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## **ANNUAL REPORT 2015 - 2016**

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Innovation • Education • Quality Assessment • Continual Improvement

# Clinical Microbiology Proficiency Testing

— Established 1982 —

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**Esther Kwok BSc, RT, CLQM, Coordinator**

ISO 9001:2008 Registration 2002

ISO/IEC 17043:2010 Registration 2015

ISO 9001:2008



Certificate Number: CERT-0078728

ISO/IEC 17043:2010



Certificate Number 3749.01

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## CMPT QUALITY POLICY AND MISSION STATEMENT

### Innovation, Education, Quality Assessment, Continual Improvement

- We, at CMPT, are a university based, peer directed program, that provides Innovative External Quality Assessment for microbiology laboratories providing services for public and patient health.
- Our vision is to be recognized provincially, nationally, and internationally as a valued contributor of EQA innovation, education, and as passionate advocates for continued quality improvement in EQA for the benefit of healthcare, our participants, and our program.
- CMPT is committed to its Quality Management System, and regular review for continual improvement of its effectiveness.
- CMPT is committed to regulatory requirements of ISO 9001:2008 and ISO/IEC17043:2010.
- The CMPT Quality Policy is the framework for the regular establishment and review of quality objectives.
- CMPT is committed to regular review of the Quality Policy to ensure its suitability to the program.



Michael A. Noble, Chair  
September 2016

## CMPT STAFF

The CMPT staff is committed to the highest standards of quality and professionalism. This dedicated team of administrative and technical staff provides support through all phases of the program.

**Michael A. Noble**, MD FRCPC .....Chair and Managing Director  
**Esther Kwok**, BSc, RT, CLQM .....Coordinator  
**Caleb Lee**, MHA, BMLSc, CLQM .....Head Technologist  
**Veronica Restelli**, MSc .....Editor  
**Fion Sze On Yung**, MLT BSc .....Technologist

As a program in the Department of Pathology and Laboratory Medicine, University of British Columbia, CMPT acknowledges and greatly appreciates the on-going support of the following individuals.

**Mike Allard**, MD, FRCPC, Professor and Acting Department Head.

**Aileen To**, Director, Human Resources and Administration.

## CMPT COMMUNICATIONS

### Contact CMPT

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## CHAIRMAN'S ANNUAL REPORT 2015 - 2016

### CMPT Program

First created in 1983, UBC's Clinical Microbiology Proficiency Testing program has enjoyed over 30 years of experience and expertise while consistently living its mission statement of Innovation, Education, Quality Assessment and Continual Improvement. This past year (April 2015-March 2016) CMPT continued in this long standing tradition. We again have the opportunity to look back with pride in our successes.

### CMPT Staff

As the chair and managing director of CMPT, I am so impressed with the skill, talent and effort of our staff. CMPT exists and is able to shine because of them. CMPT is a sum greater than its parts because of the commitment to our program of Esther Kwok, our coordinator, Caleb Lee, our head technologist, Veronica Restelli, our web manager and editor, and Fion Yung, our new research technologist.

This year has been significant because one of our senior technologists, Suhanya Bhuvanendran, decided to leave CMPT after near 12 years with us, for an opportunity to work closer to her home. Suhanya has been a tremendous part of our CMPT family, and she will remain close to our hearts.

Fion Yung has taken over Suhanya's technologist duties; we are happy to say she has filled the gap very effectively and has become a tremendous CMPT asset. For the last several years, Suhanya had also served as our safety officer. Her duties as web manager and safety officer have been taken over by Veronica.

In order to address some of our OFI concerns we were able to hire an additional part time person, Julie Qi. One of Julie's assets was experience and expertise as a procurement officer. Unfortunately for us, after 4 months, Julie resigned because of family matters. So after a short time, we had to say good bye. We are currently in the process of finding a new replacement for Julie.

### CMPT Volunteers

CMPT is grateful for all the support we receive from our committee members and Chairs. Without the

committee members, it would be impossible for us to maintain our challenge selection process, our assessment system, and the high quality of our critiques and newsletter.

As always CMPT recognizes the valuable role that our committee members contribute. We receive the benefit of their time, knowledge, and expertise. All is appreciated.

We have active committees for our Clinical Bacteriology, Mycology, and Enteric Parasitology programs, with all members being actively involved in programmatic review and critique development.

Our committee renewal process will continue on a more regular basis, keeping in mind the importance of maintaining the right balance between experience and fresh ideas.

### Management of CMPT Quality Management

#### External Review

Once again, CMPT was successfully audited by SAI Global, and we maintained our certification to ISO 9001:2008. This will be our last assessment against that standard. When we go forward with our quality system certification, we will be assessed against the most recent iteration ISO9001:2015.

Importantly last year, in part as a Quality issue, and in part as a business strategy, we prepared for and successfully completed our initial audit for compliance with the international standard ISO/IEC 17043:2010 (Conformity assessment -- General requirements for proficiency testing) under the authority of the American Association for Laboratory Accreditation (A2LA). This year we had our successful first follow-up audit.

In terms of international recognition and ability to attract opportunities, we have found that our decision to move forward with compliance with ISO17043:2010 was a positive step forward for CMPT.

#### Internal Audit

Our internal audits were completed during the Spring as part of our external certification and accreditation audits.

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In April 2016, an internal audit was performed against ISO9001:2008. Several observations were made concerning the absence of documentation for planning some events, and the absence of a procedure for safeguarding third party (including customer) property. These are unusual events in CMPT. On some occasions, a company may lend us a piece of equipment for trial use. On other occasions, a laboratory may send us a slide or isolate for us to review, asking that we return the slide to them with the review. We recognize the slide as property and endeavour to keep it safe and intact for return.

