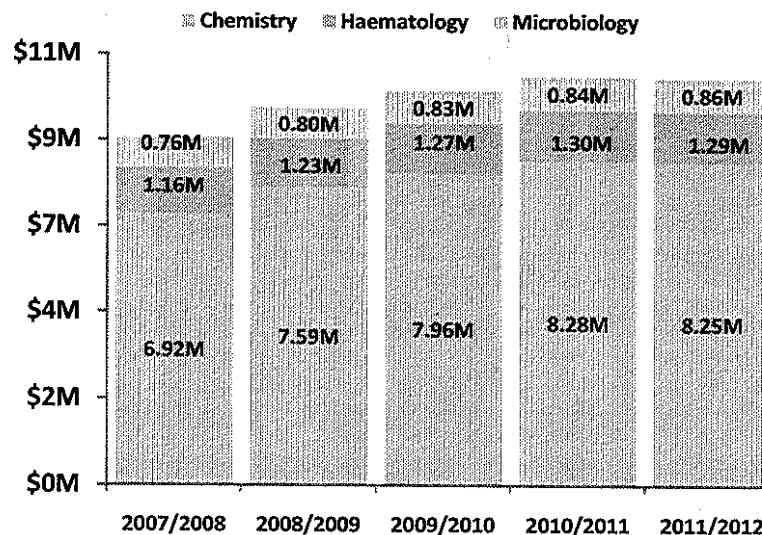
Distribution (expenditure), %



Test Expenditure



Test Volume





## Fee Item Level Analysis – Tests With Highest Growth in Volume Expenditure & Utilization of New Tests

	Q1 2011/12 Expenditure	Q1 2011/12 Volumes	Q1-over-Q1 growth	Q1-over- Q4 growth	Comment
<b>Tests that had the highest volume growth. (Exclusive of tests with overall volumes below the mean number of tests per fee item. i.e., low volume tests excluded.)</b> (Fee items 91040 - albumin, 91245 – bilirubin total, 91725 – GGT, 91070 - ALP were also flagged in this analysis and are presented in the following section.)					
92330 – Free T4	\$554K	63K	+51.8%	+32.9%	TSH volumes increased by 0.8%. The ratio of free T4 to TSH increased from 0.11 to 0.17.
92148 – Protein total, serum or plasma	\$44K	35K	+30.1%	+22.2%	Private labs increase: 59.1%. Public labs increase: 5.7%.
90465 – Blood film review	\$1.4M	78K	+23.0%	+2.4%	87% of the total increase was from one provider, reflecting an upward trend started in Q2 2010/11.
90700 – Hepatitis B surface antibody (anti-HBS)	\$227K	26K	+13.1%	+5.7%	91765 – HBsAg (34K) grew by 3.4% over Q1 last yr. & 0.6% over Q4 last yr.
91326 – Calcium total, serum/plasma	\$131K	103K	+12.9%	+8.2%	Population ageing effect? Vitamin D guideline related??
90775 – Throat or nose culture	\$1.07M	60K	+12.8%	-16.3%	Artefact of reversion to normal utilization after 2010/11 utilization spike correlated with the h1n1 pandemic and winter Olympics.
90725 – Serological identification – micro-organism	\$468K	29K	+11.9%	-4.8%	Historically used for GC NAAT testing. Volume growth has been gradually increasing since Q3 2010/11. Reasons are unclear.
<b>Test that had the highest expenditure growth. (Exclusive of tests with overall volumes below the mean number of tests per fee item. i.e., low volume tests excluded.)</b>					
92545 – GC/MS confirmation of positive screen	\$278K	4K	+31.4%	+7.0%	80% of the increase was from one provider, reflecting an upward trend started in Q4 2010/11. Reasons are unclear.
<b>New tests</b>					
90831 – Hepatitis B Virus (HBV) ID	\$340K	5.6K			90830 – Virus isolation – reduced by 92.3% (from 8,978 to 730) Aggregated (90830 + 90831 + 90833 + 90832) volume growth: +19.0% Aggregated expenditure growth: +27.8%
90833 – Cytomegalovirus Viral (CMV) ID by NAAT	\$101K	2.7K	–	–	
90832 – BK Polyoma Virus ID by NAAT	\$62K	1.6K			
90029 – Alpha – thalassemia, molecular testing	\$49K	728 tests	–	+9.3%	Related tests: 90240, 90245, 90540 Aggregated (90240 + 90245 + 90540 + 90029) volume growth: 0% Aggregated expenditure growth: +0.8%
92514 – Oxycodone, screening assay	\$48K	3.7K	–	+19.6%	92538 – Oxycodone confirmation test volume reduced from 2.4K in Q1 2010/11 to 9 tests in Q1 2011/12.
91695 – Glucose tolerance test – gestational protocol	\$30K	1.9K	–	–	In the related new fee item application BCMA estimated an annual total of 6.3K glucose tolerance tests related to the gestational protocol.

## Action Items From June 2011 CUSIC Meeting

1. Ordering practitioners – utilization (**page 11**).
2. Confidentiality – CUSIC members vs. others.
3. Nurse practitioners, midwives, registered nurses in certified practice – test menu (**pages 12 – 14**).
4. Registered nurses in certified practice – forecast of utilization.
5. Registered nurses in certified practice – laboratory requisition.
6. Naturopaths – update on lab test utilization.
7. ER visits – impact on utilization.
8. Fee item level analysis – CLEMC approach (**page 15**).
9. CDM – uptake plateau (**page 16**).
10. Specific items:
  - a. Inclusion of total volumes and expenditures (**pages 2 – 5**).
  - b. Utilization by sections (**page 8**).
  - c. Specific data requests:
    - i. Creatinine and urea testing (**page 17**).
    - ii. ACR utilization (**page 18**).
    - iii. ALT and AST utilization (**page 19**).
  - d. Utilization demographics by gender (**page 20**).
  - e. Vitamin D (**page 18**).
    - i. Utilization in NHA.
    - ii. Utilization in Ontario.
  - f. BNP testing.
    - i. Impact on sonograms (**page 21**).
    - ii. Specialist referral patterns (**see page 13 of 2010/11 Q4 report**).
  - g. APO B – utilization by specialty (**page 22**).



## 2010/11 MSP fee-for-service (FFS) outpatient laboratory expenditure and test volumes, by ordering practitioner types *paid through June 30<sup>th</sup>, 2011*

Ordering Practitioners	Paid Amounts	Rural Retention Payment	Test Volume
Medical Practitioners	\$304,434,885	\$570,351	40,168,256
Nurse Practitioners	\$ 1,914,273	\$5,946	235,066
Midwives	\$ 909,713	\$2,028	78,537
<b>Grand Total</b>	<b>\$ 307,258,871</b>	<b>\$578,325</b>	<b>40,481,859</b>



### 3. List of Tests Ordered by Nurse Practitioners and Midwives in 2010/11

Fee Item	Nurse Practitioners	Midwives	LVD
90000 - VENEPUNCTURE	✓	✓	
90029 - ALPHA-THALASSEMIA, MOLECULAR TESTING FOR COM DEFECT	✓		
90035 - ANTI-DNA	✓		
90040 - ANTI-THROMBIN III/COAGULATION PROTEINS - BYCHROMOG	✓		
90046 - BETA 2 GLYCOPROTEIN ((B2GP)) ANTIBODY SCREEN	✓		
90055 - CIRCULATING INHIBITOR SCREEN - UNINCUBATED-SIMPLE	✓		
90068 - CYCLIC CITRULLINATED PEPTIDE ANTIBODIES	✓		
90073 - DILUTE RUSSELL VIPER VENOM TIME	✓		
90080 - ANTIGLOBULIN COOMBS TEST - DIRECT		✓	
90115 - EXAMINATION - EOSINOPHILS/SECRETIONS/EXCRETIONS	✓		
90120 - ENA (EXTRACTABLE NUCLEAR ANTIGENS)	✓		
90127 - FACTOR V LEIDEN/PGM - 1ST GENE	✓		
90128 - FACTOR V LEIDEN/PGM - 2ND GENE	✓		
90135 - FACTOR VIII C ASSAY	✓		
90170 - FIBRIN/FIBRINOGEN DEGRADATION/INCLUDING D - DIMER	✓		
90180 - FOETAL CELL STAIN		✓	
90185 - GLUCOSE-6-PHOSPHATE DEHYDROGENASE	✓		
90205 - HAEMATOLOGY PROFILE	✓	✓	YES
90220 - HAEMOGLOBIN A2 FRACTIONATION	✓		
90225 - HAEMOGLOBIN-CYANMETHAEMOGLOBIN	✓	✓	
90230 - HAEMOGLOBIN ONLY	✓	✓	
90240 - HEMOGLOBIN ELECTROPHORESIS	✓		
90245 - HAEMOGLOBIN-H INCLUSION BODIES	✓		
90265 - HLA - SINGLE ANTIGEN	✓		
90280 - IMMUNOFLUORESCENT STAINING - AUTOANTIBODIES	✓		
90285 - IMMUNOFLUORESCENT STAINING - AUTOANTIBODIES	✓		
90290 - IMMUNOPHENOTYPING BY FLOW CYTOMETRY- PERIPHERAL	✓		
90300 - COOMBS - INDIRECT		✓	
90305 - SLIDE AGGLUTINATION - INFECTIOUS MONONUCLEOSIS	✓		
90315 - LATEX TEST (RHEUMATOID FACTOR)	✓		YES
90335 - MALARIA/OTHER PARASITES	✓		
90370 - THROMBOPLASTIN TEST, PARTIAL	✓		YES
90377 - PHOSPHOLIPID NEUTRALIZATION TEST - CONFIRM LUPUS	✓		
90395 - PLATELET COUNT ONLY	✓	✓	
90420 - PROTEIN C ACTIVITY	✓		
90427 - PROTEIN S ACTIVITY (CLOT BASED)	✓		
90430 - PROTEIN S FREE ANTIGEN	✓		
90440 - PROTHROMBIN TIME/INR	✓		YES
90465 - BLOOD FILM REVIEW	✓	✓	
90490 - RETICULOCYTE COUNT AND/OR HEINZ BODIES	✓		YES
90505 - RISTOCETIN CO-FACTOR ASSAY	✓		
90515 - SEDIMENTATION RATE	✓		
90525 - SICKLE CELL IDENTIFICATION		✓	
90540 - THALASSEMIA/HEMOGLOBINOPATHY INVESTIGATION	✓		
90545 - THROMBIN TIME	✓		
90555 - VON WILLEBRAND FACTOR ANTIGEN	✓		
90570 - WHITE CELL COUNT ONLY	✓	✓	

Fee Item	Nurse Practitioners	Midwives	LVD
90605 - ANAEROBIC CULTURE INVESTIGATION	✓	✓	
90615 - ANTIBIOTIC SUSCEPTIBILITY TEST - SEMI-QUANTITATIVE	✓	✓	
90620 - BIOCHEMICAL IDENTIFICATION - MICRO-ORGANISM	✓	✓	
90625 - BLOOD CULTURE - AEROBIC/ANAEROBIC MEDIA	✓		
90630 - C. DIFFICILE TOXIN - IMMUNOLOGICAL	✓		
90640 - CANDIDA CULTURE	✓	✓	
90651 - CHLAMYDIA TRACHOMATIS USING NAT	✓	✓	YES
90652 - CHLAMYDIA TRACHOMATIS USING NAT	✓	✓	YES
90653 - GONORRHEA BY NAAT-URINE	✓	✓	
90654 - GONORRHEA BY NAAT-UROGENITAL SWAB	✓	✓	
90655 - CLOSTRIDIUM DIFFICILE TOXIN - TISSUE CULTURE	✓		
90665 - FUNGUS CULTURE	✓		
90670 - FUNGUS DIRECT EXAMINATION KOH PREPARATION	✓		
90685 - HEPATITIS A - IGM ANTIBODY (ANTI-HAV-IGM)	✓		
90690 - HEPATITIS B CORE ANTIBODY (ANTI-HBC)	✓	✓	YES
90700 - HEPATITIS B SURFACE ANTIBODY (ANTI-HBS)	✓	✓	YES
90710 - PROSTATIC SPECIFIC ANTIGEN (PSA)	✓		YES
90715 - ROTAVIRUS ANTIGEN	✓		
90720 - ROUTINE CULTURE	✓	✓	
90725 - SEROLOGICAL IDENTIFICATION - MICRO-ORGANISM	✓	✓	
90736 - CERVICAL CULTURE	✓	✓	
90737 - VAGINAL CULTURE	✓	✓	
90738 - URETHRAL CULTURE	✓	✓	
90739 - COMBINED VAGINO-ANORECTAL OR VAGINAL CULTURE	✓	✓	
90740 - STAINED SMEAR	✓	✓	
90741 - GENITAL CULTURE - OTHER SITE	✓	✓	
90745 - STOOL CULTURE	✓		
90750 - BIOCHEMICAL IDENTIFICATION - MICRO-ORGANISM/STOOL	✓		
90760 - STREPTOCOCCI - RAPID TEST	✓		
90775 - THROAT OR NOSE CULTURE	✓		
90780 - THROAT OR NOSE CULTURE - ADDITIONAL	✓		
90784 - TRICHOMONAS ANTIGEN TEST	✓	✓	
90785 - TRICHOMONAS AND/OR CANDIDA, DIRECT EXAMINATION	✓	✓	
90790 - URINE COLONY COUNT CULTURE	✓	✓	
90795 - PINWORM OVA - EXAMINATION	✓		
90800 - STOOL EXAMINATION - CONCENTRATION METHOD	✓		
90805 - PARASITE - MACROSCOPIC/MICROSCOPIC EXAM	✓		
90810 - STOOL EXAMINATION - AMOEBAE	✓		
90815 - SEROLOGICAL TESTS - 1-3 ANTIGENS	✓		
90820 - SEROLOGICAL TESTS - > 4 ANTIGENS	✓		
90830 - VIRUS ISOLATION	✓		
91000 - PRIMARY BASE FEE	✓	✓	YES
91005 - SPLIT BASE FEE (COLLECTING FACILITY)	✓	✓	
91010 - SPLIT BASE FEE (REFERRAL FACILITY)	✓	✓	
91035 - ACTH, PLASMA	✓		
91037 - ACYLCARNITINE PROFILING	✓		
91040 - ALBUMIN, SERUM/PLASMA	✓	✓	YES
91050 - ALCOHOL	✓		
91060 - ALDOSTERONE, PLASMA/SERUM	✓		

### 3. List of Tests Ordered by Nurse Practitioners and Midwives in 2010/11

Fee item	Nurse Practitioners	Midwives	LVD
91065 - ALANINE AMINOTRANSFERASE	✓	✓	YES
91070 - ALKALINE PHOSPHATASE	✓	✓	YES
91075 - ALLERGEN SPECIFIC IGE ASSAY	✓		
91080 - ALPHA-1 ANTITRYPSIN	✓		
91090 - ALPHA FETOGLOBULIN	✓		
91095 - ALPHA FETOPROTEIN		✓	YES
91105 - AMINO ACID, QUANTITATIVE, CHROMATOGRAPHY	✓		
91115 - AMMONIA	✓		
91126 - AMYLASE, SERUM/PLASMA			YES
91130 - PROTEINASE 3 ANTINEUTROPHIL CYTOPLASMIC ANTIBODY	✓		
91135 - ANDROSTENEDIONE, PLASMA	✓		
91140 - ANGIOTENSIN CONVERTING ENZYME (ACE)-SERUM ANALYSIS	✓		
91145 - ANTICARDIOLIPIN AB, IGG	✓		
91146 - ANTICARDIOLIPIN AB, IGM	✓		
91160 - ANTIMYELOPEROXIDASE ANTIBODY	✓		
91162 - ANTI-TISSUE TRANSGLUTAMINASE ANTIBODIES(ANTI-TTG)	✓		
91170 - APOLIPOPROTEIN B - 100	✓		
91185 - ARSENIC	✓		
91210 - ASPARTATE AMINOTRANSFERASE	✓	✓	YES
91235 - BICARBONATE, SERUM/PLASMA	✓		YES
91240 - BILE PIGMENTS AND SALTS, QUALITATIVE, URINE	✓		
91245 - BILIRUBIN TOTAL, SERUM/PLASMA	✓	✓	YES
91250 - BILIRUBIN, DIRECT	✓	✓	
91275 - B-TYPE NATRIURETIC PEPTIDE(BNP OR NT-PROBNP)	✓		
91285 - C - 3 COMPLEMENT	✓		
91290 - C - 4 COMPLEMENT	✓		
91295 - C - PEPTIDE	✓		
91300 - C - REACTIVE PROTEIN	✓		YES
91305 - CA 15 - 3	✓		
91310 - CA 125	✓		YES
91315 - CA 19 - 9	✓		
91320 - CALCITONIN	✓		
91325 - CALCIUM, TIMED URINE COLLECTION	✓		
91326 - CALCIUM TOTAL, SERUM/PLASMA	✓	✓	YES
91328 - CALCIUM, URINE RANDOM	✓		
91330 - CALCULUS ANALYSIS, URINE	✓		
91335 - CARBAMAZEPINE	✓		
91340 - CARBON MONOXIDE, QUANTITATIVE	✓		
91352 - CATECHOLAMINES, TOTAL URINE	✓		
91356 - CELL DIFFERENTIAL - CSF AND OTHER BODY FLUIDS	✓		
91360 - CERULOPLASMIN	✓		
91366 - CHLORIDE, SERUM/PLASMA	✓	✓	YES
91370 - CHLORIDE - IONTOPHORESIS, SWEAT	✓		
91375 - CHOLESTEROL, TOTAL	✓		YES
91400 - COPPER, SERUM	✓		
91402 - COPPER, URINE	✓		
91405 - CORTISOL	✓		
91415 - CREATINE KINASE	✓		YES
91420 - CREATININE, RANDOM URINE	✓	✓	
91421 - CREATININE, SERUM/PLASMA	✓	✓	YES
91422 - CREATININE, TIMED URINE COLLECTION	✓	✓	

Fee item	Nurse Practitioners	Midwives	LVD
91440 - CRYOGLOBULINS	✓		
91460 - DEHYDROEPIANDROSTERONE, SERUM (DHEA)	✓		
91465 - DIGOXIN	✓		
91482 - ACETAMINOPHEN (QUANTITATIVE)	✓		
91494 - CITRATE, URINE	✓		
91500 - CLONAZEPAM	✓		
91502 - CLOZAPINE	✓		
91538 - METHOTREXATE	✓		
91564 - TOBRAMYCIN	✓		
91572 - VALPROIC ACID	✓		
91573 - VANCOMYCIN	✓		
91600 - ELECTROPHORESIS, PROTEIN, QUALITATIVE	✓		
91601 - ELECTROPHORESIS, PROTEIN, QUANTITATIVE	✓		
91603 - ELECTROPHORESIS, QUALITATIVE, URINE	✓		
91610 - ESTRADIOL	✓		YES
91645 - FERRITIN, SERUM	✓	✓	YES
91650 - FIBRINOGEN, QUANTITATIVE, CHEMICAL	✓		
91660 - FOLLICLE STIMULATING HORMONE (FSH)	✓		YES
91690 - GLUCOSE, GESTATIONAL ASSESSMENT	✓	✓	
91700 - GLUCOSE SEMIQUANTITATIVE	✓		
91707 - GLUCOSE, QUANTITATIVE SERUM/PLASMA	✓	✓	YES
91715 - GLUCOSE TOLERANCE TEST, 2 - 5 HOURS	✓	✓	
91725 - GLUTAMYL TRANSPEPTIDASE (GTP)	✓	✓	YES
91740 - HAPTOGLOBIN	✓		
91745 - HAEMOGLOBIN, A1C	✓		YES
91760 - HELICOBACTER PYLORI CARBON 13 UREA BREATH TEST	✓		
91761 - HELICOBACTER PYLORI STOOL ANTIGEN (HPSA)	✓		
91765 - HEPATITIS B SURFACE ANTIGEN	✓	✓	YES
91780 - HDL CHOLESTEROL	✓		YES
91802 - IGA QUANTITATIVE, SERUM/PLASMA	✓		
91805 - IGF - I (SOMATOMEDIN - C)	✓		
91821 - IMMUNOFIXATION, SERUM/PLASMA	✓		
91840 - IGG - QUANTITATIVE SERUM	✓		
91845 - IGM - QUANTITATIVE	✓		
91855 - INSULIN, FIRST SPECIMEN	✓		
91860 - IONIZED CALCIUM	✓		
91865 - IRON, TOTAL AND BINDING CAPACITY, PROTEIN	✓		YES
91895 - LACTATE, SERUM/PLASMA	✓		
91901 - LACTATE DEHYDROGENASE, SERUM/PLASMA	✓	✓	YES
91905 - LACTOSE, QUALITATIVE, URINE	✓		
91910 - LEAD	✓		
91925 - LIGHT CHAINS, FREE KAPPA AND LAMBDA	✓		
91930 - LIPASE	✓		
91935 - LIPOPROTEIN(A)	✓		
91945 - LITHIUM, SERUM/PLASMA	✓		
91950 - LUTEINIZING HORMONE (LH)	✓		YES
91957 - MAGNESIUM, SERUM/PLASMA	✓	✓	YES
91958 - MAGNESIUM, URINE	✓		
91965 - MERCURY	✓		
91975 - METANEPHRINES, QUANTITATIVE	✓		
91985 - ALBUMIN CREATININE RATIO (ACR)	✓	✓	YES

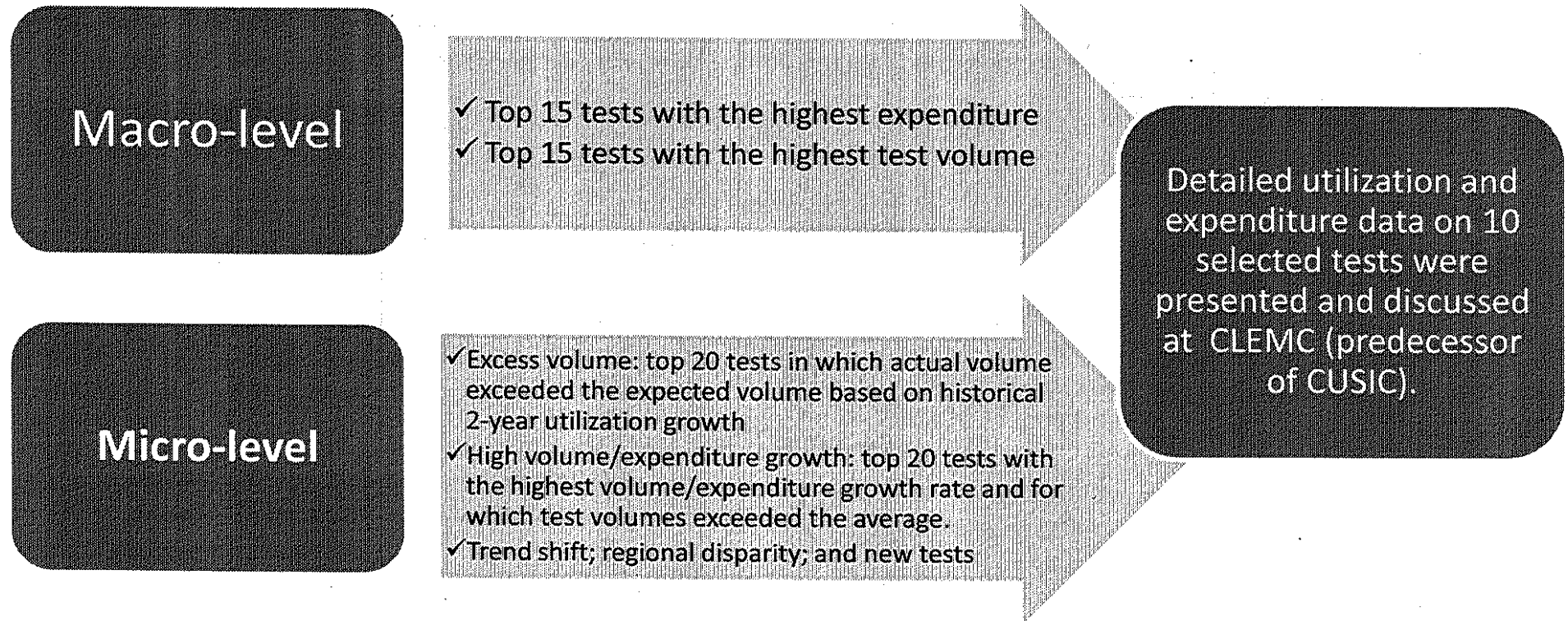
### 3. List of Tests Ordered by Nurse Practitioners and Midwives in 2010/11

Fee Item	Nurse Practitioners	Midwives	LVD
91990 - MICROSCOPIC EXAMINATION OF FECES	✓		
92005 - OCCULT BLOOD-FECES	✓		
92010 - ORGANIC ACIDS	✓		
92015 - OSMOLAR CONCENTRATION, SERUM	✓		
92016 - OSMOLAR CONCENTRATION, URINE	✓		
92020 - OXALATE, TIMED URINE COLLECTION	✓		
92030 - PARATHYROID HORMONE (INTACT)	✓		YES
92045 - PH, PCO2 AND PO2	✓		
92060 - PHENYTOIN	✓		
92071 - PHOSPHATES, SERUM/PLASMA	✓	✓	YES
92080 - HOMOCYSTEINE - PLASMA	✓		
92090 - PORPHYRINS, QUALITATIVE, URINE	✓		
92091 - PORPHYRINS, QUANTITATIVE - URINE	✓		
92100 - POTASSIUM, SERUM/PLASMA	✓	✓	YES
92101 - POTASSIUM, TIMED URINE COLLECTION	✓		
92103 - POTASSIUM, WHOLE BLOOD	✓		
92105 - PRE ALBUMIN	✓		
92108 - PREGNANCY TEST, IMMUNOLOGIC - URINE	✓	✓	
92110 - PREGNANCY TEST - SERUM	✓	✓	
92130 - PROGESTERONE, SERUM/PLASMA	✓		YES
92131 - PROGESTERONE, SERUM/PLASMA 17-OH	✓		
92135 - PROLACTIN	✓		YES
92145 - PROTEINS, TOTAL QUANTITATIVE, C.S.F.	✓		
92146 - PROTEIN, TIMED URINE COLLECTION	✓	✓	
92148 - PROTEIN TOTAL, SERUM OR PLASMA	✓	✓	YES
92149 - PROTEIN TOTAL, TRANSUDATE/EXUDATE	✓		
92150 - PROTEASE INHIBITOR	✓		
92160 - QUANTITATIVE BETA HCG	✓	✓	YES
92165 - QUANTITATIVE HCG (INTACT)	✓		YES
92170 - IGE ASSAY, QUANTITATIVE (DUPLICATE)	✓		
92230 - SODIUM, RANDOM URINE	✓		
92231 - SODIUM, SERUM/PLASMA	✓	✓	YES
92232 - SODIUM, TIMED URINE COLLECTION	✓		
92233 - SODIUM, WHOLE BLOOD	✓		
92263 - TACROLIMUS	✓		
92265 - TESTOSTERONE FREE	✓		
92266 - TESTOSTERONE TOTAL	✓		
92275 - THEOPHYLLINE	✓		
92280 - THYROGLOBULIN	✓		
92285 - THYROGLOBULIN ANTIBODIES	✓		
92305 - THYROID RECEPTOR AB	✓		
92310 - TOTAL T3	✓		
92311 - T3 - FREE	✓		YES
92325 - THYROID STIMULATING HORMONE, TSH	✓	✓	YES
92330 - FREE T4	✓	✓	YES
92332 - THYROPEROXIDASE ANTIBODIES	✓		
92345 - TRANSFERRIN	✓		
92346 - TRANSFERRIN ISOELECTRIC FOCUSING(QUALITATIVE)	✓		
92350 - TRIGLYCERIDES, SERUM/PLASMA	✓		YES
92355 - TROPONIN	✓		YES

Fee Item	Nurse Practitioners	Midwives	LVD
92367 - UREA, NITROGEN QUANTITATIVE, URINE	✓		
92368 - UREA, SERUM/PLASMA	✓	✓	YES
92376 - URIC ACID, SERUM/PLASMA	✓	✓	YES
92378 - URIC ACID, TIMED URINE COLLECTION	✓		
92385 - URINALYSIS - OR ANY PART OF (SCREENING)	✓	✓	
92390 - URINALYSIS, MACROSCOPIC	✓	✓	
92391 - URINALYSIS-MICROSCOPIC EXAM OF CENTRIFUGED DEPOSIT	✓	✓	
92395 - URINALYSIS, MICROSCOPIC	✓	✓	
92420 - VANILLYLMADELIC ACID	✓		
92450 - VITAMIN B12	✓	✓	YES
92455 - VITAMIN D (1,25 DIHYDROXY)	✓		
92460 - VITAMIN D (25 HYDROXY-CHOLECALCIFEROL)	✓		
92475 - ZINC	✓		
92500 - PRIMARY BASE FEE	✓		
92503 - AMPHETAMINES	✓		
92504 - BARBITUATES	✓		
92505 - BENZODIAZEPINES	✓		
92506 - TETRAHYDROCANNABINOIDS (THC)	✓		
92507 - COCAINE/COCAINE METABOLITE	✓		
92508 - ETHANOL	✓		
92510 - METHADONE METABOLITE	✓		
92511 - OPIATES	✓		
92512 - PHENOXYCLIDINE (PCP)	✓		
92513 - METHADONE	✓		
92514 - OXYCODONE, SCREENING ASSAY	✓		
92521 - 1-METAMPHETAMINE	✓		
92528 - HYDROMORPHONE	✓		
92535 - METHYLENEDIOXYMETHAMPHETAMINE	✓		
92536 - N-ACETYL MORPHINE	✓		
92545 - GC/MS CONFIRMATION OF POSITIVE SCREEN	✓		
92550 - URINE, DRUGS OF ABUSE SCREEN - PER ANALYTE	✓		
93010 - CRYSTAL IDENTIFICATION SYNOVIAL FLUID	✓		
93085 - FINE NEEDLE ASPIRATE - CYTOLOGIC EXAMINATION	✓		
93090 - CYTOLOGIC INTERPRETATION OF PRE-SCREENED CYTOLOGY	✓		
93160 - SEMEN - EXAMINATION - COMPLETE	✓		
93170 - SEMINAL EXAMINATION	✓		
	280	73	56



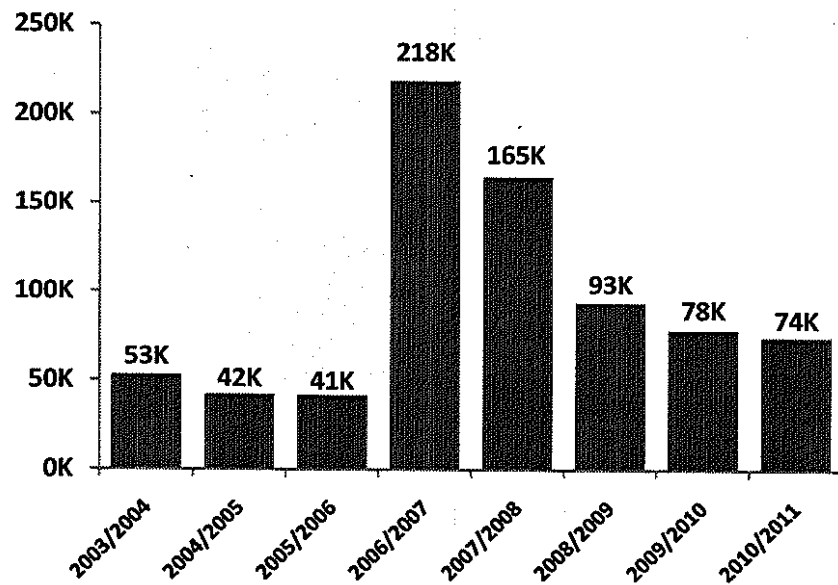
## 8. Summary of CLEMC Process for Selecting Fee Items for Detailed Analysis of Utilization and Expenditure



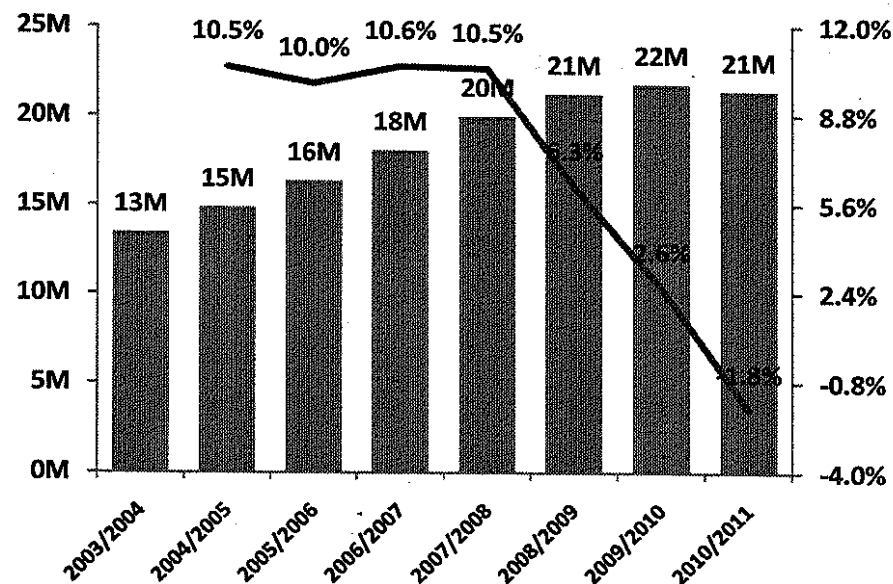
## 9. GP Incentive Payment Chronic Care Program Showing Plateau Likely due to Attaining Maximum Uptake

The GP incentive payment program for chronic care was launched in 2003. There was a significant uptake in 2006/07 when an incentive payment for hypertension care was introduced. Since then utilization grew by around 10% per year until 2008/09 and then gradually declined to a low of -1.8% in 2010/11.

Number of new patients enrolled under GP incentive chronic care program, by fiscal year



Utilization of all types of lab tests by CDM registry patients  
(i.e. Hypertension, Diabetes, and/or CHF)



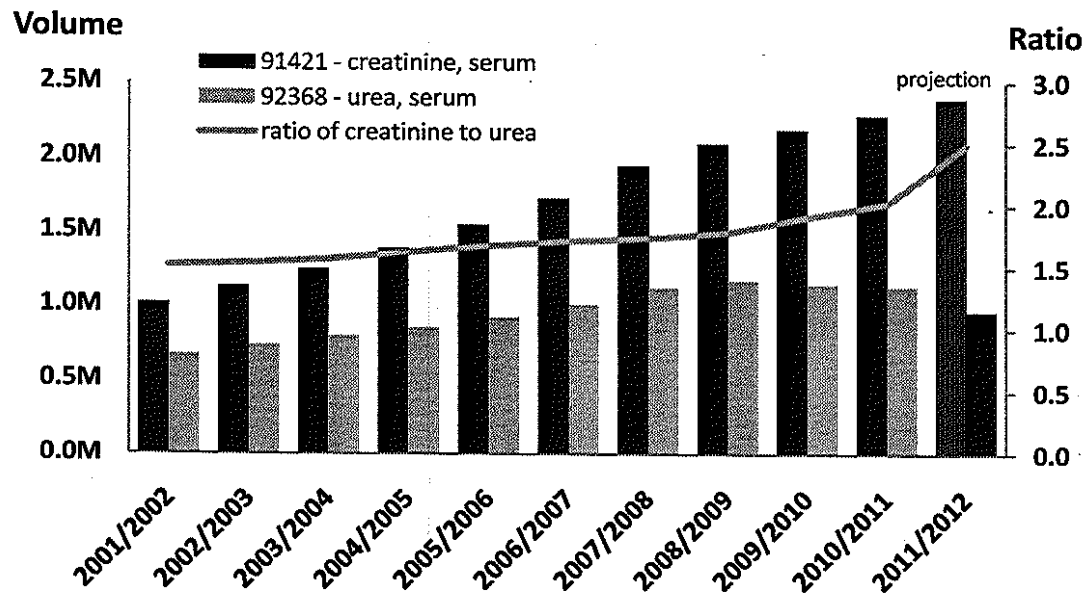
## 10. c. i. Creatinine-to-Urea Ratio

In Q1 2011/12, creatinine serum test volume increased by 4.1% while the urea test volume declined by 17% over last fiscal year's Q1. Overall, the ratio of creatinine to urea test volumes increased from 1.52 in 2001/02 to 2.45 in Q1 of 2011/12, largely due to the proportionally large reduction in utilization of urea serum testing (26.3% on average by private providers and 4.9% on average by public providers (note: testing by one public provider declined by 16.1%).

### 2011/12 Q1 Volumes and Ratio of Creatinine (91421)-to-Urea (92368)

2011/12 Q1	Q1 Volume	Q1-over-Q1	Current creatinine-to-urea ratio
91421 – creatinine, serum	607K	+4.1%	2.45
92368 – urea, serum	244K	-17.0%	

Historical Volumes and Ratios of Creatinine (91421)-to-Urea (92368), 2001/02 to 2010/11. (2011/12 projection based on Q1 data.)



### Co-testing for same PHN/ordering physician/date

In 2010/11, 97.8% of the urea tests were co-billed with creatinine serum (which accounted for 48% of the volumes of creatinine serum test).



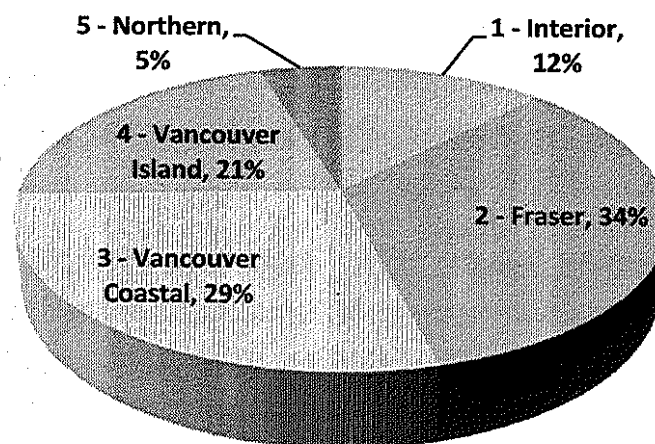
## 10. c. ii. ACR

**The new billing rule resulted in a significant decline in billing creatinine, random urine.** (Note: one provider accounted for 59% of 91420 – creatinine, random urine claims in Q1 2011/12 and this provider's billing pattern is against the trend.)