In March 2016 an internal audit was performed against ISO17043:2010. The absence of a statement on conflicts of interest and inappropriate influences was noted. This was addressed through SQP020a.

In addition to our planned Quality Management System internal audits, we also complete monthly Safety audits which are performed and recorded using an on-line survey. There was also an external safety audit performed within the university department. During these surveys we noted some issues with respect to chemical reagent labels and an outdated Material Safety Data Sheet. These were corrected. We continue to meet all UBC and national requirements for safety.

In 2016 CMPT ensured that we are now in compliance with the new Canada's Human Pathogens and Toxins Act (HPTA). This was done under the umbrella of UBC Risk Management and in compliance with the Public Health Agency of Canada. Under the HPTA all laboratories that participate in CMPT programs must have a HPTA registration number.

Our formal process of internal audits has been proven to be an invaluable method to ensure our Quality System remains intact and up to date.

### **Opportunities for Improvement reported during 2015-2016**

CMPT has maintained an ongoing OFI table since it was first registered. During the last year 47 additional events were recorded. Twenty five of the

OFIs were related to document upgrades. Eighteen of these were picked up through internal events including planned internal audits. Seven were related to findings associated with our external audits. Nine of the OFIs were related to events associated with internal errors, and 11 were associated with external errors.

The circumstances around the external errors were examined. Most of these were related to slips or typographical errors. Without going into details, the external errors were from a variety of situations, but generally related to overwork related slips. We anticipate that these will reduce with the increased staffing levels. Two OFIs were associated with Preventive Action audits.

In summary, the number of OFIs per year remains constant, but this year it was associated with an increase in external failures. Consistent with the experience of others, external failures have considerable TEEM (Time, Effort, Energy, Money) impacts. We believe we have addressed the root cause of the problems.

### **Quality System**

As part of the ISO9001 migration from the 2008 version to the 2015 version, the Executive Commitment (SQP006) was changed to Executive Commitment and Leadership. The new version (E, March 2015) reinforces the importance of executive accountability and communication for the Quality Management System (QMS) and integration of the QMS into business processes and supporting other relevant management roles through leadership and responsibility.

In addition, language was developed to support the handling of third party property while in the hands of CMPT.

As part of the ISO/IEC 17043 audit process our Strategic Quality Plan (SQP) was reviewed. Some minor revisions were required. While appearing small, the most significant revision was made to SQP009 (Purchasing Supplies And Equipment Subcontracting Services) because it introduced a risk assessment process into our selection of suppliers. To supplement the risk process, a new

## CHAIRMAN'S ANNUAL REPORT 2015 - 2016

SQF11 form has been developed which applies the severity-occurrence analysis to assist in the selection of suppliers.

### CMPT Resources

CMPT relies on the revenues generated through program registration for cost recovery. Over the past several years, as many Canadian provinces have undergone laboratory restructuring and consolidation, this has had an impact on some of our programs.

We have found alternate revenue streams, including active research and development to develop new and novel materials for our own programs and also through collaborating with other EQA programs and providing them with consultation assistance and in some cases samples. Our meeting ISO17043:2010 has enhanced our ability to grow this additional resources arm, and allows us to support our growing staff, and to enhance our research and development programs.

### Training, Competency, Proficiency

During the last year we have gone through active training and competency assessment for both Fion and Julie. This process will continue on next year, as we look to hire an additional part time person to replace Julie.

### Review of Continuing Education

CMPT is committed to providing opportunities for our staff to participate in education opportunities. In part, this is covered through invited speakers at our Annual General Meeting, and, in part, through the open invitation to participate in our sister program the Program Office for Laboratory Quality Management fall conference. In addition, all CMPT staff are encouraged to take advantage of the programs that the university has to offer.

### Review of Laboratory Safety

During the last 3 years CMPT has formalized its safety processes significantly. Initially with Suhanya, and now with Veronica, we continue with monthly safety audits that are recorded along with departmental peers using a CMPT developed on-

line safety audit reporting tool for ease of completion, reporting, analysis, and referral. We continue to meet all UBC, provincial, and national requirements for safety.

In 2016 CMPT ensured that we are now in compliance with the new Canada's Human Pathogens and Toxins Act (HPTA). This was done under the umbrella of UBC Risk Management and in compliance with the Public Health Agency of Canada. Under the HPTA all laboratories that participate with CMPT must have a HPTA registration number.

### Review of CMPT Quality System

This year the review of our Strategic Quality Plan (SQP) and Quality Forms (SQF) resulted in a change to our Confidentiality and Conflict of Interest form, and one to our Position Guideline forms. These were made and incorporated into our Master Document log.

Of note, we recently reviewed existing commercial QMS software to see if the automated nature of the software could be an enhancement for the CMPT QMS. What we found was that the software available could provide some advantages but at considerable cost which could not be justified at this time.

### Review of Programs

#### Proficiency Testing

EQA is the core activity of CMPT. The changing landscape of medical laboratories in terms of size, number, and activity has stimulated us to be ever vigilant for opportunities in EQA innovation, to which we have responded with increased variety of samples and programs. We continue to extend research and development for new assays, with the view to improve products and extend the variety of clinically relevant challenges.

Importantly we have been working through our web designer and have created a method that allows us to send out results letters electronically rather than as a paper copy. This provides an opportunity for much faster access to information. This new modality will be extended and enhanced in the coming year.

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### CMPT Committees and Working Groups

Clinical Bacteriology

Mycology Plus

Enteric Parasitology

Water Bacteriology

### International Training

CMPT has long recognized the importance of ensuring EQA proficiency based on realistic samples not only in Canada, but also in developing regions around the world. Over the last decade we have provided educational PT training for delegates from more than 10 countries.

In 2015-2016 we did not have any visitors for extended training, but some preliminary discussions are underway for 2017.

### Proficiency Testing Assistance

CMPT regularly receives requests to provide benefit and experience to other programs. Some of these are provision of administrative expertise or provision of specialized samples that are stable and can travel for extended time and distances.

CMPT views the landscape of EQA, both national and international as an opportunity for collaboration for the betterment of healthcare and patient safety.

Dr. Noble has been appointed as the Chair of the Microbiology Working Group for the European Committee for External Quality Assessment for Laboratory Medicine (EQALM) for 2015-2019. In 2016, EQALM will meet in Barcelona Spain. (Note: While EQALM is a European based international organization, EQA programs throughout Europe, North America, South America, and southern Africa participate in EQALM).

Currently, Dr. Noble is also providing assistance to two EQA programs, one in North America and one in Eastern Africa, that are progressing towards compliance to ISO17043:2010.

In 2015, the World Health Organization updated its 1999 document on assisting countries develop national PT/EQA programs to help improve medical

laboratory quality. CMPT had the opportunity to participate in the creation and make significant contributions to the new manual.

Published in the spring of 2016, "WHO manual for organizing a national external quality assessment programme for health laboratories and other testing sites" is the most significant international document impacting on international PT/EQA since the creation of ISO17043:2010. CMPT was pleased to play a role in its creation.

### CMPT Professional Development Course

In 2014, CMPT, having learned of the importance that many laboratories put upon the quality and value of our challenge critiques, proposed a program where laboratorians could receive continuing education credits for reading the critiques in our Clinical Bacteriology, Mycology, and Enteric Parasitology programs and answering an on-line quiz.

The program was proposed to the Canadian Society for Medical Laboratory Science (CSMLS) who was prepared to offer continuing education credits for the program. The program was trialed during 2015, and a survey was sent out to determine what people thought about the course. In total about 30 people responded, which was close to a 50 percent response rate. This was considered as sufficiently high to be representative and interpretable.

All respondents found the program either Excellent or Very Good as both Educational and Informative. Ninety-two percent similarly viewed it as highly for being Interesting. Eighty-eight percent viewed it similarly for being easy to read. When asked about the relevancy of the questions in the quiz, over 96 percent classified them as "A nice mix of the variety of issues, major and minor. The questions enhance the educational value of the critiques."

On an overall scale for satisfaction with the course, it received an average score of greater than 92 percent. We consider this a strong vote of support.

In 2017, we will be ramping up the course to a broader audience. The course will continue to be provided without a charge to our participants.



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### CMPT Quality Indicators

#### Clinical Bacteriology Appeal Resolution

This year, CMPT had 6013 graded challenges in the Clinical Bacteriology surveys. CMPT received 9 requests for committee appeal of the assigned grade. This represented 0.002 percent of grades. Committee discussed all requests. Of the 9 appeals, 4 (44.4%) were resolved in support of the request.

Appeal Requested Clinical Bacteriology Surveys				
Year	Graded Challenges	Appeal	Support request	Affirm committee
2004-5	6378	11		
2005-6	6378	21		
2006-7	x	20		
2007-8	x	31		
2008-9	x	15		
2009-10	x	13		
2010-11	6067	15	6	9
2011-12	6726	13	2	11
2012-13	6325	x	x	x
2013-14	6300	17	6	11
2014-15	6013	17	6	11
<b>2015-16</b>	<b>6013</b>	<b>9</b>	<b>4</b>	<b>5</b>

#### Ungraded samples

Over the years, CMPT sample grading has become increasingly complex.

Of 7447 challenges samples sent, 6013 (80.7%) were graded. The most common reason that a challenge is not graded is because the laboratory reports that it does not process the type of sample presented.

In 2015-2016, there were no rejected samples for Quality Control reasons.

#### Customer Satisfaction Surveys.

In 2015-2016 CMPT performed two satisfaction surveys. One was focused on the revisions made to the CMPT website, and the other on our newly formed CMPT Professional Development course.

#### Ungraded samples 2000 - 2016

Year	Ungraded samples
2000-2001	0
2001-2002	3
2002-2003	3
2003-2004	3
2004-2005	3
2005-2006	3
2006-2007	4
2007-2008	3
2008-2009	1
2009-2010	2
2010-2011	0
2011-2012	0
2012-2013	3
2013-2014	0
2014-2015	0
<b>2015-2016</b>	<b>0</b>

[www.CMPT.ca](http://www.CMPT.ca)

As mentioned previously CMPT website has grown dramatically since its early years as a small home-grown awareness centre. Over time it became extremely content rich, a high utilization site loaded with both current and archived critiques and Connections, and also is the cornerstone access point for entering EQA information and challenge results. As the site grew it became progressively dated in appearance and more difficult to navigate.

With the active participation of our webmasters, working with a web designer and Word Press web design software, the site went through a major overall. This year, we surveyed CMPT participants for their comments on the website changes.

Overall we had a response rate of approximately 30 percent of laboratories. The laboratories repre-

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sented were from all regions across Canada, and in proportion to the distribution of CMPT programs. We considered these factors as allowing the results to be viewed as representative of the total group.