2010/11				2011/12
Q1	Q2	Q3	Q4	Q1
<b>91420 - CREATININE, RANDOM URINE</b>				
135,156	121,921	6,151	9,532	9,311
<b>91985 - ALBUMIN CREATININE RATIO (ACR)</b>				
146,280	130,125	125,583	140,889	139,713

## 10. e. i Vitamin D tests Utilization

**HA Utilization Distribution (in terms of volumes), %**



## 10. c. iii. Liver Function Tests – ALT and AST and Ratio

In Q1 2011/12, testing for ALP, GGT, bilirubin total, and albumin grew at double-digit rates; AST utilization declined by 17.8%, while ALT increased slightly higher than previous Q1-over-Q1 growth rate. Overall, the ratio of ALT to AST test volumes increased from 0.66 in 2001/02 to 1.36 in Q1 of 2011/12, largely due to the proportionally large reduction in utilization of AST testing (on average, 23.5% by private providers and on average, 5.9% by public providers (note: utilization by two public providers declined by 11.4% and 13.6%).

The current change will cost MSP an additional \$200K on an annual basis.

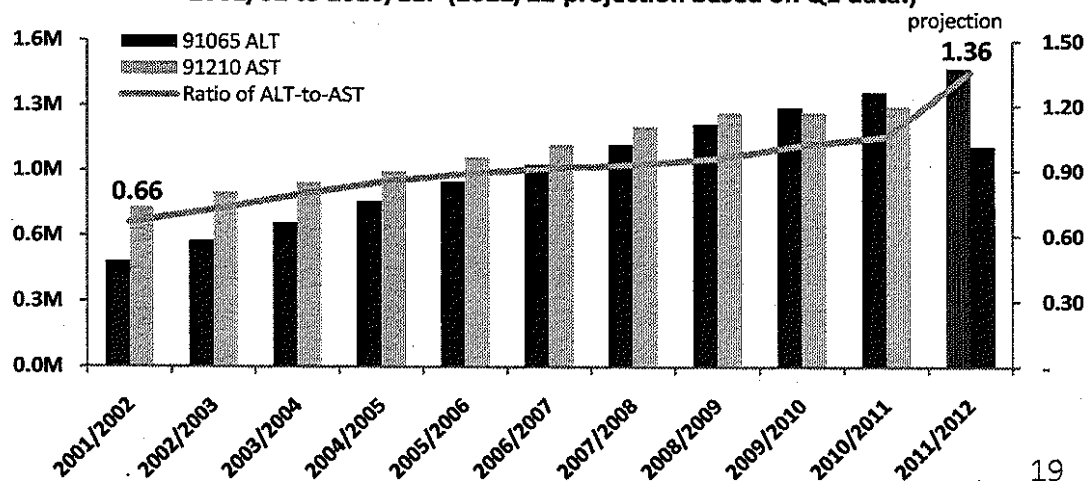
Top 10 combinations	10 years ago 2001/02	Last fiscal year 2010/11	Current quarter Q1 2011/12
ALT, AST	15%	23%	18%
ALT, AST, ALP, GGT	14%	19%	17%
ALT	5%	14%	18%
ALT, AST, GGT	9%	11%	8%
ALT, AST, ALP	9%	9%	8%
ALT, ALP, GGT	1%	1%	7%
AST, ALP, GGT	8%	3%	3%
AST	13%	7%	5%
AST, ALP	12%	3%	3%
AST, GGT	4%	2%	1%
% of total encounters	90%	92%	88%

☐ More co-testing using these combination were observed in Q1 2011/12.

2011/12 Q1	Q1 Volume	2011/12 Q1-over-Q1	2010/11 Q1-over-Q1
91065 – ALT	372K	+7.7%	+6.6%
91210 – AST	274K	-17.8%	+3.8%
91070 – ALP	192K	+12.5%	+3.6%
91725 – GGT	185K	+13.3%	+4.3%
91245 – Bilirubin total	130K	+15.4%	+6.2%
91040 – Albumin	116K	+20.2%	+4.4%
91901 – Lactate Dehydrogenase	54K	-10.1%	-2.4%

97% and 79% of bilirubin and albumin tests, respectively, were co-billed with one or more of the four liver function tests (ALT, AST, ALP, GGT) historically and in the current Q1 quarter. Note: 90% of LDH tests were also co-billed with one or more of the four liver tests.

Historical Volumes and Ratios of ALT (91065) – to – AST (91210), 2001/02 to 2010/11. (2011/12 projection based on Q1 data.)

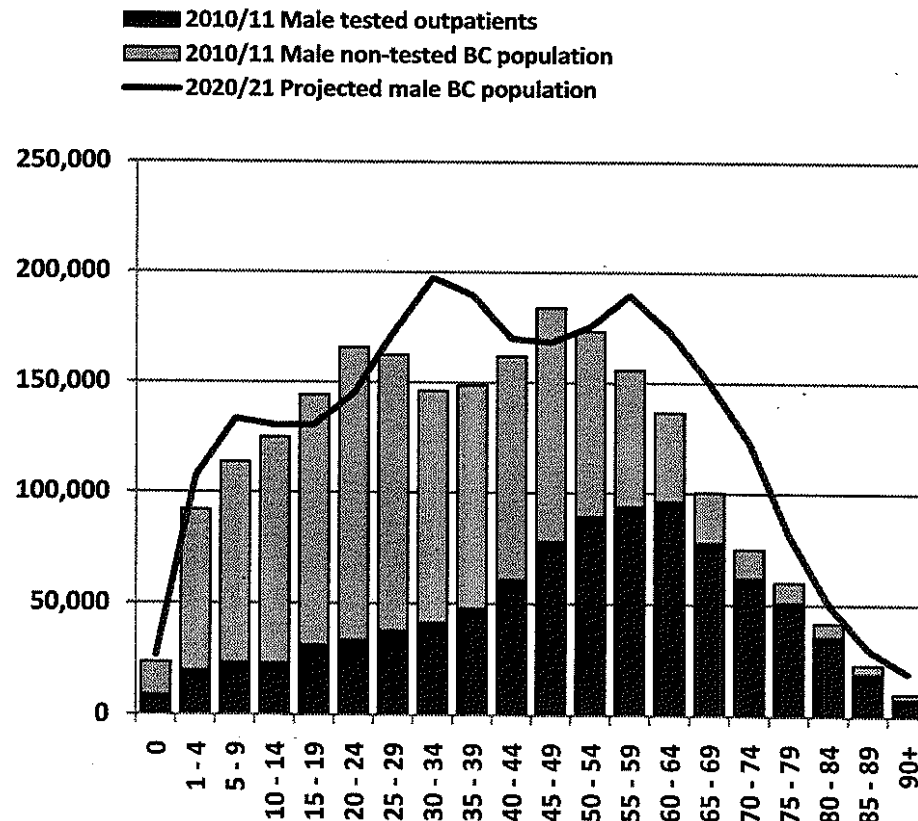
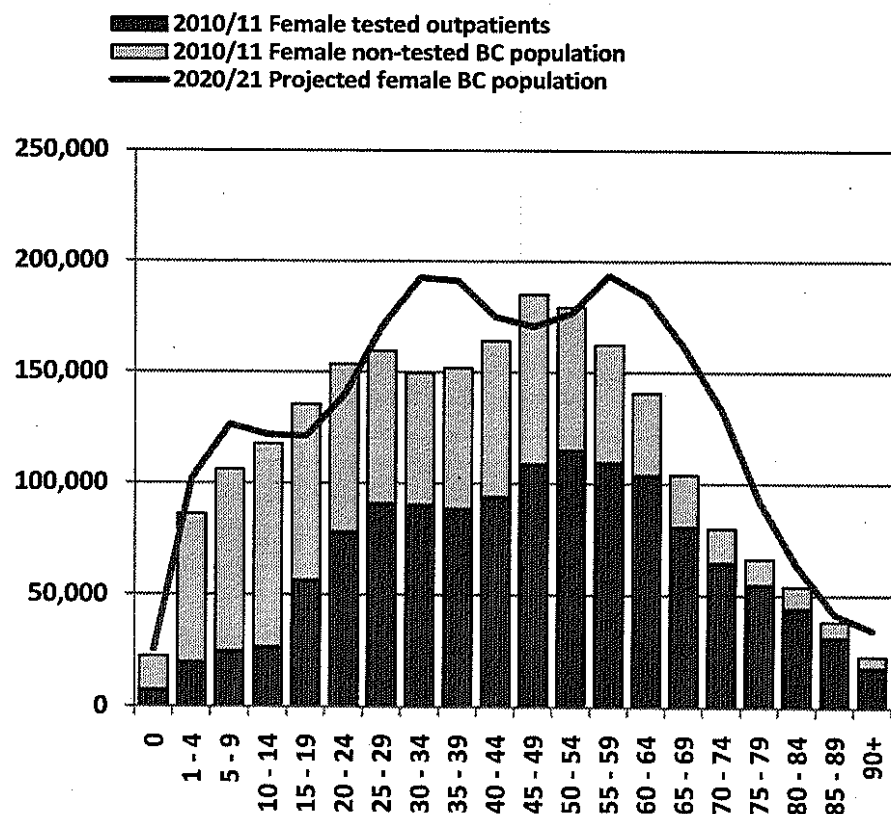




# 10. d. BC Population Demographics 2010/11, and 2020/21, and Proportion Receiving Lab Tests, by Gender

In 2010/11, BC's female population was 2.3M and the largest 5 yr age group was the 45-49 yr group. By 2020/21 the two largest groups will be the 30-34 yr and 55-59 yr age group. The current rate of lab testing in females 30-34 yrs was 60.3%. BC's male population demographic is similar to that of females. The rate of males 30-34 yrs having lab tests was 28.4%.

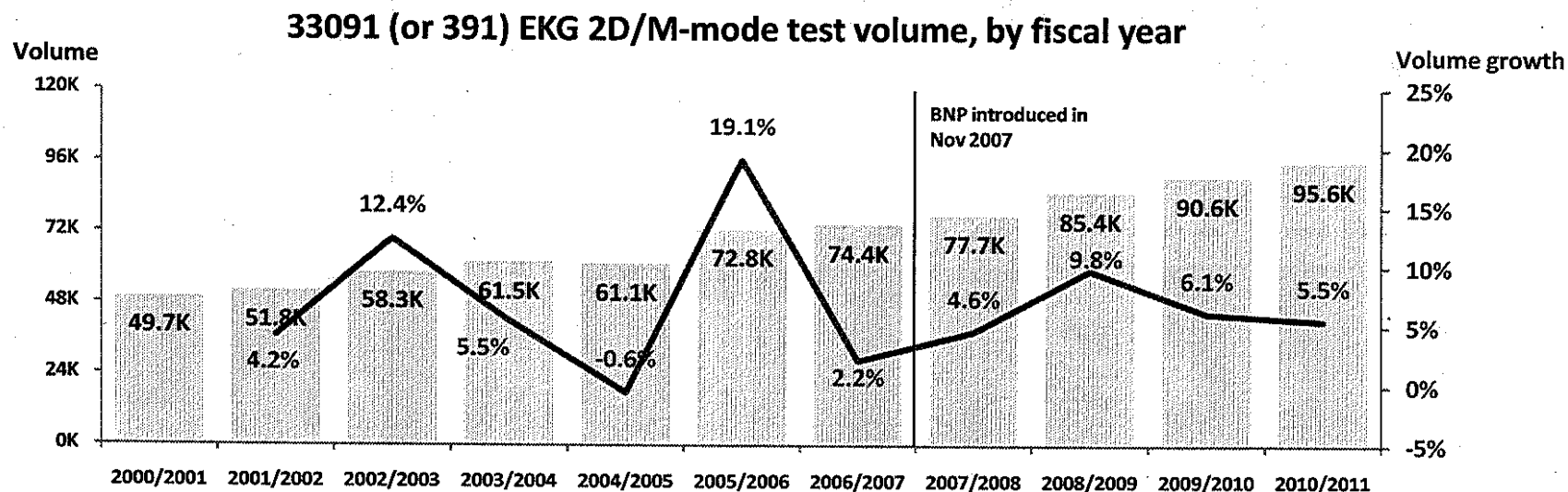
2010/11 BC population, by tested/non-tested outpatient and the 2020/21 BC population projection by age group and gender





## 10. f. Utilization of BNP Testing and Impact on Echocardiogram Utilization

The annual increase in volume of EKGs (fee items 33091/391) appears unaffected by the introduction of BNP testing in 2007. The growth rates in the last three years were similar to the growth rates of laboratory test utilization. In 2010/11, 16.6K outpatients had BNP tests and 38.6% also had an EKG in the same fiscal year.



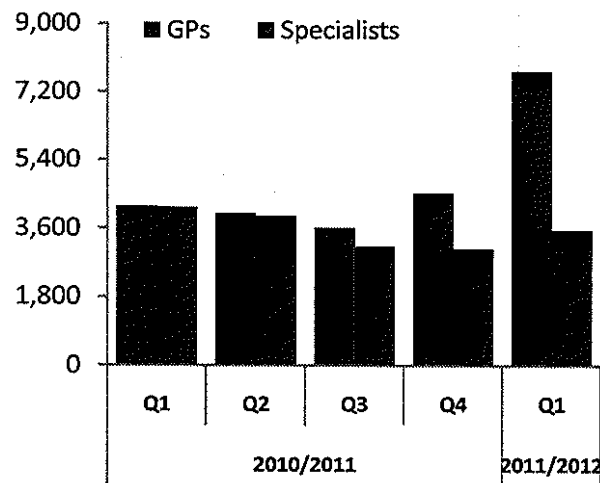
			Outpatients				
91275 BNP	33091 Echocardiogram- 2-D/M mode	8679 Doppler echocardiography	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011
	Yes	Yes	69,861	71,844	76,188	80,065	83,072
Yes	Yes			1,793	6,042	7,827	10,170
		Yes		1,045	3,713	4,650	6,299
	Yes		1,207	1,793	1,787	3,330	1,017
			280	250	239	200	147
Yes		Yes		61	219	349	88
	Yes			4	11	6	11
BNP tested outpatients			-	2,903	9,985	12,832	16,568
BNP test volume			-	3,179	12,266	15,667	20,793
% of BNP tested outpatients who also had an echo in the same fiscal year			-	38.2%	39.5%	39.0%	38.6%

## 10. g. Apo B Test Utilization

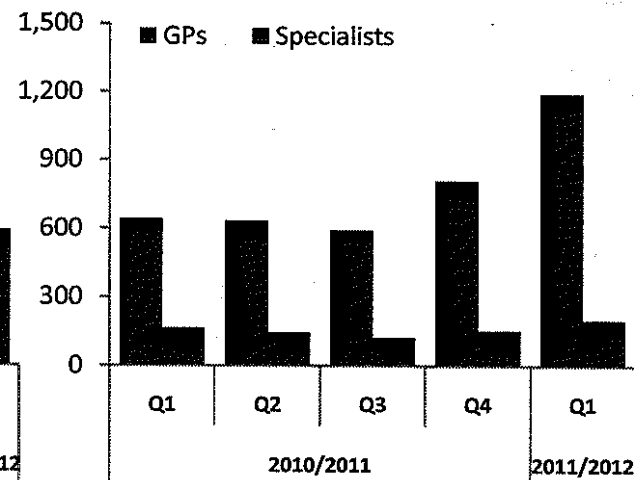
In Q1 2011/12, there were 11K Apo B tests, an increase of 36% over the same quarter last fiscal year and 49% over the previous quarter (Q4 2010/11).

86.5% of the total increase over the previous quarter was from GP ordered testing. 1,191 GPs ordered Apo B tests in Q1, compared to 809 in previous quarter.

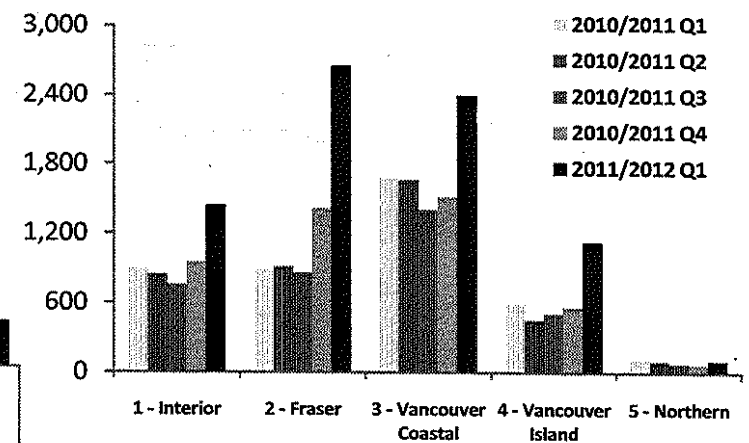
Apo B test volumes, by quarter



# of Apo B test referring practitioners, by quarter



# of Apo B test volume by tested outpatients' HA and quarter



65% of Apo B tests concurrently billed with lipid tests were from specialist orders.

The Q1 increase in GP derived Apo B testing was largely Apo B tests without concurrent lipid testing.

% of Apo B tests co-tested with lipid tests (total test volume)	GPs	Endocrinology	Infectious Diseases	Cardiology	Laboratory medicine
2010/11 Q1	44% of (4,175)	71% of (1,879)	95% of (1,061)	76% of (401)	79% of (330)
2011/12 Q1	15% of (7,745)	68% of (1,827)	80% of (411)	76% of (478)	87% of (314)

# **Collaborative Utilisation System Improvement Committee (CUSIC)**

## **Agenda**

**Tuesday, March 27, 2012**

**10 am – 12 pm**

**In Person: 420 – 700 West Pender, Vancouver – Large Boardroom**

**Teleconference:**

**S15**

**Conference ID:**

**S15**

- 1. Approval of Agenda**
- 2. Approval of September 23, 2011 Minutes**
- 3. Action Items from September 23, 2011**
- 4. Quarter 2 and Quarter 3 Reports**
- 5. 2011 ACDF Project Update**
- 6. C. Difficile**
- 7. Cytogenetics Fee Items**
- 8. Vitamin D**
- 9. Requisition Retention**
- 10. Next Meeting**



**Collaborative Utilization and System Improvement Committee (CUSIC)**  
**Lab Office, 420-700 West Pender St**  
**Vancouver, BC**  
**Sept 23, 2011 – Draft Minutes**

**Attendees**

Dr Chris Sherlock, British Columbia Medical Association (BCMA), co-chair  
Jeremy Higgs, MOH, acting chair  
Dr Jim Cupples, BCMA  
Dr Gordon Hoag, BCMA  
Dr Frances Rosenberg, BCMA (via telephone)  
Dr Michael Moss, BCMA  
Kathryn Kolbuch (for John Andruschak), Lower Mainland Consolidation  
John Andruschak, Lower Mainland Consolidation (portion)  
Pam Ganske, Vancouver Island Health Authority  
Mal Griffin, Interior Health Authority (via telephone)  
Peter McClung, BCMA  
Fanny Wong, MOH – guest  
Joanne Philley, MOH - secretariat

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**1.0 Additions to Agenda**

1.1 Emergency Dept impacts on utilization (Gordon)

**2.0 Previous Minutes - Minutes of June 6, 2011**

2.1 Approved

**3.0 Business Arising**

3.1 RNs in Certified Practice - RN(c)

3.1.1 Oct 1, 2011 order in council to regulate changes in plan for referrals to MSP ( refer to meeting materials for test list details )

3.1.2 Currently some practitioners have special agreements with HAs; HAs are bearing some of the costs and HA costs appear to have been increasing over the last 10 years

3.1.3 800 RN(c) practicing in rural / remote area

3.1.3.1 Some will not enrol with MSP if not required

3.1.3.2 Pilot between April 1 – Oct 2011 resulted in 102 MSP paid services

3.1.3.3 List of practice numbers to be distributed to HAs and labs

3.1.4 Break down of the MSP billings, by group, were reviewed.

3.1.5 Peter stated that the BCMA does not object to the inclusion of all practitioner billings together but does not agree with it.

3.1.6 Reviewing lab test results with RN(c) and midwives is more time consuming and concerns about the appropriateness of test ordered by RN(c) and midwives as compared to medical practitioners were discussed

3.1.7 Revised test list for RN(c) includes a primary base fee but does not identify what tests are associated with this.

3.1.7.1 Action : Jeremy to follow up

### 3.2 Naturopaths (NPs)

- 3.2.1 Currently tests ordered by NPs are not MSP billable; all testing is patient paid
- 3.2.2 Interest in the inclusion of NP ordered tests on MSP schedule reviewed and discussed
- 3.2.3 Concerns about NP training, interpretation capabilities, legalities noted and impact on BCALP were discussed. E.g. If lab accept order they accept legal care of the patient.
- 3.2.4 Information sharing / gathering between Mike Kelly and NPs in progress
- 3.2.5 Consultations between the MOH and stakeholders to be conducted as work progresses
- 3.2.6 Issues related to pricing and collection of non insured tests highlighted by Pam. e.g. patient confusion, education required to explain these costs to patients.
  - 3.2.6.1 Action: Chris (Mike Kelly to convey shifting of patient education responsibilities to NPs)**
- 3.2.7 Question regarding how pharmacare addresses DAP requirement that all orders must be signed by a physician raised.
  - 3.2.7.1 Action: Jeremy to follow up**
- 3.2.8 Impact of NPs and midwives (MW) ordered tests on discounting of MSP fees brought forward by Gordon.
  - 3.2.8.1 Action: Jeremy and Fanny to follow up and analyse**
- 3.2.9 Need for audit program for MW and NPs questioned.
  - 3.2.9.1 Action: Jeremy to follow up with BIP and patterns of practice committee. Peter and Jeremy to liaise during analysis**

### 3.3 Requisition Committee

- 3.3.1 Requisition for RN(c) to be developed based on list of tests licensed to date.
- 3.3.2 David Ferguson working with Requisition Committee on a separate requisition for NP/MW as per Chris.
- 3.3.3 Discussion of changes by Requisition Committee to Standard Provincial Outpatient Lab Requisition and their impacts discussed.
  - 3.3.3.1 Action: Chris (David to follow up with committee chair)**
- 3.3.4 New MOH rep on Requisition Committee is Joanne Philley
- 3.3.5 Need to have requisition committee consider electronic order entry
  - 3.3.5.1 Action: Joanne to take to next requisition committee meeting.**
- 3.3.6 Types of requisitions reviewed by Requisition Committee not known.
  - 3.3.6.1 Action: Joanne to follow up**

#### **4.0 CUSIC Q1 2011/12 Report**

4.1 Slide 2: Projected below target because discount was taken into affect this year

4.2 Slide 3: Change due to changes in fee scheduled effective Oct 2010

4.3 Slide 4: question re: variance

**4.3.1 Action: Jeremy /Peter to follow up**

4.4 Negative growth each quarter due to changes in practice and culture etc

4.5 Recommended Action Items:

**4.5.1 CUSIC to continue to monitor utilization**

**4.5.2 Item for GPAC: delete AST and replace with ALT**

**4.5.3 CUSIC agenda Item: ACDF Modernization Project Update**

#### **5.0 Vitamin D – next steps**

5.1 Patient paid when symptoms are not present

5.2 Table to next meeting because Chemistry Scientific Section preparing to speak to this

5.3 Francis suggested adding a space to the lab requisition for documentation of the diagnosis similar to ESR.

**5.3.1 Action: Mike M. and Jeremy to discuss HA funding and support for changes**

#### **6.0 Lower Mainland Consolidation Update Highlights**

6.1 MOH (Jeremy)

6.1.1 Government supportive of efforts and looking to achieve targets set.

6.2 LMC: Jan 2011 – date ( John)

6.2.1 Physician involvement increasing

6.2.2 Awaiting clear direction from new premier - meeting with government to clarify/solidify intent and goals for LMC

6.2.3 3-4 projects with case studies to assess cost savings underway

6.2.4 Previous cost saving targets set appear to have been arbitrary

6.2.5 Broader based meetings with BCALP, MOH and LMC to follow

6.3 Chris noted that BCALP is supportive of collaborative efforts across HAs

6.4 Gordon highlighted the need for a collaborative approach

6.5 Pam commented that short term changes ("low hanging fruit") have been achieved to date by some.

6.6 Establishment of a Provincial Laboratory Advisory Committee was not supported previously because it may have inhibited LMC activities. Possibility of revisiting this decision to be investigated.

**6.6.1 Action: Jeremy**



## **7.0 Cancer Pathology Improvement Program**

- 7.1 Being lead by Diponkar Banerjee.
- 7.2 Purpose to address how oncology is practiced in BC including second reads/reviews, education, telepathology, synoptic reporting etc.
- 7.3 An inclusive process will be established
- 7.4 approximately 65% of pathology is oncology
- 7.5 Initiative will affect cost and utilization however cost savings are not being attached to this initiative
- 7.6 BCALP is supportive
- 7.7 Concerns noted by Jim included the importance of pathology buy-in, differences in what is considered reasonable, anticipates implementation costs will be significant, savings will be system related not lab related

## **8.0 Emergency Impacts ( Gordon/Pam)**

- 8.1 Recommend utilization management include inpatients and outpatients
  - 8.1.1 VIHA has seen an increase in emergency test orders of 62% over last 5 years – triage nurses order approximately 30% of lab tests
  - 8.1.2 In 1980 emergency work contributed was approximately 15% to VIHA's laboratory workload; today (2011) it is about 40%
  - 8.1.3 **Action: Jeremy and Pam to continue discussions**

## **9.0 Next Meeting**

- 9.1 TBC – mid Dec 2011 or early Jan 2012



## **Collaborative Utilization System Improvement Committee**

### **Report on Outpatient Laboratory Test Volumes and Expenditures - as of Quarter 2, FY 2011/12**

Prepared by the Ministry of Health's Lab Office  
February 13<sup>th</sup>, 2012

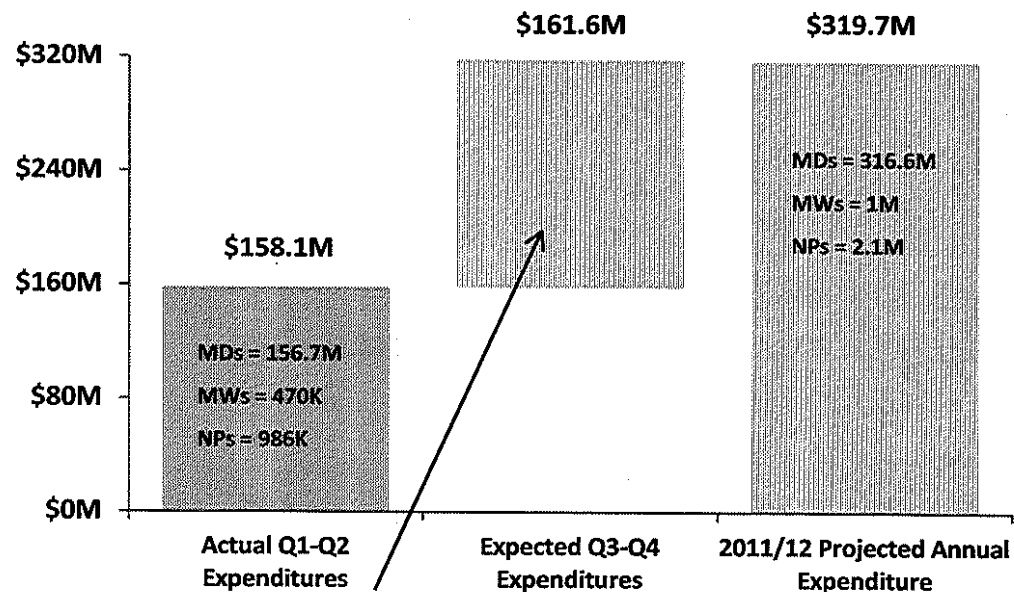
The data in this report are provided by the Ministry of Health solely for use by CUSIC members under the terms of the Second Renewed Laboratory Agreement Between the BCMA and the Government of BC (October, 2010). The Ministry considers use for any other purpose as inappropriate and contrary to the terms and/or spirit of the Agreement.

## MSP FFS Outpatient Lab Test Expenditure in Q1 & Q2 and Updated Projection for 2011/12



\$158.1M was spent on outpatient lab testing in the first half year of fiscal 2011/12 . Based on the current volume growth rate and the historical proportion of claims billed during the first six months of a fiscal year, the annual lab test expenditure is projected to be \$319.7M, or 0.03% below the targeted expenditure of \$319.8M.

### Actual Outpatient Lab Expenditure for The First Half of Fiscal Year 2011/12 and Annual Projection



*Q3/4 projections are based on the historical observation that 50.53% of the annual expenditures occur in the second half of the fiscal year.*

### Volume Growth

The 2011/12 first half year volume growth rate was 1.5% over the same period in the last fiscal year.

Note: if an adjustment is made to account for the test volume reduction effects of the billing rule changes in 2010 Lab Agreement, the volume growth in first half of 2011/12 is 3.3% (a difference of 0.3% from the 3.6% growth rate used to set targets in the Agreement).

Data include all FFS MSP payments to public and private providers for outpatient laboratory tests (excluding rural retention payments) paid up to Nov 15<sup>th</sup>, 2011, 45 days after the end of the second quarter.



## Key Factors Driving Lab Test Utilization and Expenditure

1.58M outpatients received lab tests in first half year of 2011/12, a 2.1% increase over the same period of the last fiscal year.  
 The average number of encounters per tested outpatient increased marginally by 0.9% to 2.66.  
 The total number of patient encounters with lab testing increased by 3.0% to 4.2M (3.75 times the previous year's growth of 0.8%).  
 The average number of tests per encounter declined by 1.5% from 4.95 to 4.88.  
 The test volume grew by 1.5% during the first half year of 2011/12 (unadjusted for effects of billing rule changes).  
 The average cost per test was \$7.72, representing a decline of 0.6% over the same period in the last fiscal year.  
 The test expenditure growth rate was 0.9% during the first six months of 2011/12.

### Utilization parameters showing change over prior year - for current year and 2010/11

Tested outpatient population		Change over prior yr		(%)		
Q1&Q2 2011/12	1,579,385	32,325	+2.1%			
Q1&Q2 2010/11	1,547,060	4,650	+0.3%			
	Average # of encounters/ tested outpatient	Change over prior yr	(%)	Total # of encounters	Change over prior yr	(%)
Q1&Q2 2011/12	2.661	+0.023	+0.09%	4,202,041	+121,958	+3.0%
Q1&Q2 2010/11	2.637	+0.012	+0.05%	4,080,083	+31,068	+0.8%
	Average # of tests per encounter	Change over prior yr	(%)	Q1 Test Volume	Change over prior yr	(%)
Q1&Q2 2011/12	4.88	-0.073	-1.5%	20,509,035	+299,150	+1.5%
Q1&Q2 2010/11	4.95	+0.079	+1.6%	20,209,885	+473,482	+2.4%
	Average cost per test	Change over prior yr	(%)	Q1 Test Expenditure	Change over prior yr	(%)
Q1&Q2 2011/12	\$7.72	-\$0.050	-0.6%	\$158,143,028	+\$1,348,000	+0.9%
Q1&Q2 2010/11	\$7.77	+\$0.011	+0.1%	\$156,795,028	+\$3,870,080	+2.5%

#### Definitions:

*Tested outpatients* = # of unique MSP enrollees who had at least one outpatient lab test in a given period.

*# of encounters* = number of unique service dates in MSP financial records for unique tested outpatients.

*Average # of encounters per tested outpatient* = total number of encounters divided by total number of tested outpatients in the same period.

*Average # of tests per encounter* = total number of outpatient lab tests divided by total number of encounters in the same period.

*Average Cost per test* = total expenditure divided by total number of outpatient lab tests.

*Tests* = number of lab services (including primary base fee claims).

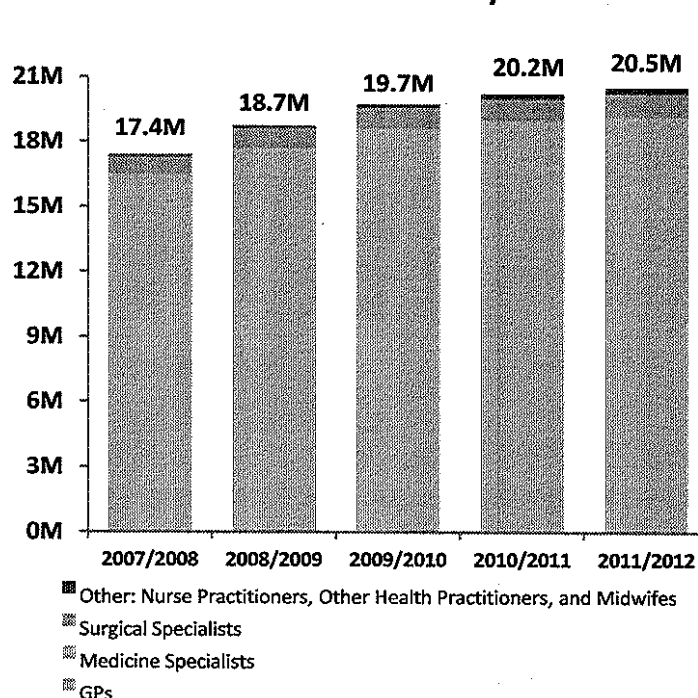
Data include all FFS MSP payments to public and private providers for outpatient laboratory tests (excluding rural retention payments) paid up to Nov 15<sup>th</sup>, 2011, 45 days after the end of the second quarter.

## Outpatient Lab Test Volumes in the First Half of the Fiscal Year & Impact of the Agreements on Volume Growth

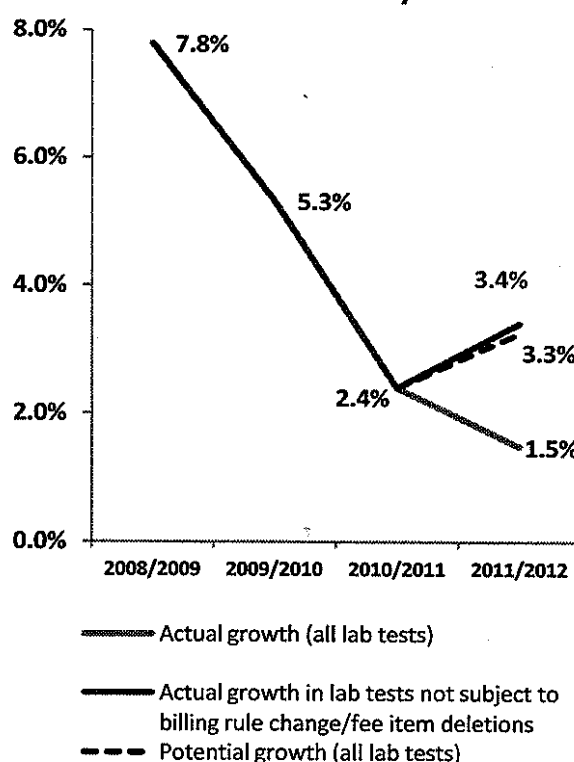
The change in total number of lab services in the first half of the fiscal year declined from a 7.8% annual increase in 2008/09 to 2.4% in 2010/11. In the current fiscal year the growth rate further declined to 1.5%.

Without the billing rule changes of the last Agreement the growth rate would have been 3.3% (estimated 20.9M test volume vs. actual 20.5M). Tests not subject to the fee item changes/deletion clauses of the last Agreement grew by 3.4%.

**Outpatient lab test volumes  
- first half of fiscal year\***



**Volume growth rates  
- first half of fiscal year\***



**Impact of Volume Discounting**

Q1&Q2 LVD fee items**	(HIBC report, Oct.31 <sup>st</sup> cut-off)		
	2011/12	2010/11	2009/10
Total LVD services	16.5M	15.7M	15.4M
% paid at 50%	26.8%	25.2%	24.4%
% paid at 100%	73.2%	74.8%	75.6%

### Definitions:

*Actual growth (all lab tests)* = Percentage change in the absolute volume of all lab fee items. E.g., Test volume in first half year of 2011/12 vs. volume in first half year of 2010/11.

*Actual growth in lab tests not subject to billing rule change/fee item deletions* = 3.4%.

*Potential growth (all lab tests)* = Percentage annual change in the volume of lab fees in the absence of the 2010 lab agreement = 3.3%.

\*Data include all FFS MSP payments to public and private providers for outpatient laboratory tests (excluding rural retention payments) paid up to Nov 15<sup>th</sup>, 2011, 45 days after the end of the second quarter.

\*\*LVD volume data are based on HIBC reports for the first six months of the respective fiscal years paid to October 31<sup>st</sup> of a given year.