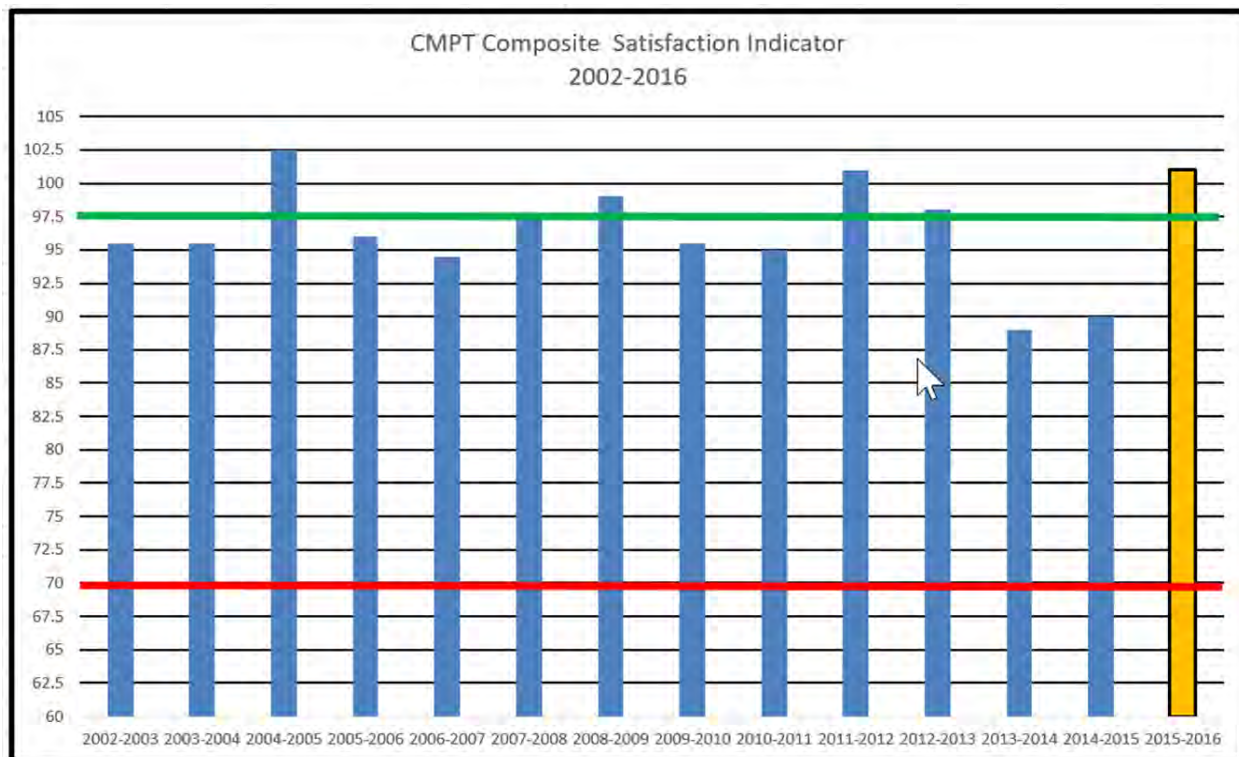
Overall about 84 percent saw the changes made as impressive/much improved (or nearly so) on a 5 point scale. Similar ratings were given for both improved navigation and appearance. As an overall scale for satisfaction, the changes were rated as 84 percent. During this improvement process we did not work on the data entry portion of the website. We know this has been a problematic issue for some. Of note, one person commented with respect to improvements, “If the online submission ends up looking like the rest of the website, everything would be perfect.” We saw this as evidence of support and a step in the right direction. We understand the need to work more fully on the data entry section of the website.

See the afore written commentary on the Professional Development course.

**CMPT Composite Satisfaction Score (CSS)**

Each year CMPT combines the information from the surveys with other factors (contracts, complaints, consultations) and derives a weighted composite score Customer Satisfaction. In the weighting negative comments, lost contracts and complaints are weighted greater than positive counterparts. We have been monitoring this indicator since 2002-2003 (14 years). In 2015-16, CMPT had 3 new contracts (+30) and 3 consultations (+30), and no complaints or lost contracts. The combined approval rating for the two satisfaction surveys was 87 (+870). In addition there were 7 free text positive comments (+35) and 1 negative one (-10). Our aggregate weighted score for 2015-2016 was 101, which was a significant improvement over last year, and moved us into the excellence range.

Because the same survey structure has been used for 14 years, we would not likely make any changes without considerable review and analysis.

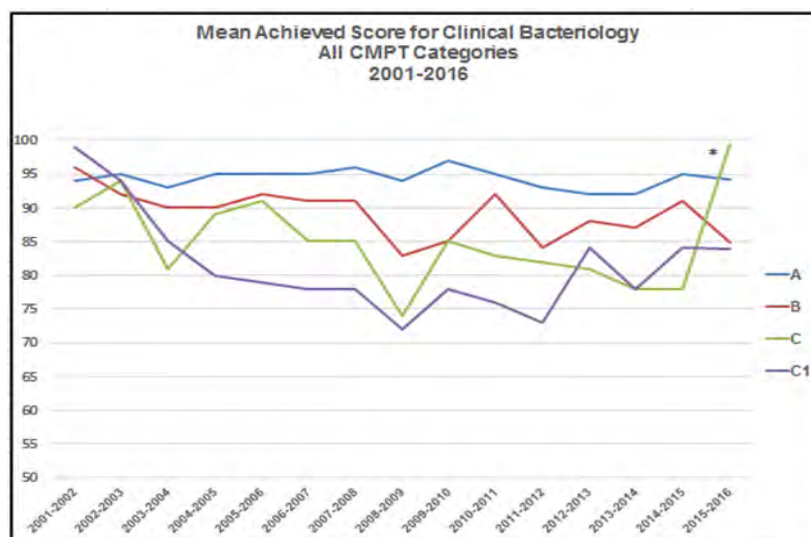


## CHAIRMAN'S ANNUAL REPORT 2015 - 2016

### Ongoing laboratory performance

CMPT regularly monitors laboratory category performance. Over the last 15 years, we have seen great stability with Category A laboratories, but the record for smaller laboratories has been less stable. Over the last 3 years we have seen definite improvement in the performance of smaller laboratories. This does not appear to be regional. We cannot account for the improvement, but we are

very supportive of the new pattern of improvement. Unfortunately consolidation and reformation of laboratories has resulted in some distortions in our CMPT classification. The number of category C laboratories has dropped so low that its mean achievement performance is not trustable. This may be the last time that we continue to follow laboratory performance (mean percent achieved score) for all categories.



### CMPT Presentations and Publications

1. Noble MA. Proficiency Testing of MALDI-TOF MS. New Technologies Workshop. Jingmen Hubei Province, China. May 2015.
2. Noble MA. Quality and the Medical Laboratory: Understanding Errors and their Solutions. Department of Pathology and Laboratory Medicine General Pathology Academic Half Day. June 2015
3. Noble MA. Clinical Microbiology Proficiency Testing program: Thirty-three years of evolution and progress. 5<sup>th</sup> International Proficiency Testing Conference (PTConf). [Presentation and Published Proceedings] Timisoara Romania September 2015.
4. Noble MA. PT/EQA for the Total Laboratory Testing Cycle: Time to Focus on re and Post Examination. 20<sup>th</sup> European Organization for EQA for Laboratory Medicine (EQALM). Bergen Norway. October 2015.
5. Noble MA. Can We Improve Quality in Laboratories? : *Issues and Opportunities in Lab Accreditation, Proficiency Testing, and Quality Management Systems*. 8<sup>th</sup> Laboratory Quality Confab. New Orleans, LA. November 2015.
6. Noble MA. Implementing Real Quality in Your Laboratory. 2<sup>nd</sup> Seeding Knowledge Conference. Jeddah Saudi Arabia (Presented *in absentia*). November 2015.
7. Noble MA. PT/EQA for the Total Laboratory Testing Cycle: Focus on Pre-Examination. LabQuality Days. Helsinki Finland February 2016
8. Noble MA. Laboratory Safety in the Medical Laboratory. Human Factor series. Worksafe B.C. Richmond BC. March 2016.

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9. Noble MA. Laboratory Developed Tests: The Good, The Bad, The Ugly. International Training and Education Center for Health. Seattle Washington. May 2016.
10. Noble MA. Costs of Poor Quality in the Pre-examination phase: CSMLS Annual Conference (LabCon) Charlottetown, PEI. June 2016
11. Noble MA. Everything you need to know about Laboratory Safety – 2016. Medical Microbiology Academic Half-Day. July 2016.
12. Robert Martin, Lucy A. Perrone, and Michael Noble. CHAPTER30 : The Role of Point-of-Care Testing in Travel Medicine . In The Travel and Tropical Medicine Manual, Sanford & Jong & Pottinger. Elsevier. 2016

### CMPT and Strategic Planning

CMPT continues to function consistent to its Mission and Vision statements. Our long term objectives continue as iterated in our Vision statement (see above). In order to continue to meet our expectations, the following issues have been identified that need to be addressed over the shorter term: workload, financial resources, space, sample supply chain, partnerships, research, and committee structure.

A new Strategic Plan (SWOT) was developed. Consistent with ISO 9001:2015, the plan was developed to take into consideration both internal and external factors.

#### • Workload

There have been continued decreases in laboratory participants, but not to the level that this has reduced workload. The impact of excess workload has been reflected in the number of OFIs associate with overwork errors. Over the past year, we have been able to make strategic increases to CMPT personnel. This will be seen to continue going forward into 2016-2017.

#### • Financial resources

As the number of laboratories in many provinces continues to consolidate, the number of laboratories participating in CMPT Clinical Bacteriology program continues to reduce. This is particularly true of the Category C and C1 laboratories hav-

ing some impact on the financial stability of CMPT. However, through good fiscal management and the efforts of all our staff, we have been able to minimize and control this impact.

More importantly, we have been able, through research and development, to create more samples, for more programs, and at a more efficient cost. In addition, we have also been working with and assisting other proficiency testing programs. All this has taken pressure off our revenue stream. We see this to continue (and increase) through the next series of years.

#### • Space

Our facility on the UBC Campus continues to be an efficient and effectiveness space. This has provided closer contacts with the department and with UBC safety. We will need to watch for space impacts as we start to increase CMPT staff, and seek more opportunities for international and national education programs.

#### • Equipment

With increasing financial stability, CMPT has a high priority to focus on improving our photographic capabilities to improve both communication and documentation.

#### • Enteric sample suppliers

All EQA programs across North America, and increasingly also in Europe have had difficulties in finding sufficient samples to provide enteric parasite assessments. Some programs have found an alternative solution by using circulated photographs.

CMPT has worked hard at maintaining its program based in true samples. We have identified new providers of sample materials which have the potential to sustain our program.

#### • Partnerships

CMPT currently benefits from its partnership with our sister programs the Program Office for Laboratory Quality Management, and with the Canadian Immunohistochemistry Quality Control program.

## CHAIRMAN'S ANNUAL REPORT 2015 - 2016

CMPT has developed partner/collaborative relationships with Canadian Immunohistology Quality Control (CIQC), Oneworld Accuracy network, International Training and Education Center for Health (ITECH) in the Department of Global Health, University of Washington, and with the European Committee for EQA in Laboratory Medicine.

### • Research

CMPT has over the years been able to engage in a continued program of internally funded research and development that has resulted in our being leaders in the production of clinically realistic challenge samples in bacteriology and toxin testing, mycology, and water bacteriology. Led by Caleb Lee, we have developed strategies that significantly extend the shelf and transport life of samples and developed more realistic sample simulations. These programs will continue.

### • Succession Planning

Over the past several years, CMPT has had concerns about having an organized process to new management in order to ensure the continuity of CMPT as we go forward into the years to come. Towards that end, CMPT has identified an interim plan through the creation of a new Deputy Chair position. This position will be filled in 2016.

### www.CMPT.ca and Publications

As previously mentioned, CMPT website has become the program's primary communication centre for data entry, preliminary results, critiques, newsletters, and the annual report. Our recent satisfaction survey focused on the value of this site. The results were mentioned previously.