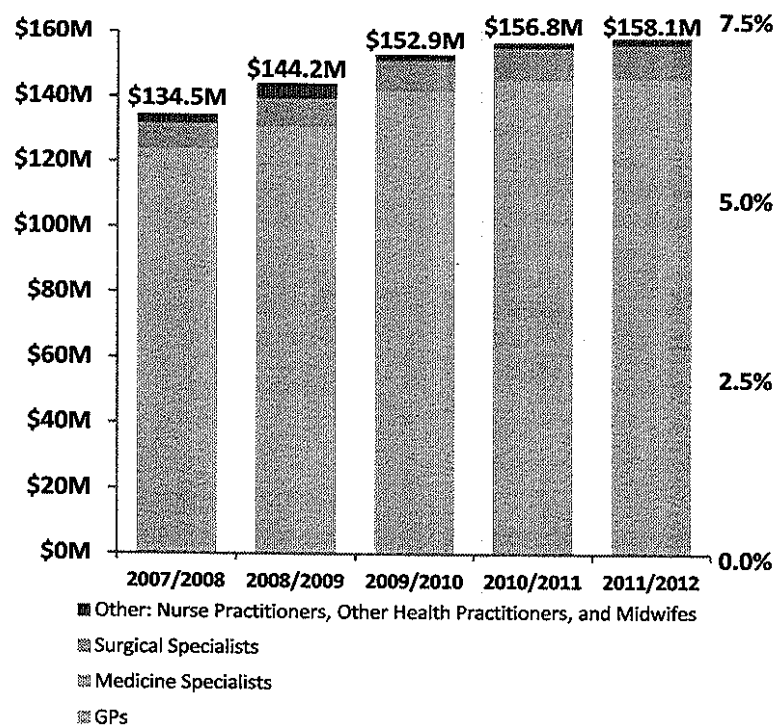


## Outpatient Lab Test Expenditures in the First Half of the Fiscal Year & Impact of the Agreements on Growth

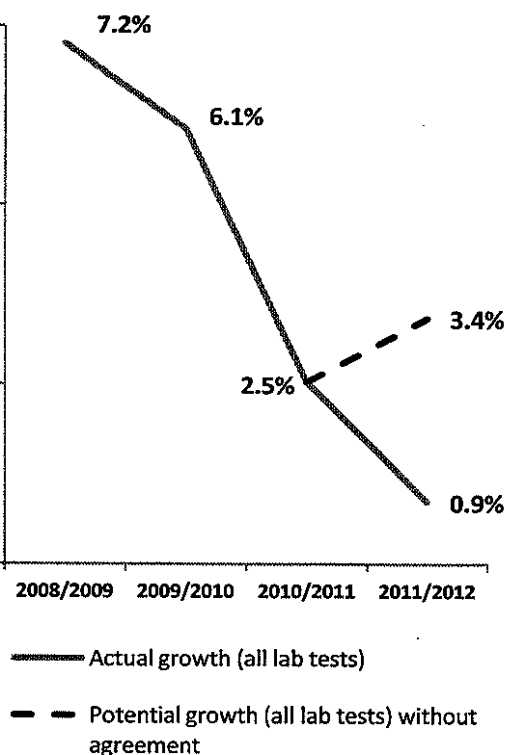
Over the last five years the rate of change in expenditures on outpatient lab testing in the first half of the fiscal year declined from a high of 7.2% annual increase in 2008/09 to 0.9% in 2011/12.

In the absence of the terms of the 2010 Lab Agreement laboratory costs in Q1&2 of 2011/12 would have been \$162.7M (a 3.4% increase over 2010/11). \*

Outpatient lab test expenditure,  
- first half year of 2011/12 \*



Expenditure growth rates,  
- first half year of 2011/12\*



Impact of Volume Discounting

Q1& Q2 LVD fee items **	(HIBC report, Oct. 31 2011 cut-off)
Actual total LVD test expenditure	\$97.0M
Potential test expenditure (on same items) in the absence of LVD	\$111.6M
Average cost per LVD test	\$6.75 (without LVD) \$5.87 (with LVD)
Q2 non-LVD fee items	MSP data
Actual total non-LVD test expenditure	\$61.1M
Average cost per non-LVD test	\$15.44

\*Data include all FFS MSP payments to public and private providers for outpatient laboratory tests (excluding rural retention payments) paid up to Nov 15<sup>th</sup>, 2011, 45 days after the end of the second quarter.

\*\*LVD volume data are based on HIBC reports for the first six months of the respective fiscal years paid to October 31<sup>st</sup> of a given year.



## Outpatient Demographic Factors

In the first half year of 2011/12 1.58M outpatients received lab tests, an increase of 32K over same period last year.

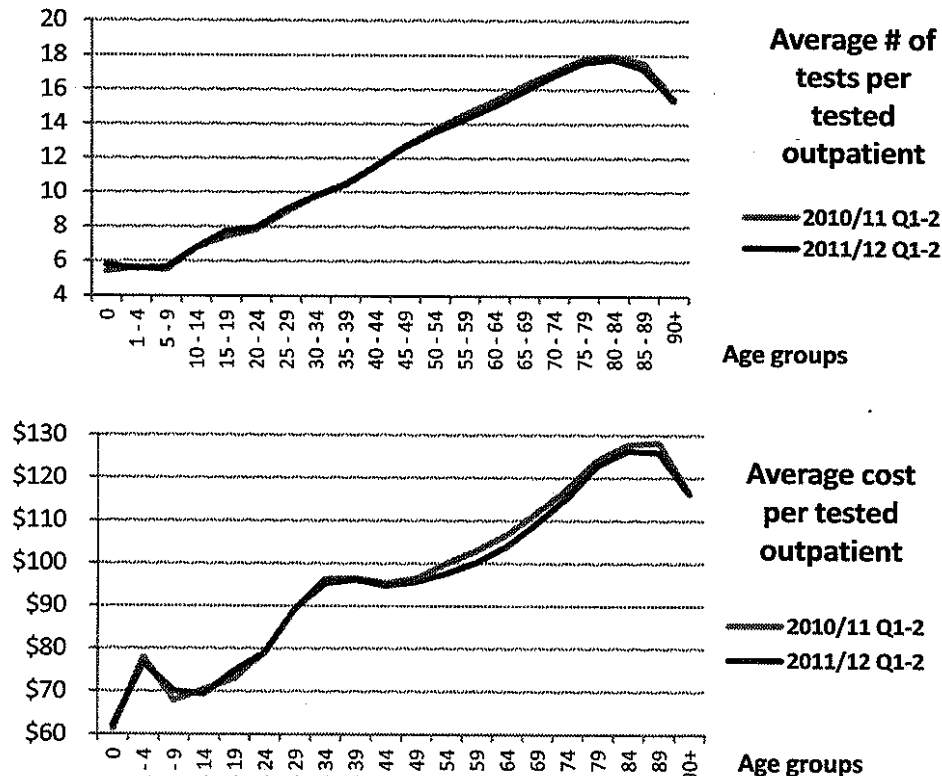
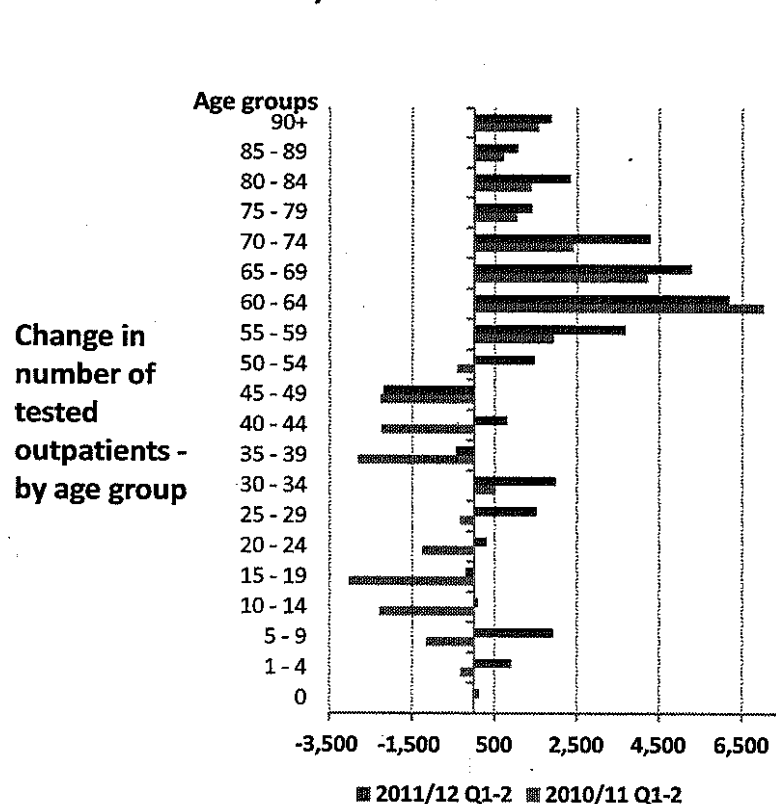
The increased patient population is broken down as follows:

- + 26K in patients 55 yrs and over during first half year of 2011/12, compared to an increase of 20.3K during the first six months of 2010/11.
- + 51 in patients aged 40-54 yrs in first half year of 2011/12, compared to a decline of 4.9K in the same period of last year.
- + 3.4K in patients aged 20-39 during the first six months in 2011/12, compared to a decline of 3.9K in the first half year of 2010/11.
- + 2.8K in patients aged 0-19 in 2011/12, compared to a decline of 6.8K during the first six months of 2010/11.

The average number of tests per tested outpatient was 12.99, representing a decline of 0.6% (largely attributed to billing rule changes of the 2010 Agreement). The test rate per tested outpatient aged 50 and above dropped from 15.8 tests per patient to 15.6 in 2011/12 (↓1.5%).

The average cost per outpatient aged 50 and above fell by \$2.16 to \$109.38.

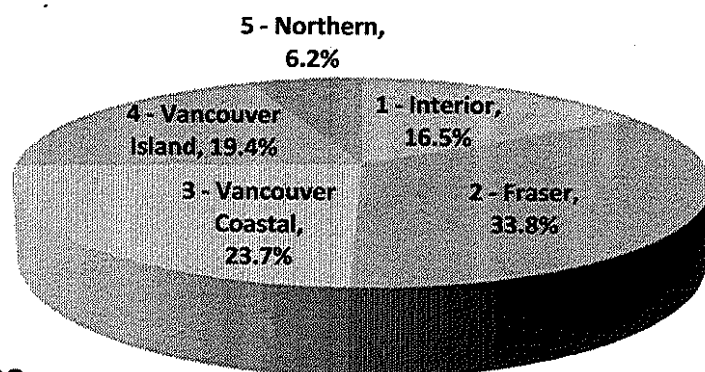
The overall average lab cost per tested outpatient was \$100.13 - a 1.2% decline over the same period of the last year and a 1.0% increase over the first half of 2009/10.



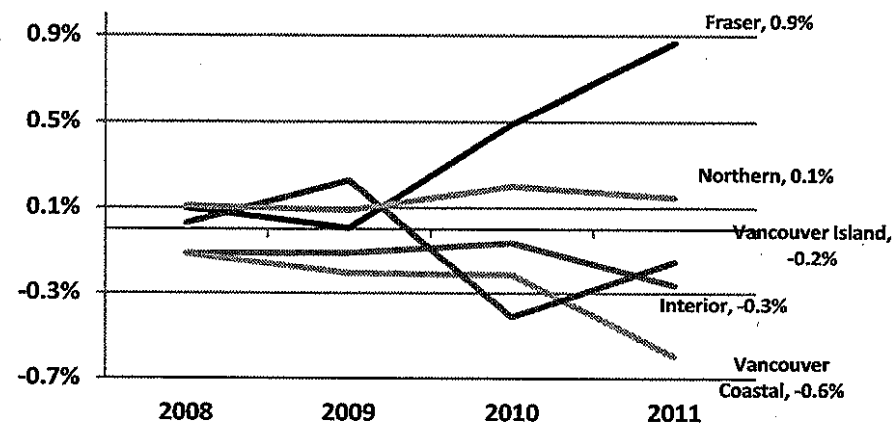
## Regional Utilization – by Health Authority

The regional utilization of lab tests reflects the regional population distribution. Change in regional population was correlated with change in lab test utilization over the last four years (note: no adjustment was made for age or gender).

HA Utilization Distribution  
(test volumes), %

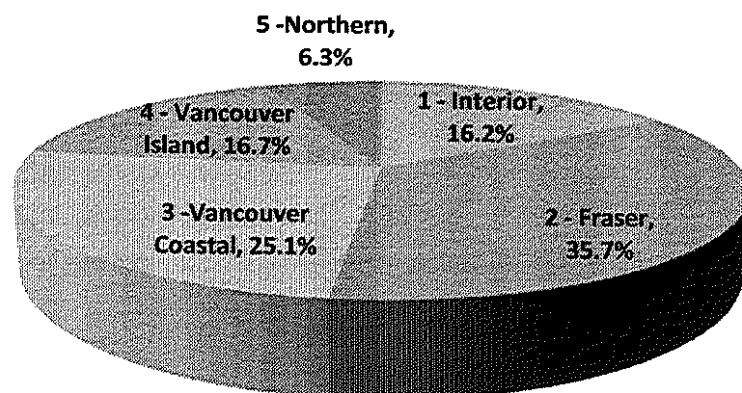


Cumulative change since 2008 in HA  
distribution (lab test volumes), %



Q1&Q2  
FY2011/12  
data

HA Utilization Distribution  
(regional population), %



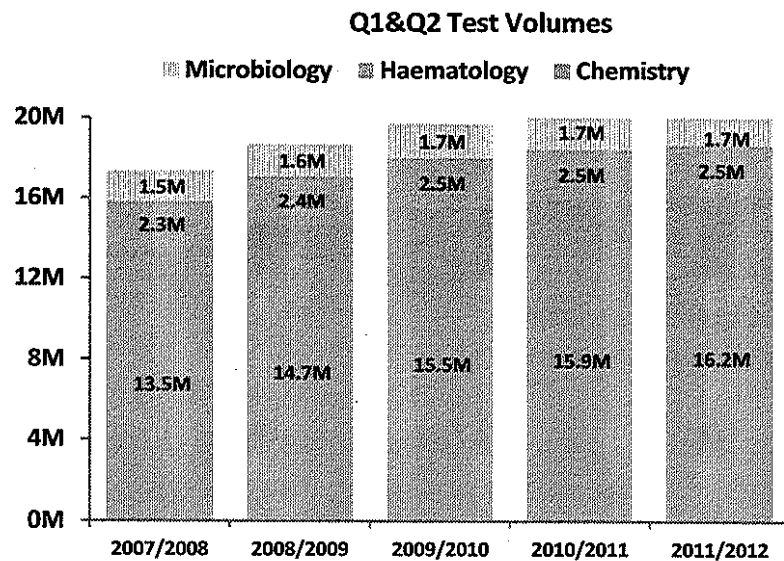
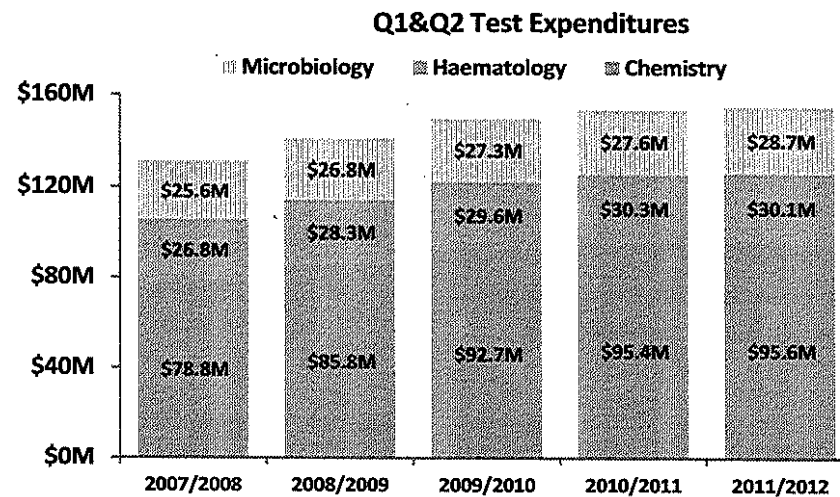
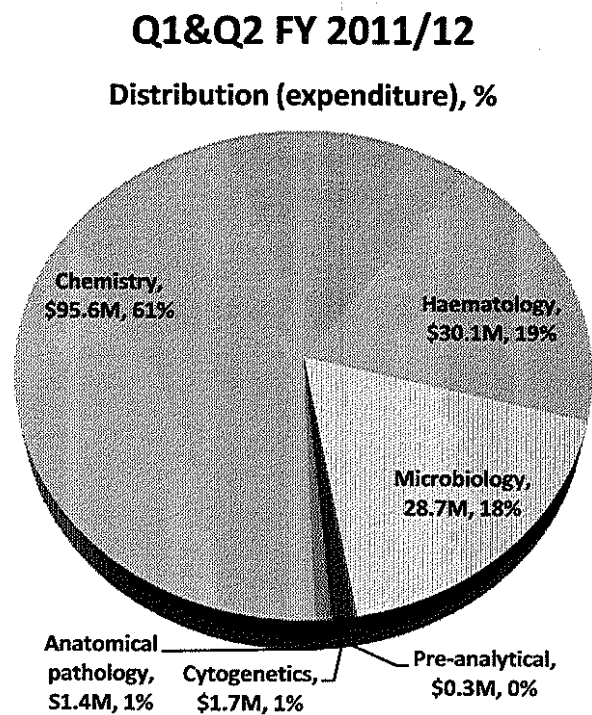
Cumulative change since 2008 in HA  
distribution (regional population), %



# Overview of Lab Test Utilization by Laboratory Section Showing Overall Test Volumes and Expenditures

## Test volumes and expenditures for first half of the fiscal year

61% of the lab expenditure was for chemistry testing,  
19% for haematology,  
and 18% for microbiology.





## Fee Item Level Analysis – Tests with the Highest Growth in Expenditure, Q1&Q2 2011/12

The following 20 fee items contributed the most to increased MSP expenditures in Q1&Q2 over the same period last year (excluding fee items on the following page) and accounted for a total increased cost to MSP of \$3.5M. (Ranked by absolute expenditure.)

		Volume, first half year 2011/12	Expenditure, first half year 2011/12	Volume, % growth first half year 2011/12	Expenditure, % growth first half year 2011/12	Volume, absolute growth first half year 2011/12	Expenditures, absolute growth first half year 2011/12
1	90205 - HAEMATOLOGY PROFILE	1,468,856	\$14,243,539	5%	4%	74,727	\$585,267
	91000 - PRIMARY BASE FEE - CHEMISTRY	1,647,703	\$23,096,239	1%	2%	20,967	\$496,849
	91985 - ALBUMIN CREATININE RATIO (ACR)	274,890	\$2,409,164	0%	6%	-86	\$146,111
2	91865 - IRON, TOTAL AND BINDING CAPACITY, PROTEIN	66,440	\$433,218	-3%	29%	-2,130	\$97,890
	91745 - HAEMOGLOBIN, A1C	428,038	\$4,341,233	13%	10%	50,694	\$377,980
	91645 - FERRITIN, SERUM	322,013	\$2,547,255	11%	8%	32,490	\$180,642
3	92450 - VITAMIN B12	132,444	\$1,472,965	9%	7%	11,322	\$94,021
	90700 - HEPATITIS B SURFACE ANTIBODY (ANTI-HBS)	56,152	\$479,182	22%	14%	10,042	\$59,928
	92330 - FREE T4	122,785	\$1,086,170	51%	4%	41,401	\$44,379
	91765 - HEPATITIS B SURFACE ANTIGEN	69,935	\$597,199	8%	5%	5,323	\$29,471
	90465 - BLOOD FILM REVIEW	155,812	\$2,803,058	17%	18%	22,754	\$418,659
	92325 - THYROID STIMULATING HORMONE, TSH	735,558	\$6,367,289	3%	3%	18,043	\$172,192
	90775 - THROAT OR NOSE CULTURE	101,303	\$1,841,689	8%	8%	7,194	\$138,316
	90740 - STAINED SMEAR	156,639	\$2,617,438	5%	5%	6,747	\$123,235
4	90790 - URINE COLONY COUNT CULTURE	280,013	\$5,479,854	2%	2%	4,669	\$113,400
	90620 - BIOCHEMICAL IDENTIFICATION - MICRO-ORGANISM	168,491	\$1,609,041	7%	7%	10,756	\$108,989
	90725 - SEROLOGICAL IDENTIFICATION - MICRO-ORGANISM	56,207	\$895,940	13%	13%	6,261	\$103,297
	92395 - URINALYSIS, MICROSCOPIC	209,029	\$1,498,738	6%	7%	12,568	\$96,006
	90615 - ANTIBIOTIC SUSCEPTIBILITY TEST - SEMI-QUANTITATIVE	111,531	\$1,294,875	6%	6%	5,814	\$72,786
	91300 - C - REACTIVE PROTEIN	149,791	\$1,040,001	7%	7%	9,758	\$64,429
<b>Total:</b>						<b>349,314</b>	<b>\$3,523,847</b>

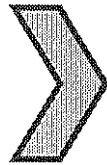
Major expenditure drivers (from top to bottom, by shading) : 1) High volume. 2) Fee increase. 3) Volume increase. 4) Both Expenditure and volume increases.



## Fee Item Level Analysis – Impact of Tick Boxes in the New SOPLR on Lab Test Utilization in Q1&Q2

Utilization of the group of tests recently added in tick boxes on the revised SOPLR increased by 10.7%, significantly above the observed overall test volume growth rate of 1.5%. In terms of expenditures, the 5.5M test volume for this group of fee items cost MSP \$23.5M (including the primary base fee) and represents a 10.8% expenditure increase over the same period in the last fiscal year.

Check boxes  
added on the  
revised SOPLR



### OTHER CHEMISTRY TESTS

- |                                     |                                                   |
|-------------------------------------|---------------------------------------------------|
| <input type="checkbox"/> Sodium     | <input type="checkbox"/> T. Protein               |
| <input type="checkbox"/> Potassium  | <input type="checkbox"/> Creatinine / eGFR        |
| <input type="checkbox"/> Albumin    | <input type="checkbox"/> Calcium                  |
| <input type="checkbox"/> Alk. Phos. | <input type="checkbox"/> Creatine kinase (CK)     |
| <input type="checkbox"/> ALT        | <input type="checkbox"/> PSA – MSP billable       |
| <input type="checkbox"/> Bilirubin  | <input type="checkbox"/> PSA screening (self-pay) |
| <input type="checkbox"/> GGT        |                                                   |

Adding new tick boxes to the SOPLR is correlated with an estimated \$1.6M additional cost to MSP in the first half of FY 2011/12 (assuming 3% utilization growth without the SOPLR change).

Corresponding fee codes	Q1-over-Q1 volume growth			Q2-over-Q2 volume growth		
	2009/2010	2010/2011	2011/2012	2009/2010	2010/2011	2011/2012
92231 - SODIUM, SERUM/PLASMA	4.1%	4.9%	6.7%	6.5%	2.7%	10.8%
92100 - POTASSIUM, SERUM/PLASMA	4.9%	4.6%	6.3%	7.3%	2.4%	10.2%
91040 - ALBUMIN, SERUM/PLASMA	8.2%	4.5%	20.2%	9.0%	1.1%	29.3%
91070 - ALKALINE PHOSPHATASE	2.2%	3.7%	12.5%	4.0%	0.9%	18.8%
91065 - ALANINE AMINOTRANSFERASE	7.6%	6.7%	7.7%	9.8%	3.3%	12.6%
91245 - BILIRUBIN TOTAL, SERUM/PLASMA	2.7%	6.3%	15.4%	4.3%	1.7%	26.7%
91725 - GLUTAMYL TRANSPEPTIDASE (GTP)	4.9%	4.3%	13.3%	5.5%	1.5%	21.5%
92148 - PROTEIN TOTAL, SERUM OR PLASMA	5.6%	5.9%	30.1%	6.4%	0.2%	47.8%
91421 - CREATININE, SERUM/PLASMA	4.9%	4.0%	4.1%	7.2%	1.6%	7.8%
91326 - CALCIUM TOTAL, SERUM/PLASMA	5.5%	2.5%	12.9%	7.5%	0.5%	19.1%
91415 - CREATINE KINASE	5.3%	4.8%	0.9%	8.4%	0.4%	3.9%
90710 - PROSTATIC SPECIFIC ANTIGEN (PSA)	2.1%	3.4%	7.4%	3.0%	2.6%	14.3%

Except for PSA, the tests above are all primary base-fee added tests



## **Collaborative Utilization System Improvement Committee**

### **Report on Outpatient Laboratory Test Volumes and Expenditures - as of Quarter 3, FY 2011/12**

Prepared by the Ministry of Health's Lab Office  
March 1<sup>st</sup>, 2012

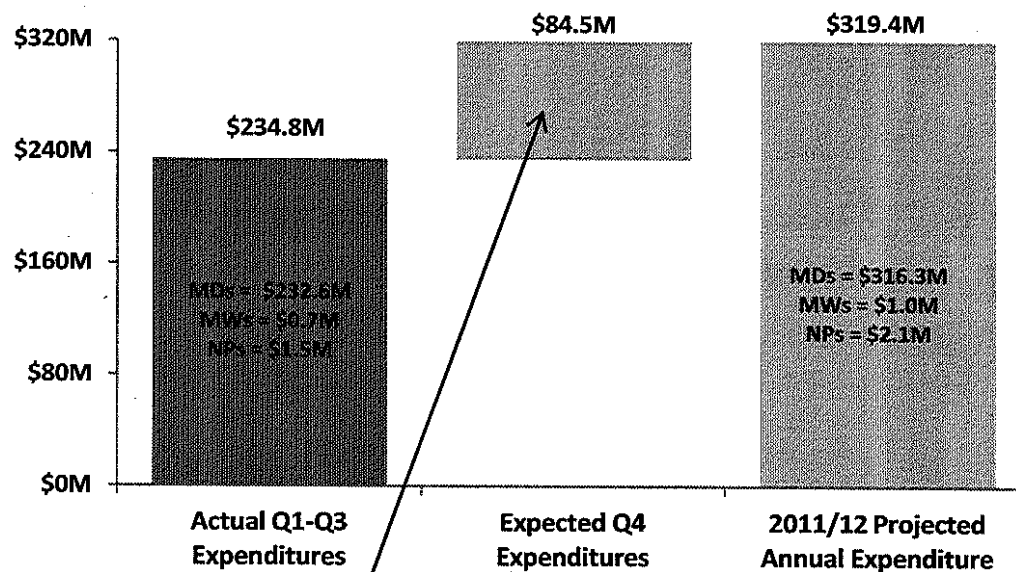
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## MSP FFS Outpatient Lab Test Expenditure in Q1 – Q3 and Updated Projection for 2011/12

\$234.8M was spent on outpatient lab testing in the first three quarters of 2011/12 fiscal year. Based on the current volume growth rate and the historical proportion of claims billed during the first nine months of a fiscal year, the annual lab test expenditure is projected to be \$319.4M, or 0.13% below the targeted expenditure of \$319.8M.

### Actual Outpatient Lab Expenditure for the first nine months of Fiscal Year 2011/12 and Annual Projection



Q4 projections are based on the historical observation that 73.5% of the annual expenditures occur during the first three quarters of a fiscal year.

### Volume Growth

The volume growth rate during the first nine months of 2011/12 was 1.9% over the same period in the last fiscal year.

Note: if an adjustment is made to account for the test volume reduction effects of the billing rule changes in 2010 Lab Agreement, the volume growth in the first half of 2011/12 is 3.2% (a difference of 0.4% from the 3.6% growth rate used to set targets in the Agreement).

Data include all FFS MSP payments to public and private providers for outpatient laboratory tests (excluding rural retention payments) paid up to Feb 15<sup>th</sup>, 2012, 45 days after the end of the second quarter.

## Key Factors Driving Lab Test Utilization and Expenditure

- 1.96M outpatients received lab tests in Q1-Q3 of 2011/12, a 1.7% increase over the same period of the last fiscal year.
- The average number of encounters per tested outpatient increased marginally by 0.4% to 3.19.
- The total number of patient encounters with lab testing increased by 2.2% to 6.2M (0.3% less than previous year's growth of 2.5%).
- The average number of tests per encounter declined by 0.4% from 4.90 to 4.88.
- The test volume grew by 1.9% during the first nine months of 2011/12 (unadjusted for effects of billing rule changes).
- The average cost per test was \$7.72, representing a increase of 0.7% over the same period of the last fiscal year.
- The test expenditure growth rate of 2.6% for the first three quarters of 2011/12 increased by 1% from 2010/11.

### Utilization parameters showing change over prior year - for current year and 2010/11

	Tested outpatient population		Change over prior yr		(%)
Q1-Q3 2011/12	1,957,422		33,273		+1.7%
Q1-Q3 2010/11	1,924,149		25,972		+1.4%

	Average # of encounters/tested outpatient	Change over prior yr	(%)	Total # of encounters	Change over prior yr	(%)
Q1-Q3 2011/12	3.188	+0.014	+0.4%	6,239,571	+132,769	+2.2%
Q1-Q3 2010/11	3.174	+0.035	+1.1%	6,106,802	+148,721	+2.5%

	Average # of tests per encounter	Change over prior yr	(%)	Q1 Test Volume	Change over prior yr	(%)
Q1-Q3 2011/12	4.88	-0.015	-0.3%	30,474,940	+555,791	+1.9%
Q1-Q3 2010/11	4.90	+0.037	+0.8%	29,919,149	+947,701	+3.3%

	Average cost per test	Change over prior yr	(%)	Q1 Test Expenditure	Change over prior yr	(%)
Q1-Q3 2011/12	\$7.72	+\$0.051	+0.7%	\$ 234,822,814	+\$5,896,582	+2.6%
Q1-Q3 2010/11	\$7.67	-\$0.122	-1.6%	\$ 228,926,232	+\$3,683,634	+1.6%

#### Definitions:

*Tested outpatients* = # of unique MSP enrollees who had at least one outpatient lab test in a given period.

*# of encounters* = number of unique service dates in MSP financial records for unique tested outpatients.

*Average # of encounters per tested outpatient* = total number of encounters divided by total number of tested outpatients in the same period.

*Average # of tests per encounter* = total number of outpatient lab tests divided by total number of encounters in the same period.

*Average Cost per test* = total expenditure divided by total number of outpatient lab tests.

*Tests* = number of lab services (including primary base fee claims).

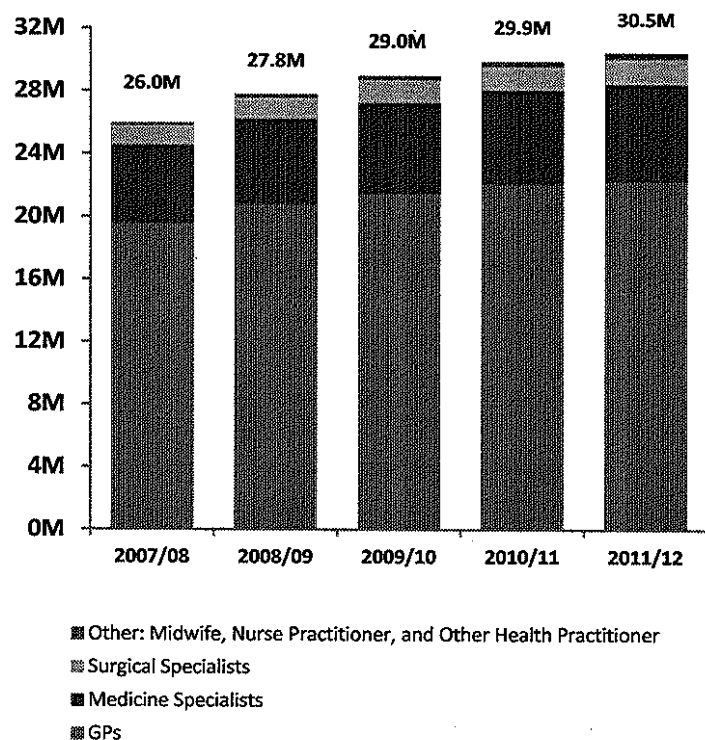
Data include all FFS MSP payments to public and private providers for outpatient laboratory tests (excluding rural retention payments) paid up to Feb 15<sup>th</sup>, 2012, 45 days after the end of the second quarter.

## Lab Test Volumes in the First Three Quarters of the Fiscal Year & Impact of the Agreements on Volume Growth

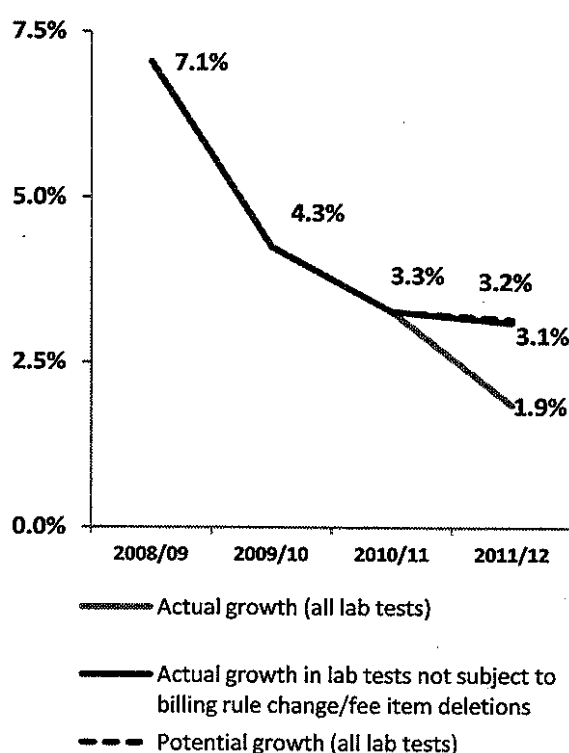
The change in total number of lab services during the first three quarters of a fiscal year declined from a 7.1% annual increase in 2008/09 to 3.3% in 2010/11. In the current fiscal year the growth rate further declined to 1.9%.

Without the billing rule changes of the last Agreement the growth rate would have been 3.2% (estimated 30.9M test volume vs. actual 30.5M). Utilizations of tests not subject to fee item changes/deletion clauses of the last Agreement grew by 3.1%.

**Outpatient lab test volumes  
- first nine months of fiscal year\***



**Volume growth rates  
- first nine months of fiscal year\***



**Impact of Volume Discounting**

Q1-Q3 LVD fee items**	(HIBC report, Jan. 31 <sup>st</sup> cut-off)		
	2011/12	2010/11	2009/10
Total LVD services	24.6M	23.4M	22.5M
% paid at 50%	26.9%	28.8%	23.2%
% paid at 100%	73.1%	71.2%	76.8%

### Definitions:

*Actual growth (all lab tests)* = Percentage change in the absolute volume of all lab fee items. E.g., Test volume in first half year of 2011/12 vs. volume in first half year of 2010/11.

*Actual growth in lab tests not subject to billing rule change/fee item deletions* = 3.4%.

*Potential growth (all lab tests)* = Percentage annual change in the volume of lab fees in the absence of the 2010 lab agreement = 3.3%.

\*Data include all FFS MSP payments to public and private providers for outpatient laboratory tests (excluding rural retention payments) paid up to Feb 15<sup>th</sup>, 2012, 45 days after the end of the second quarter.

\*\*LVD volume data are based on HIBC reports for the first nine months of the respective fiscal years paid to January 31<sup>st</sup> of a given year.

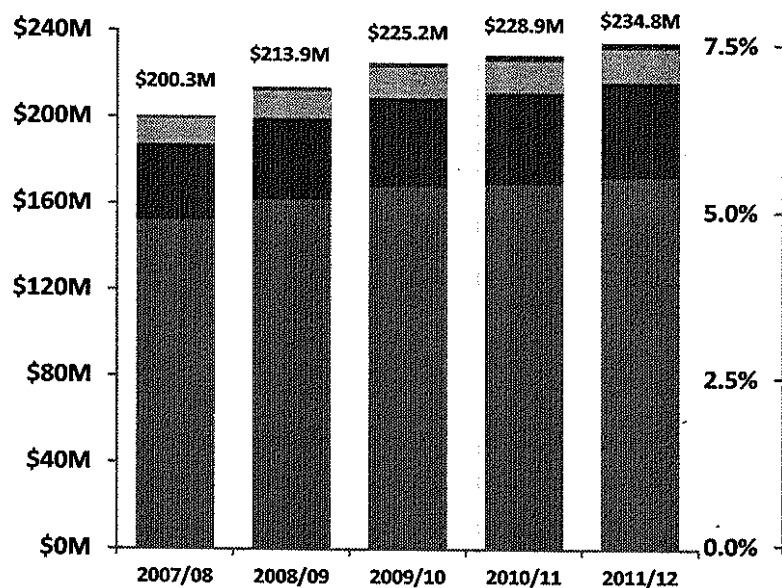


## Lab Test Expenditures in the First Three Quarters of the Fiscal Year & Impact of the Agreements on Growth

Over the last five years the rate of change in expenditures on outpatient lab testing during the first nine months of the fiscal year declined from a high of 6.8% annual increase in 2008/09 to 1.6% in 2010/11; and during 2011/12 fiscal year the growth rate increased to 2.6%.

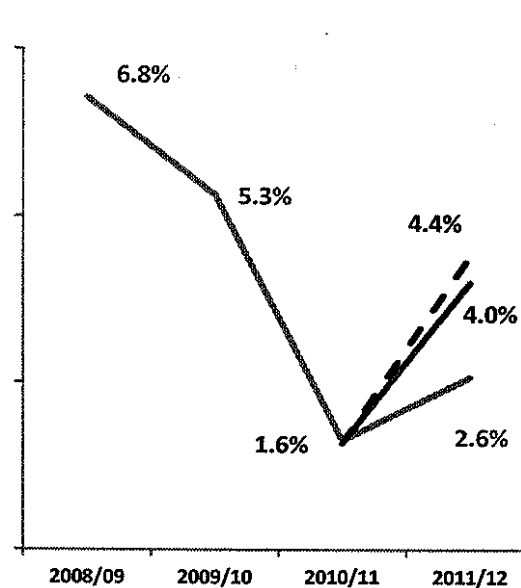
In the absence of the terms of the 2010 Lab Agreement laboratory costs in Q1-Q3 of 2011/12 would have been \$239.0M (a 4.4% increase over 2010/11). \*

Outpatient lab test expenditure,  
- first nine months of fiscal year\*



■ Other: Midwife, Nurse Practitioner, and Other Health Practitioner  
 ■ Surgical Specialists  
 ■ Medicine Specialists  
 ■ GPs

Expenditure growth rates,  
- first nine months of 2011/12\*



— Actual growth (all lab tests)  
 — Actual growth in lab tests not subject to billing rule change/fee item deletions  
 - - Potential growth (all lab tests) without agreement

Impact of Volume Discounting

Q1-Q3 LVD fee items **	(HIBC report, Jan. 31 cut-off)
Actual total LVD test expenditure	\$144.1M
Potential test expenditure (on same items) in the absence of LVD	\$165.8M
Average cost per LVD test	\$6.75 (without LVD) \$5.87 (with LVD)
Q2 non-LVD fee items	MSP data
Actual total non-LVD test expenditure	\$90.6M
Average cost per non-LVD test	\$15.40

\*Data include all FFS MSP payments to public and private providers for outpatient laboratory tests (excluding rural retention payments) paid up to Feb 15<sup>th</sup>, 2012, 45 days after the end of the second quarter.

\*\*LVD volume data are based on HIBC reports for the first nine months of the respective fiscal years paid to January 31<sup>st</sup> of a given year.