Of some interest, we note that many of the people who visit CMPT.ca do so only 3-4 times per year, mainly in conjunction with data entry or finding critiques. Others, not members also visit resulting in a very high number of page views. These are interested people from around the world seeking our information. While these viewers do not increase our membership or our finances, they do increase our international recognition and prestige.

Our challenge critiques are seen of high value and quality, and for that I thank all our committee members who serve as writers along with our editor who maintains the style and consistency.

The cornerstone of CMPT's value as a continuing education provider is its publications. While our CMPT critiques continue to thrive, we have some ground to make up with CMPT Connections and the Annual Report.

CMPT Connections is viewed by us as a program and science information sharing publication that can extend beyond our challenge critiques.

## CHAIRMAN'S ANNUAL REPORT 2015 - 2016

### Goals and Objectives

As part of our Quality Management System, CMPT sets its goals and objectives for the upcoming year and well as reviews its success with the previous goals. Since our inception we have only failed to meet one annual objective

#### GOALS and OBJECTIVES 2015 - 2016

P15_1	Purchase new microscope photography apparatus to improve time and focus issues (carry over)	Postponed
P15_2	Continue with revamp of <b>www.CMPT.ca</b>	Successful
P15_3	Augment Continuing Education Credits program	Successful
P15_4	Continue Enteric screening program.	Successful
P15_5	Complete training and competency of new staff member.	Successful
Q15_1	Continue with ISO 9001 certification with ISO 9001:2015	Successful
Q15_2	Continue with ISO 17043:2010 accreditation	Successful

#### GOALS and OBJECTIVES 2016 - 2017

P16_1	Purchase new microscope photography apparatus to improve time and focus issues (carry over again)
P16_2	Continue Research and Development for new programs and products directly related to CMPT programs
P16_3	Improve Trichomonas program with new challenge materials
P16_4	Examine for additional improvements to <b>www.CMPT.ca</b>
P16_5	Expand revenue generation program with one new partner organization
P16_6	Complete training and competency of new staff member.
P16_7	Continue forward with Succession Plan
Q16_1	Continue with ISO9001 certification with ISO9001:2015
Q16_2	Continue with ISO17043:2010 accreditation

Signed



Michael A Noble, Chair, CMPT

September 2016

## COMMITTEE MEMBERS 2015 - 2016

Committee members volunteer their time and are essential for selecting challenges, assessing results, and producing the critiques. The efforts contributed by each committee member are critical to the function of CMPT and are very much appreciated.

### Water Microbiology Program

Brian Auk, BSc .....BCCDC PHL, Vancouver, BC  
Chris Enick, BSc .....Exova, Surrey, BC

### Mycology Program

Robert Rennie, PhD FCCM, D(ABMM) .....University of Alberta Hospital, Edmonton, AB  
Romina Reyes, MD FRCPC .....LifeLabs, Burnaby, BC  
Jeff Fuller, FCCM, (D) ABMM.....Provincial Laboratory for Public Health, Edmonton, AB  
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Doris Poole, MLT, BSc.....Queen Elizabeth Hospital, Charlottetown, PEI  
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Denise Sitter, ART .....Cadham Provincial Laboratory, Winnipeg, MB  
Titus Wong, MD .....Vancouver General Hospital, Vancouver, BC

## CLINICAL BACTERIOLOGY PROGRAM

CMPT acknowledges, with appreciation, the valuable and essential advisory and technical support of the Clinical Bacteriology Advisory Committee.

### Program Overview

Clinical bacteriology surveys are shipped 4 times per year. Each survey can consist in up to seven different types of samples depending on the category of the laboratory and the challenges to which they are subscribed.

Only category A laboratories receive all samples, category B, C, and C1 laboratories receive samples according to their capabilities.

For a more comprehensive Program Overview, please visit:

<http://cmpt.ca/eqa-programs/clinical-microbiology/>

## HISTOGRAMS 2015 - 2016

### About the histograms

All histograms have been converted to a single format, which is the percent achievable score. For each laboratory, the sum of all challenges performed and graded was calculated, either as a total for all challenges, or within a specific category, such as "bacterial identification".

The total achievable score, that is the score the laboratory would have obtained if they received a grade of 4/4 for each graded challenge was calculated. Challenges that were ungraded were excluded. The percent achievable score was calculated as (total achieved score/total achievable score) X100.