## Outpatient Demographic Factors

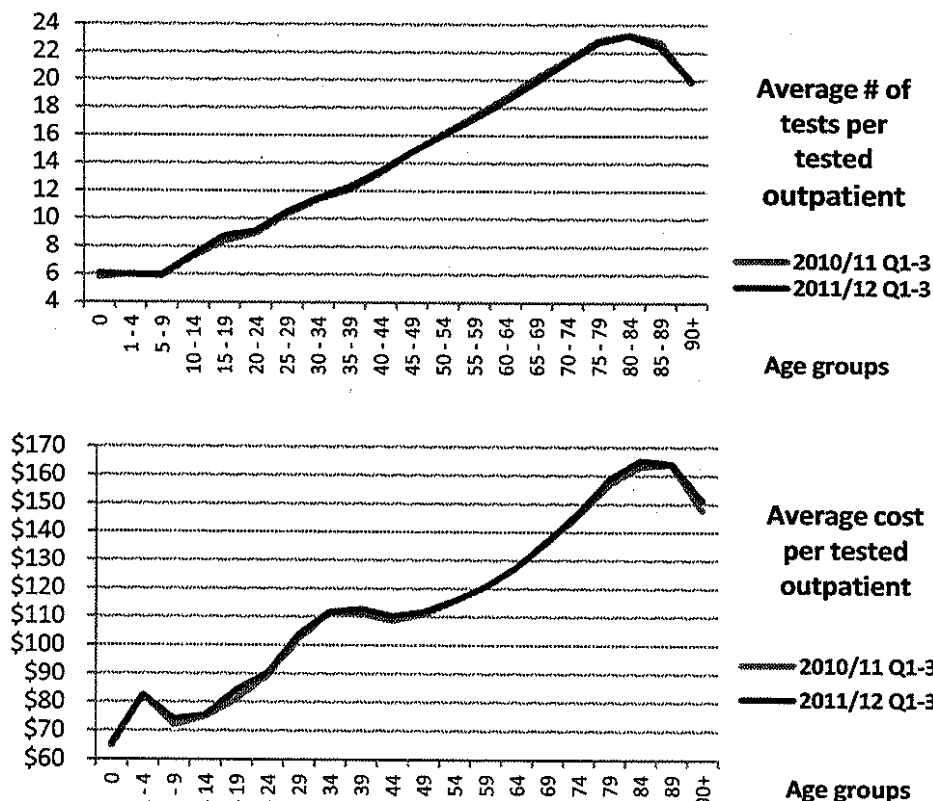
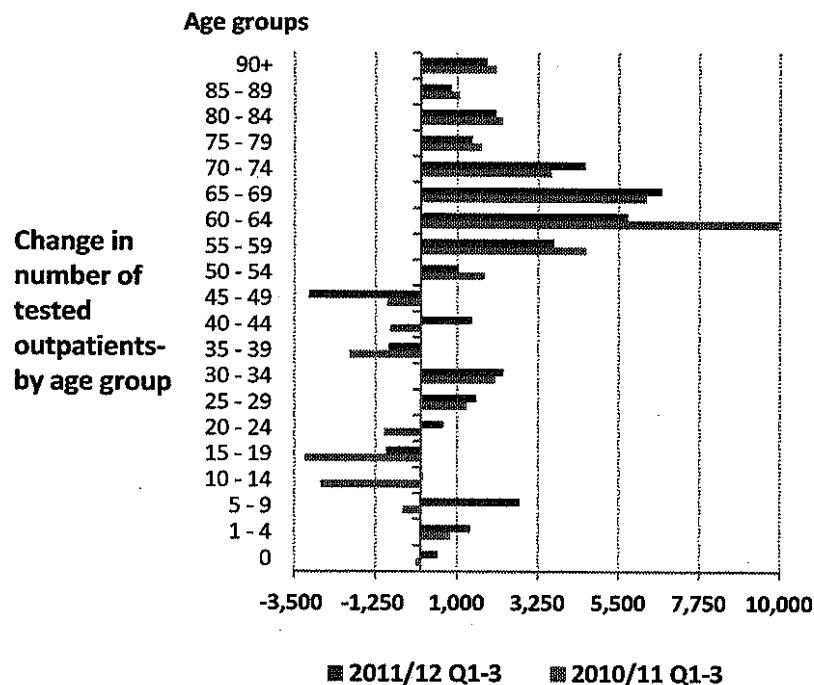
In the first three quarters of 2011/12 1.96M outpatients received lab tests, an increase of 33K over same period last year.

The change in patient population during first three quarters in 2011/12 and 2010/11 is broken down as follows:

- + 27K in patients 55 yrs and over in 2011/12, compared to a higher increase of 32K over the same period in 2010/11.
- 684 in patients aged 40-54 yrs in 2011/12, compared to a smaller decrease of 36 patients in the same period of last year.
- + 3.5K in patients aged 20-39 in 2011/12, compared to a small increase of only 327 patients in 2010/11.
- + 3.6K in patients aged 0-19 in 2011/12, compared to a decline of 5.8K during the first nine months of 2010/11.

The average number of tests per tested outpatient in 2011/12 was 15.57, representing a decline of 0.1% (largely attributed to billing rule changes of the 2010 Agreement). The test rate per tested outpatient aged 50 and above dropped from 19.5 tests per patient to 19.3 in 2011/12 (↓0.7%). The average cost per outpatient aged 50 and above increased by \$0.58 to \$135.77.

The overall average lab cost per tested outpatient during Q1-3 of 2011/12 was \$119.97 - a 0.83% increase over the same period of the last year and a 1.1% increase over the first nine months of 2009/10.



Test	BCALP Tariff Comment
<b>92330 -Free T4</b>	<p>This is a striking increase. In 2010/11 the 1, 3 and 5 y CAGRs for fT4 were 13.2%, 6.6% and 7.5%. Two events occurred that may have contributed to the increased utilization. There was a revised guideline introduced in January 2010. Possibly, some of the increased utilization for 2010/11 is a reflection of the guideline introduction. However, there was little in the guideline content that would have triggered a change other than it appears a little less prescriptive in format. There was a revised SOPLR approved in November 2010. While the latter was likely not in full circulation until late 2010/11 Q4, it appears likely that the apparent Q4 growth reflects the impact of the requisition. The thyroid tests were offered in a condition based format (Hyperthyroid, Hypothyroid, Thyroid Replacement) that followed the testing logic contained in the guideline algorithm. Consequently, unlike previously where TSH, fT4 and fT3 required specific orders, conditional orders for fT4 ± fT3 are automatically made with a tick of the condition box. As previously, the fT4 will only be done if the TSH is abnormal and the fT3 if the fT4 is normal. The data suggest that in many cases, clinicians were satisfied to order TSH as an indicator for the presence of thyroid disease. However, if the same standard of care were being met, the patient may have subsequently been retested with a repeat TSH and the addition of fT4 ± fT3. Another possible explanation would be an increase in the occurrence of new thyroid disease? Another consideration would be a change in provider or referring laboratory practice? The discussion above assumes that the increase in fT4 was observed across providers and physicians.</p>
<b>92148 Protein total, serum or plasma</b>	<p>This is an extraordinary increase. In 2010/11 the 1, 3 and 5 y CAGRs for TP were 5.0%, 3.2% and 4.9%. TP was added to the revised SOPLR. The Q1/Q1 and Q1/Q4 ratios suggest the appearance of the effect in Q4 which would be consistent with a requisition effect.</p>
<b>90465 Blood film review</b>	<p>The Section was aware that one provider may have been under billing this fee item and that there were lab to lab variations. We alerted MSP to these issues during the "Pre-Review" process of the revised add-on criteria. We are satisfied that the growth rate has fallen to a reasonable level and that current rate (90645/90205) is consistent with good practice.</p>
<b>90700 Hepatitis B surface antibody (anti-HBs)</b>	<p>This represents twice the historical growth rate. As the hepatitis section of the SOPLR was modified on the revised requisition, one can only suspect that this played a role in the increase. The revised requisition showed the tests that would be performed if the condition box was checked. Previously, only the conditions were listed with the comment that the tests would be performed in accordance with the guideline. If annualized (simply), the unexpected increase would be about 6,500 tests.</p>



	With data from the BCMA for ordering combinations of the hepatitis tests in 09/10, I had estimated previously that there were approximately 10,071 investigations for acute hepatitis that year. 48% were in accord with the guideline protocol. Of all the investigations that appeared to be for acute hepatitis, 76% included anti-HBs. If the revised requisition resulted in all acute hepatitis including anti-HBs, this would add 2417 tests annually. There were 54,081 investigations that were likely for chronic hepatitis. 53% appeared to follow the guideline testing protocol. 91% of all the apparent chronic hepatitis investigations included anti-HBs. If the revised requisition resulted in all chronic hepatitis including anti-HBs, this would add 4867 tests annually. These two would account for the observed increase.
<b>90755 Throat or Nose Culture</b>	The proposed explanation seems reasonable. The annual growth rate for 2010/11 showed a reversal of the previous declining utilization of this fee item.
<b>90725 Serological identification - microorganism</b>	From 09/10 data supplied by the BCMA for various culture types and identification procedures, I determined that the culture type most associated with 90725 (Serological identification - microorganism) was 90755 (Throat or Nose Culture). Approximately 24% of 90755 had an associated 90725 performed or about 50,000 per year. The observed increased utilization is likely associated with the increased utilization of 90755.
<b>91326 Calcium total</b>	The 1, 3 5 y CAGRs for 91326 utilizing 2010/11 data are 4.1%, 3.0% and 6.3% respectively. The more recent increased utilization is likely due to the addition of calcium to the revised SOPLR.
<b>92545 GC/MS confirmation of a positive screen</b>	Suggest that the provider be queried about the reason for the increase. Is it for opiates or for amphetamines or something else?
<b>New tests 90831, 90833 and 90832</b>	The 1, 3 5 y CAGRs for 90830 utilizing 2010/11 data are 19.7%, 12.9% and 20.5% respectively. The Section expected that 95% of the 90830 billings would roll over into the three new tests. The Section/BCMA had difficulty arriving at the estimated number of services for 2010/11. The initial estimate based on the CAGR was 42,000. This was adjusted downward based on Q1 2010/11 data. The actual came in at 39,500. If the Q1 data is annualized (simply), the estimated 2011/12 volume would be 42,450. This appears to fall within expectations. The apparent discordant expenditure growth was budgeted for during the introduction of these fee items.
<b>90029 Alpha-thalassemia</b>	The shift from 90245 (Hemoglobin-H inclusion bodies) to 90029 (ATMT) is likely still in progress. Additionally, the utilization of the two tests combined last year was less than the utilization of 90245 had been for a couple of years.
<b>92514 Oxycodone</b>	The volume is slightly less than the Section estimated. Possible factors include the POCT testing

<b>screening assay</b>	by the GPs and possible increased concern about other opioids that do not react in the oxycodone assay.
<b>91695 Glucose Tolerance Test – gestational protocol</b>	Our estimated utilization was based on the assumption that BC would continue to follow the two step protocol for diagnosis of gestational diabetes, i.e., a glucose challenge (91690) followed by a GTT (91695) if the challenge were positive. We utilized 08/09 data to determine the existing positive rate which was found to be 19%. The average cost per patient with the two step protocol is \$13.01. We subsequently learned that there were some practitioners who were not following the CDA approach as recommended by Dr. Thompson. These groups were performing the GTT-gestation protocol without a screen. The cost per patient of the 1 step approach is \$15.94. It was subsequently determined by the SOPLR Committee that the Reproductive Care Program planned to continue recommending the two step approach. However, the 2010/11 MSP data that the Section received from the BCMA showed a 17.5% reduction in the number of 91690 performed last year. The incremental cost of this shift to the one step protocol would be approximately \$7400 per year and approximately 1.5 K services per Q. Unless there has been a dramatic reduction in the number of pregnancies, the 91695 Q1 volume suggests that some practitioners may have reverted to the 2 step protocol as the volume is less than one would predict from last year's data.
<b>10.c.1 Creatinine to urea</b>	The Section contemplated the creation of billing rule(s) for urea testing e.g., ordered by a nephrologist (?) or for patients on the renal program (?). However, we discarded this approach as it was considered unwieldy at the front end. We felt that education of the users was the preferable approach. It is encouraging to see that the volume of 92368 (Urea) has decreased. However, the question remains as to whether it is attributable to education or the inclusion of creatinine and the omission of urea on the revised requisition.
<b>10.c.ii 91420 (Creatinine, random urine)</b>	Presumably the billing rule "Not payable with 91985 (Albumin creatinine ratio (ACR))" is active? A random creatinine might be used for a ratio other than an albumin creatinine ratio. The two main substances for which "substance" creatinine ratios that are currently used in clinical medicine are calcium and protein. A calcium creatinine ratio would involve the use of 91328 (calcium, urine random) and 91420. A protein creatinine ratio is used in pediatrics and obstetrics. The current fee schedule does not contain a listing for a quantitative "random" urine protein. There are listings for timed creatinine and protein collections and these could be used for a protein creatinine ratio. There are a few other analytes where "ratios" are used but are an unlikely explanation. Perhaps a conversation with the "deviant provider" would be informative?

<b>10.c.iii Liver function tests</b>	<p>There are a number of factors that contribute to the decline in AST utilization and the rise in ALT utilization. (1) The increasing availability of ALT on core chemistry analyzers. (2) The adoption of ALT as the preferred marker for hepatocellular damage and, in particular, in the guidelines for hepatitis management. (3) However, it appears that the addition of only ALT to the revised SOPLR accounts for the dramatic change in the ALT/AST ratio.</p> <p>With respect to the double digit rise in ALP, GGT, total bilirubin and albumin, these tests were all additions to the revised SOPLR. As indicated by the figures in the table and by a review of the 1, 3 and 5 y CAGR, the addition to the requisition is the likely cause of the double digit increase in utilization.</p> <p>LDH has limited clinical value and this test was not included on the requisition.</p>
<b>10.f. BNP &amp; ECHO</b>	<p>We would need to refine our question, in order to look for an impact of BNP testing on ECHO (not EKG).</p>
<b>10.g ApoB</b>	<p>The revised SOPLR appears to be resulting in the shift to ApoB for monitoring treatment of hypercholesterolemia with the attendant cost avoidance owing to the fee reduction for ApoB introduced during the SRLA.</p>

### **Re: Ratio of MSP Billable to Total PSA**

The increased ratio of MSP billable to Total PSA tests concurrent with the introduction of the revised SLRA reported by LifeLabs was investigated. BCBio detected a similar increase (0.03) in the ratio and VML detected an even greater increase (0.06). The revised requisition differed from the previous version in that it no longer contained the statement "Provide indication above" under MSP Billable. LifeLabs informed the clinicians that a diagnosis was no longer required but BCBio and VML made no comment in their newsletters. VML states that they made no change to the back of their requisition where they provide guideline and billing information as the rules had not changed.

I note that the HLTH 1901 REV 2001/02/27 version did not ask for the indication for MSP Billable PSA tests but the requirement added to the next version of the requisition (HLTH 1901 REV 2004/03/22).



Subject: Comments for CUSIC Meeting March 27, 2012

**Action Items from September 23, 2011**

- List of practice numbers to be distributed to HAs and labs

*Is there a system in place and what is it?*

- Revised test list for RN(c) includes a primary base fee but does not identify what tests are associated with this.

*Presumably the RN(c) billings will be handled by HIBC which means that the only time the base fee will be billed is when glucose is ordered. None of the other linked tests are included in their menu.*

*There is a problem with their menu of approved tests as it does not include Blood film review (90465) which is primarily a laboratory added on test. This problem arose previously with the nurse practitioners. The absence of 90465 from the RN(c) menu is practically and clinically inappropriate.*

*Comment: There is a need for different abbreviations for nurse practitioners and naturopaths (NPRAC vs. NPATH?)*

- Requisition for RN(c) to be developed based on list of tests licensed to date.  
*This has not happened yet. MSP has indicated that these practitioners will use the physicians' SOPLR. This is a problem from the laboratory perspective (see discussion under Standard Maternity Outpatient Laboratory Requisition).*

- Requisition Committee

Dr. Rosenberg is filling in for Dr. Ferguson for the "Requisition Committee" activities. Activities have included:

- (1) **Standing orders:** attended a meeting held with clinicians to discuss standing orders. Recommendations were developed but their status is unknown to me presently. Dr. Clelland was uncertain whether this issue properly resided with the "Requisition Committee" as she perceived it as a utilization and communication issue not a forms standardization one.
- (2) **Standard Maternity Outpatient Laboratory Requisition (SMOPLR):** forwarded the BCALP generated form to the committee outlining in detail the proposed changes. Have responded to feedback from GPs and midwives and am awaiting agreement from the midwives before asking for a final draft.

The creation of a common form for midwives and physicians has brought into conflict the different philosophy behind the design of the existing requisitions for these two practitioner groups. The physicians' SOPLR has a limited test menu whereas the midwives' requisition had a complete menu of their orderable tests (or as it was when the form was last revised). The design of the proposed common maternity requisition, which is based on the BC Maternal Care Pathway, expands the menu offered to physicians but does not include all the tests orderable by midwives. The "Requisition Committee" has the mistaken belief that because midwives have MSP numbers a requisition containing the list of tests that they are authorized to order is no longer necessary. From a laboratory perspective, this is not true. The laboratory will have to recognize the non MSP billable tests and inform the patient who

Subject: Comments for CUSIC Meeting March 27, 2012

will have to decide what to do about them or the laboratory will discover the problem later when MSP rejects the billing. Additionally, the form raised some questions of increased utilization have arisen which I have tried to address.

- (3) **Revisions to the current SOPLR:** some revisions have been submitted for the current requisition. For various reasons, these did not include all those received from Dr. Ferguson. In particular, it was proposed that the items on the current SOPLR that related specifically to pregnancy be removed. This concerned me because I was unclear as to how the SMOPLR was going to be distributed. There did not appear to have been a discussion of this question.

Comment: I am concerned about the position taken by the Committee that "standardization" is limited to content. Variations in format are a potential source of error and the Section believes that every effort should be made to limit variation in this regard..

#### **Quarter 2 and Quarter 3 Reports**

##### ***Fee Item Level Analysis – Tests with the highest growth in expenditure***

Some of the entries on this table don't seem to make sense, e.g.,

1. Primary base fee (91000): using the absolute growth in volume, the absolute growth in expenditures equates to payments made at 152% the book rate.
2. Free T4 (92230): using the absolute growth in volume, the absolute growth in expenditures equates to payments made at 9% the book rate.

The fee increases to 91985 and 91865 were not standalone changes so the table is a little misleading.

- (1) Albumin creatinine ratio (91985) is a composite fee (91985 + 91420) so when the growth in expenditure for the two items is combined, the impact is a significant reduction in expenditure. Additionally 91985 was added to the discount list.
- (2) Iron, total and binding capacity (91865) – The billing rule and the fee modifications to 91865 and 92345 (transferrin) were intended to be revenue neutral.

There are some items in the Table where the revised requisition likely played a role in the growth in expenditures: A1C (91745), Hepatitis B surface antibody (90700) and Free T4 (92330).

The increases in Throat or nose culture (90775) and Serological identification (90725) have been discussed previously. Could the increased growth in Antibiotic susceptibility (90615) be related?