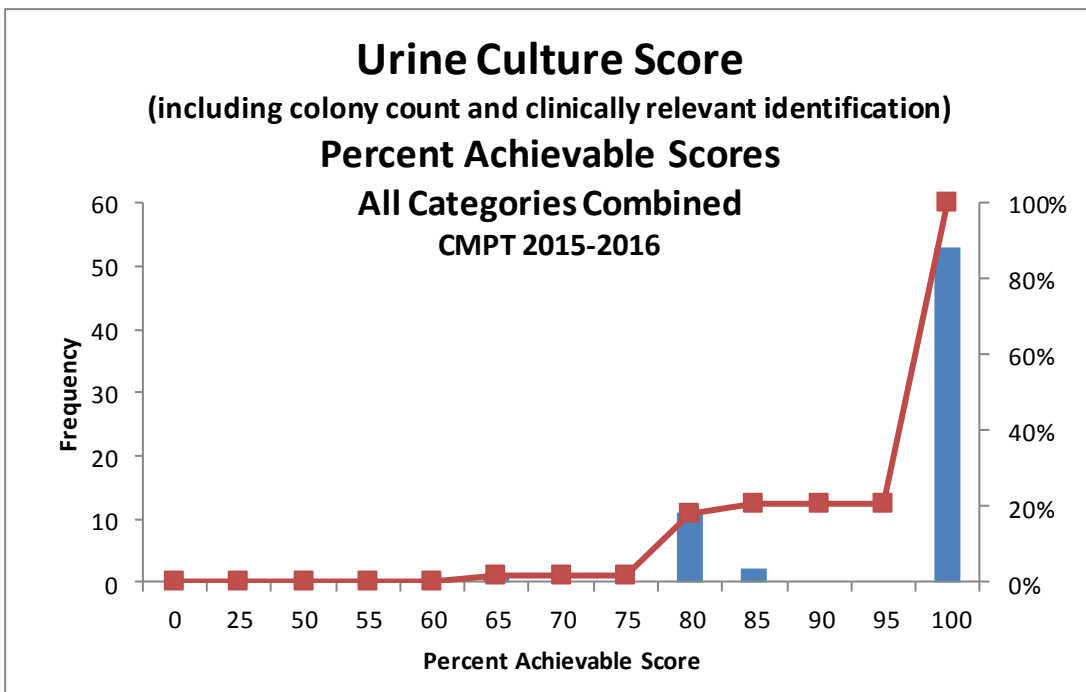
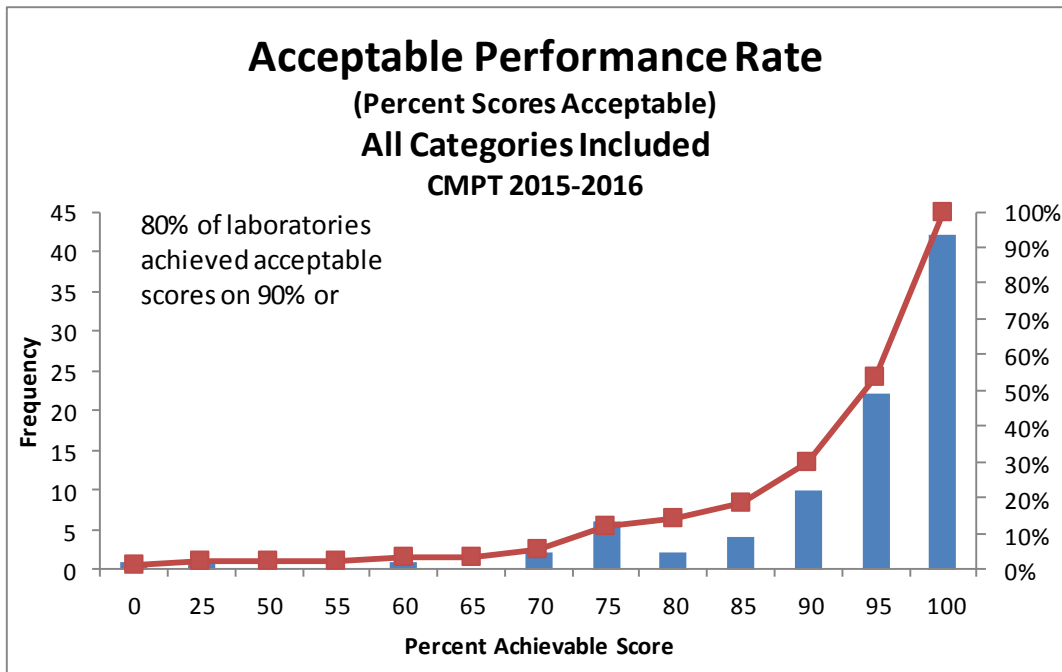
### How to read the histograms

The number of laboratories achieving a specific grade is indicated by the height of the columns over the Percent Achievable Score, and is read on the LEFT side scale of the chart (frequency).

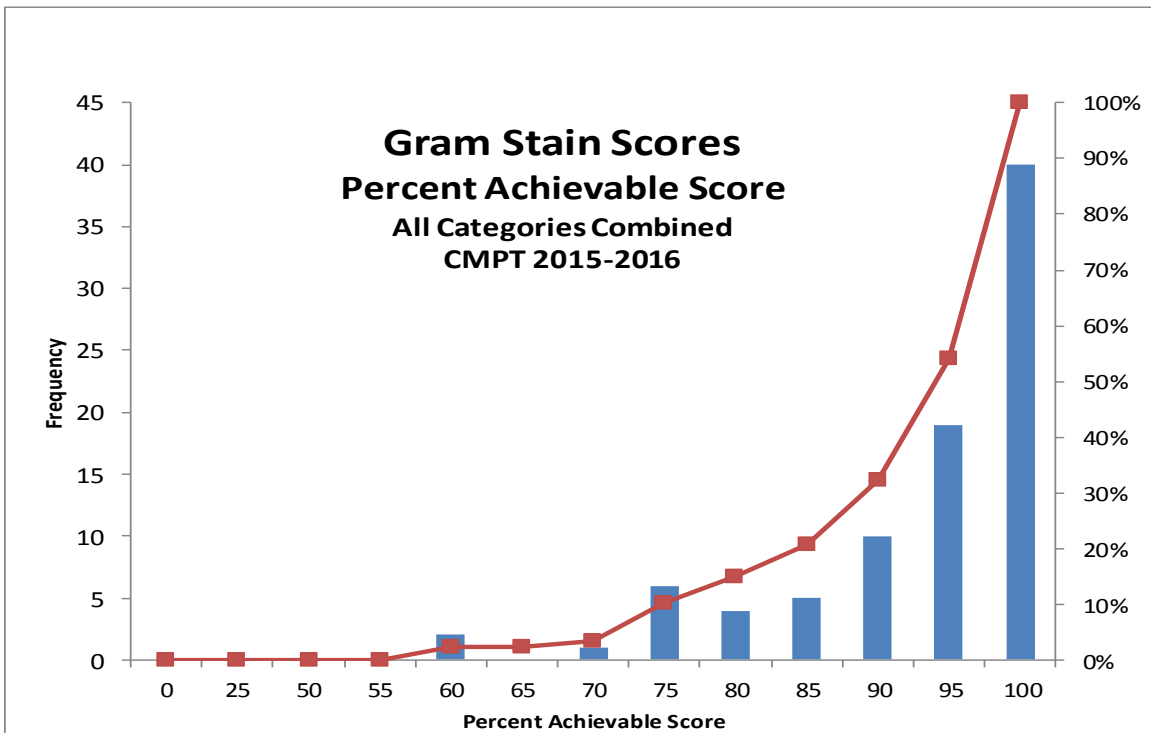
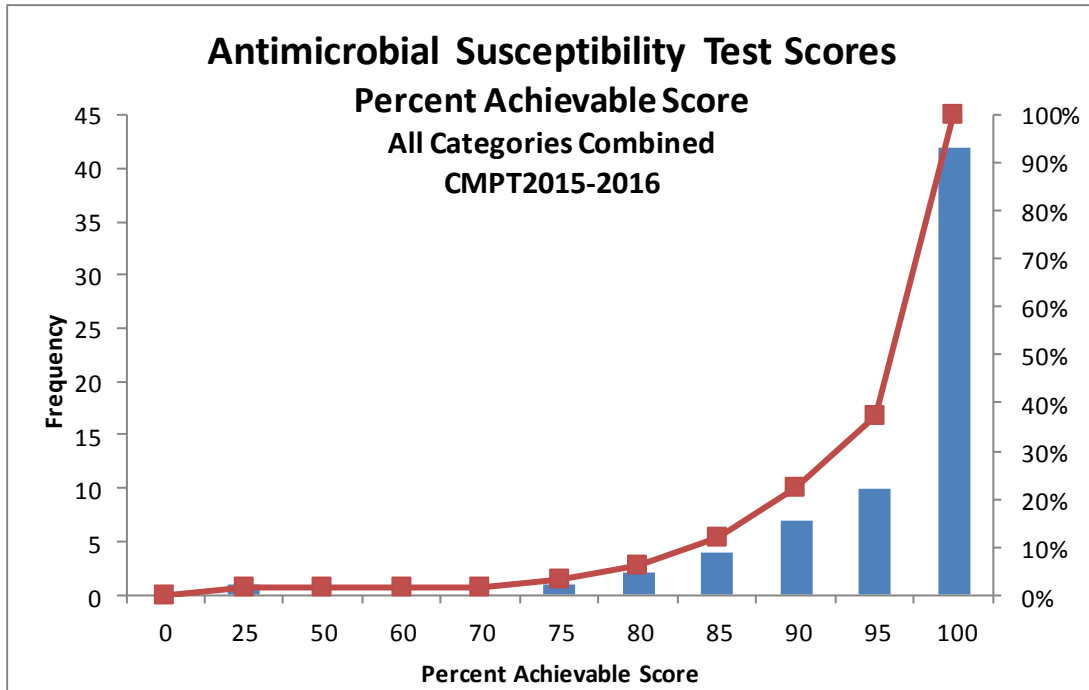
The Cumulative Scoring is indicated by the connected box-line that starts low on the left and rises to the right, and is read on the RIGHT side scale of the chart. The cumulative column indicates the percentage of laboratories that received an acceptable grade on the challenge.



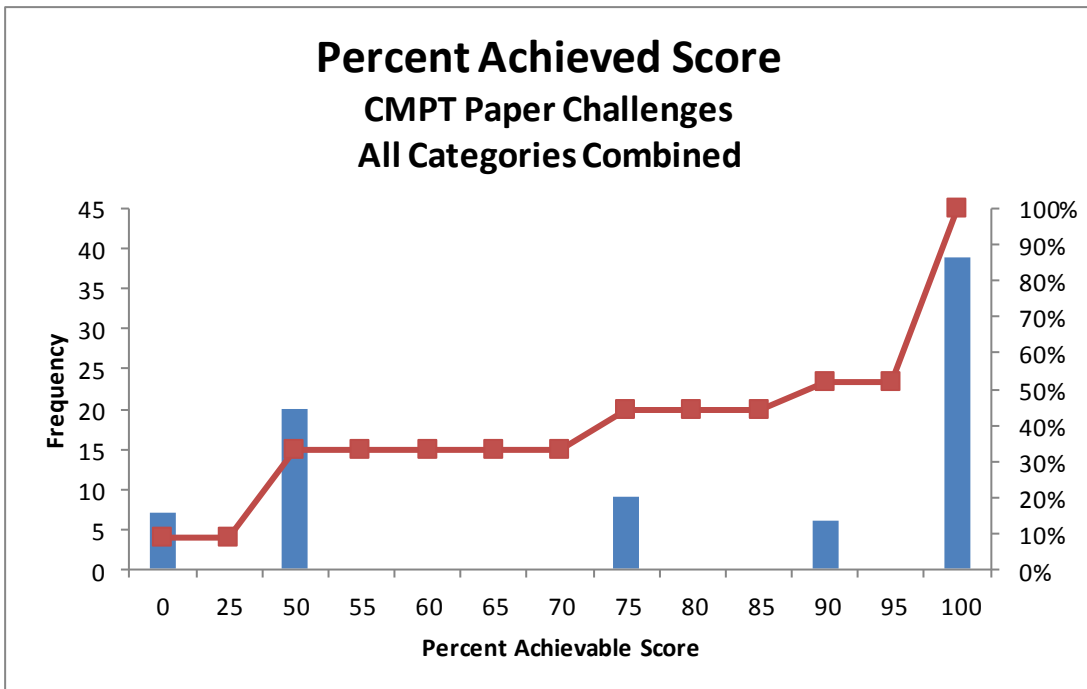