Are we seeing a midwives effect in the increased number of Stained smear (90740) and Vitamin B12 (added to their approved menu)? The growth rates are higher than the historical growth rate and no other explanation comes to mind.

Subject: Comments for CUSIC Meeting March 27, 2012

***Impact of Tick Boxes***

- (1) The Section identified this issue when the Q1 data was made available. This was not unexpected as the Committee recognized that this might result when the revised requisition was developed. However, it was considered that the financial impact would be relatively small considering the structure of the "chemical profile" fees and their inclusion on the discount list.
- (2) The tick boxes for PSA were not added. The revised requisition differed from the previous version in that it no longer contained the statement "Provide indication above" under MSP Billable.
- (3) (3) When considering the impact, the exclusion of AST and urea from the requisition should be considered.
- (4) Does the estimate of \$1.6 M take discounting into effect?

**Vitamin D**

Drs. Henderson and Rosenberg met on March 22, 2012 to explore how to best effect a change in the utilization of Vitamin D testing. They are in the processing of confirming the details and checking on the feasibility of the proposed actions.

**Other items**

I have provided Dr. Sherlock with background on these items. I will refrain from making any additional comments at this time.



### Overview of vitamin D test utilization, and:

#### Summary of available options for its management.

Utilization of the vitamin D (25 Hydroxy-cholecalciferol) test (MSP Fee Item # 92460) is increasing dramatically. MSP expenditures for 92460 increased from under \$100K in 2001/02 to over \$3M in 2011/12.

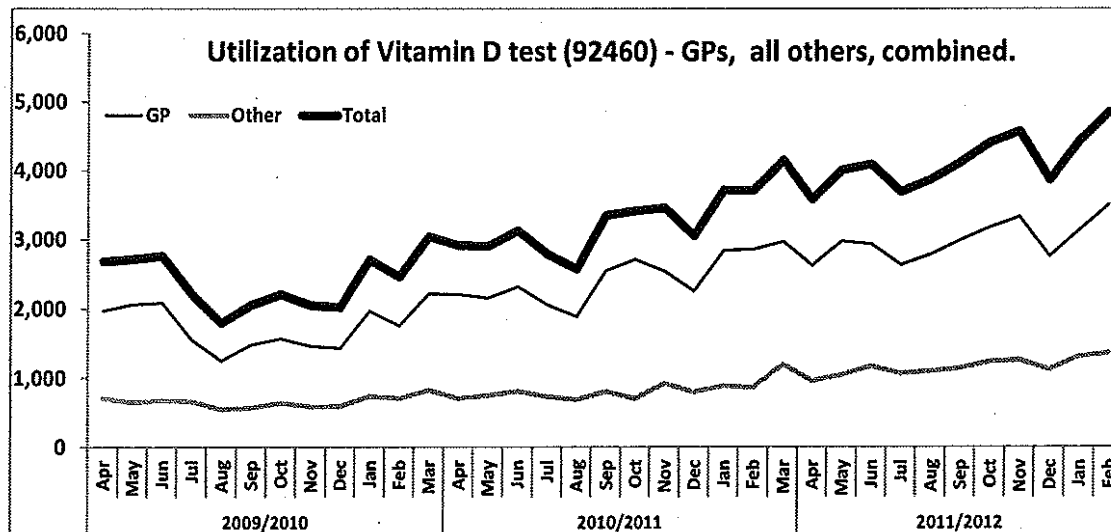
MSP FFS paid volume and paid amounts for FI 92460 - vitamin D test						
	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012
MSP paid volume	7,658	12,429	22,745	28,327	39,134	49,855
MSP paid amounts	\$702,648	\$1,106,430	\$2,041,733	\$2,652,257	\$2,778,298	\$3,057,081
MSP average cost per test	\$91.75	\$89.02	\$89.77	\$93.63	\$70.99	\$61.32
% of orders by GPs	61%	68%	72%	73%	75%	72%
Annual volume growth		62%	84%	25%	36%	27%

The Ministry is aware that fewer than 3,000 tests/year are medically necessary (GPAC). Most vitamin D testing is therefore unnecessary and \$2.9M is currently spent annually on inappropriate vitamin D testing.

Initiatives undertaken by the Ministry in an attempt to manage utilization include the following:

- a broadcast message was sent to all physicians in June 2009 (Appendix 1),
- a new GPAC testing protocol became effective in October 2010 (Appendix 2), and
- the top test utilisers (29 GPs with 8K annual test volume costing \$771K) were identified and informed of their errant practice patterns (a joint initiative with the Patterns of Practice Committee in February 2011; Appendix 3).

None of these initiatives had any significant impact on test utilisation:



**In the last year MSP explored the following options:**

1. In February 2011, MSP proposed to add the following billing note to the fee item (new section shown in bold font)

T92460\*\* Vitamin D (25 Hydroxy-cholecalciferol).....61.07

Note: i) T92460 is not intended for other metabolites of Vitamin D.

**ii) This test is not intended for use as a diagnostic screening tool. It is intended only for: Patients with malabsorptive syndromes, advanced renal failure, mineral and/or bone diseases, unexplained bone pain, unusual fractures or other evidence suggesting metabolic bone disorders (generally upon referral by a specialist)**

While endorsed by GPAC and the Patterns of Practice Committee, the amendment was not acceptable to the Laboratory Medicine Section.

2. In November 2011, MSP proposed to add the following billing note to the fee item (new sections shown in bold font):

T92460\*\* Vitamin D (25 Hydroxy-cholecalciferol).....61.32

Note: i) T92460 is not intended for other metabolites of Vitamin D.

**ii) Only paid for the following conditions:**

- a) Osteoporosis
- b) Rickets
- c) Osteopenia
- d) Malabsorption syndromes
- e) Renal disease
- f) Drugs that affect vitamin D metabolism

The Section of Laboratory Medicine found the above proposal unacceptable and suggested that the Ministry consider adding the following two tick boxes to the Standard Outpatient Laboratory Requisition form:

- ☐ Vitamin D: Meets MSP eligibility criteria: (metabolic bone disease, malabsorptive states, kidney or liver disease, Ca/P disorders, drugs affecting Vitamin D metabolism)
- ☐ Vitamin D: Does not meet MSP eligibility criteria: Patient responsible for payment

**Options for discussion:**

1. Restricting vitamin D testing to one globally funded facility. The facility would have the resources to ensure that only medically necessary testing is performed.
2. Adding a tick box to the SOPLR requiring physicians to indicate medical necessity or user-pay.

MSP is not in favour of this proposal in light of recent data showing a 11% annual increase in test utilization for the 11 MSP fee items referenced by tick boxes in the recently revised SOPLR (vs. 1.5% increase in test utilization for non-tick boxed fee items).

3. Making a billing rule change to require a diagnosis on the SOPLR.
4. Making all vitamin D testing user pay.

MSP is not in favour of this as it would contravene existing legislation.

**Attachments:**

- Appendix 1 June 2009 Broadcast Message
- Appendix 2 October 2010 GPCA Testing Protocol
- Appendix 3 Draft of letter sent to 29 top test utilisers.



## Appendix 1.

### BROADCAST TITLE: VITAMIN D TESTING IN PRIMARY CARE

**Background:** In addition to being required for bone metabolism, vitamin D has been recently linked to a wide variety of common diseases like cancer, diabetes, and cardiovascular disease. There have also been reports of a role for vitamin D in periodontal disease, depression, chronic pain, autoimmune diseases, Parkinson's disease, memory loss, and even influenza. One consequence of this new interest in vitamin D is that utilization of the vitamin D (25) laboratory test fee item (92460) is growing exponentially, with a *100% increase in costs to MSP over 2007/08*. There is currently no consensus on the role of vitamin D testing in primary care. This broadcast message recommends a reasonable approach to vitamin D testing.

**Physiology:** There are two sources of vitamin D: vitamin D2 (ergocalciferol) derived from plants, and D3 (cholecalciferol) produced in the skin by the action of UV light on 7-dehydrocholesterol. Both forms of vitamin D are hydroxylated in the liver to 25-hydroxyvitamin D. This, the major circulating form of vitamin D, undergoes further hydroxylation in the kidney to the active metabolite 1,25-dihydroxyvitamin D (calcitriol). Calcitriol stimulates intestinal calcium absorption, decreases parathyroid hormone secretion, stimulates osteoclastic bone resorption, stimulates osteoblasts, decreases production of collagen type 1, influences muscle function, and stimulates cell differentiation and the immune system.

**Supplementation:** Good vitamin D levels are unlikely to be achieved through diet alone and sufficient exposure to sunlight is generally not achieved for adequate vitamin D production (depending on surface area exposed, skin color, season and latitude). There is concern that low vitamin D levels in older adults is contributing to bone loss and subsequent fractures, and there are several Canadian recommendations regarding appropriate vitamin D intake. There is consensus among them that a daily dietary or supplemental source of at least 200 IU is required, with an upper limit of 1000 IU in infants and 2,000 IU thereafter. There is, however, controversy with regard to appropriate dosage within the 200 to 2,000 IU range, continuity through the year, and source (food vs. supplements).

**Vitamin D testing:** Currently, the vast majority vitamin D testing is done on asymptomatic people who are thought to be at risk for sub-optimal vitamin D levels. This testing includes, but is not limited to, the elderly, particularly in residential care, and those who are thought to receive inadequate sun exposure. Vitamin D testing is expensive (**\$93.63 per test**) and Provincial volumes are increasing exponentially. As supplementation is safe it is reasonable to supplement asymptomatic at risk people without testing. *Routine testing of vitamin D levels is medically unnecessary prior to or after starting vitamin D supplementation.* Vitamin D testing should be limited to patients with: unexplained raised serum alkaline phosphatase or low calcium or phosphate, atypical osteoporosis, and advanced age with unexplained proximal limb pain. Specialist consultation should be considered for patients with unexplained bone pain, unusual fractures or other evidence suggesting metabolic bone disease.

**Summary:** Testing of vitamin D levels in asymptomatic people at risk for having low vitamin D levels is not usually required because testing carries a high cost burden while supplementation is safe and relatively inexpensive. Furthermore, MSP insured vitamin D testing is not intended for use as a diagnostic screening tool but rather, for use in cases in which there is clinical suspicion of severe, symptomatic, vitamin D deficiency.



## GUIDELINES & PROTOCOLS

ADVISORY COMMITTEE

### SUMMARY

Effective Date: October 1, 2010

#### Vitamin D Testing Protocol

For full protocol please go to website: [www.BCGuidelines.ca](http://www.BCGuidelines.ca)



Ministry of  
Health Services

This protocol covers the appropriate use of vitamin D testing for the general adult population ( $\geq 19$  years) in BC. It excludes patients with malabsorption syndromes, renal failure, unexplained bone pain, unusual fractures, and other evidence of metabolic bone disorders.

### A. LABORATORY TESTING

- Routine serum vitamin D testing or screening for vitamin D deficiency is not recommended.
- Routine serum vitamin D testing during vitamin D supplementation is not recommended.
- The optimum level of serum vitamin D, if one exists, has not been determined.
- Most BC residents are at risk of low vitamin D levels in the fall, winter and spring.
- Supplementing with vitamin D is safe and therefore supplementation is generally recommended.
- An exception to "no testing" includes some patients with advanced renal failure, mineral and/or bone disease.
- Specialist consultation is recommended for patients with malabsorption, unexplained bone pain, and unusual fractures, or suspicion of metabolic bone disorder.

### B. TREATMENT

#### 1. Sunlight

- Amount of vitamin D produced by skin depends on surface area exposed, skin pigmentation, age, season, latitude and use of sun block.
- Canadian winters have insufficient UV radiation for adequate vitamin D production.
- UV is sufficient in summer and the suggestion is careful exposure of arms and legs for 10-15 minutes daily (risk of skin cancer due to sun exposure and tanning beds must be considered).

#### 2. Food sources (See Table 1 on the reverse)

- Fish & eggs: Fresh salmon (wild or farmed), mackerel, tuna, sardines, cod liver oil, egg yolk (the latter less rich in vitamin D)
- Fortified foods: Milk (cow, soy, and rice) plus some orange juices
- Plant sources: No plant sources provide a significant amount

#### 3. Supplements (See Figure 1 on the reverse)

- Recommended daily dose of  $D_2$  is 800-1000 IU (the optimum dose is unknown).
- Consider supplements in fall, winter and spring, as sunlight and diet are likely inadequate.
- There are two major forms: vitamin  $D_2$  (ergocalciferol) and  $D_3$  (cholecalciferol).
- $D_3$  is three times more effective and also the most common found in pharmacies OTC ( $D_2$  is available in high-dose preparations by prescription).
- Instead of daily dosing, patients can take  $D_3$  as 7000 IU weekly or 30,000 IU monthly (a single dose yearly is not recommended as evidence shows increased risk of fractures).
- Vitamin D toxicity is uncommon but if suspicious, check serum calcium (albumin-corrected total calcium or ionized calcium); if calcium is elevated, vitamin D level testing may be indicated.

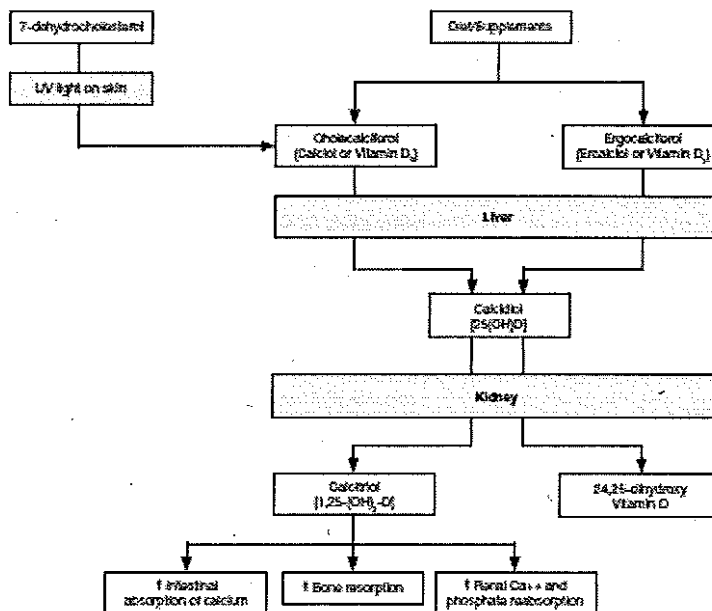
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VITAMIN D TESTING PROTOCOL SUMMARY

**Table 1: Estimated Amount of Vitamin D Present in Some Foods**

Type of Food	Estimated Vitamin D Content (Approximate Content)
<b>Naturally present in food</b>	
Fresh salmon	100-250 IU per 100 g or 3.5 oz (farmed) 800-1000 per 100 g or 3.5 oz (wild)
Mackerel	80-250 IU per 100 g or 3.5 oz (canned)
Cod liver oil	400-1000 IU per 5 ml or 1 teaspoon
Tuna	41-165 IU per 100 g or 3.5 oz (canned) 385-690 IU per 100 g or 3.5 oz (fresh)
Sardines	70-360 IU per 100 g or 3.5 oz (canned)
Egg yolk	20-25 IU vitamin each
Mushrooms	18 IU per 100 g or 3.5 oz (white button) 96 IU per 100 g or 3.5 oz (cooked shiitake)
<b>Vitamin D-fortified foods (Canada)</b>	
Cow's milk	100 IU per 250 ml or 1 cup
Soy or rice milk	80 IU per 250 ml or 1 cup
Some orange juices	100 IU per 250 ml or 1 cup
Margarine	25 IU per 5 ml or 1 teaspoon

**Figure 1: Pathways of vitamin D synthesis\***



\* Adapted from Jansson HC, Sjöström MM, Värlander HJ. Vitamin D deficiency, muscle function, and falls in elderly people. *American Journal of Clinical Nutrition* 2002;75:611-615.

#### VITAMIN D TESTING PROTOCOL SUMMARY



## Appendix 3

February 8, 2011

Dear DR. :

Re: Vitamin D

One of the mandates of the BCMA Patterns of Practice Committee (POPC) is to provide educational information to doctors regarding their pattern of practice.

The Guidelines and Protocols Advisory Committee (GPAC), which has approved many guidelines for diagnostic testing, has recently approved one for Vitamin D. This protocol has been in effect since October 1, 2010. Included for your information is a copy of the Vitamin D Guideline.

I am writing to you as Chair of the POPC as our data indicates that you are 3 standard deviations over the median in the ordering of Vitamin D tests. The POPC is well aware that this is a guideline and should not deter you from ordering Vitamin D when appropriate. The POPC is interested in your explanation as to your high ordering of this test.

Please send your response by February 28, 2011 to Ms. Juanita Grant of the Department of Professional Relations either in writing or by email at [jgrant@bcma.bc.ca](mailto:jgrant@bcma.bc.ca).

Sincerely,

Dr. Wendy Amirault

Chair

Patterns of Practice Committee

Enclosure: Vitamin D Guideline

Lab Office, March 16<sup>th</sup>, 2012. Page 7

Date: August 1, 2012

## **Laboratory Reform Committee (LRC)**

### **Terms of Reference**

#### **1.0 PURPOSE AND OBJECTIVES**

- 1.1 The mandate of the Laboratory Reform Committee ("LRC") is to develop a plan, to be submitted to the Government and the BCMA, by no later than February 1, 2013, to:
- a) achieve additional lab savings from outpatient lab services; and
  - b) achieve a more efficient integration of inpatient laboratory services that may include the following:
    - a single operating entity and governance structure to manage operations in the Vancouver and Fraser regions including single medical leadership;
    - a provincial lab technology and test assessment process;
    - ability to transition services and associated funding from the MSC payment schedule to an alternative payment arrangement and vice versa;
    - a provincial plan for physician human resources;
    - a single quality framework;
    - the integration of actual services and facilities; and
    - a timeline for achievement of the previously identified \$18 million in annual savings.

#### **2.0 Consensus**

- 2.1 The Laboratory Reform Committee will endeavor to make all recommendations by consensus, which means unanimous approval of the recommendation by the members of the Committee. Failing a consensus the Laboratory Reform Committee may make more than one set of recommendations on a particular topic.

#### **3.0 Structure**

##### **3.1 Membership**

The Committee will be comprised of eight (8) members: four (4) members appointed by the Government (Ministry of Health) and four (4) members appointed by the BCMA.

### **3.2 Chair**

The Committee will be co-chaired by one Government member and one BCMA member. The co-chairs will chair meetings on an alternate basis.

### **3.3 Secretariat**

The Government will provide secretariat support to the Committee. The secretariat will be responsible for booking meeting space; distributing agendas, minutes and related information in a timely manner; taking minutes; and, maintaining a work plan and a centralized repository of all committee materials.

### **3.4 Support Staff**

The Government and the BCMA may provide up to three (3) support staff each to attend the meetings. The number of support staff can be increased upon agreement of the parties.

## **4.0 Meetings**

### **4.1 Frequency**

Meetings will be held on a monthly basis until February 1, 2013. Additional meetings may be held on agreement of the co-chairs. Meetings may be held in person or by teleconference.

## **5.0 Funding**

Each of the parties will be responsible for any costs related to their members' participation on the committee.

## **6.0 Term**

The Laboratory Reform Committee's term is to February 1, 2013.

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Signed on behalf of the BCMA by:

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Signed on behalf of the Government by: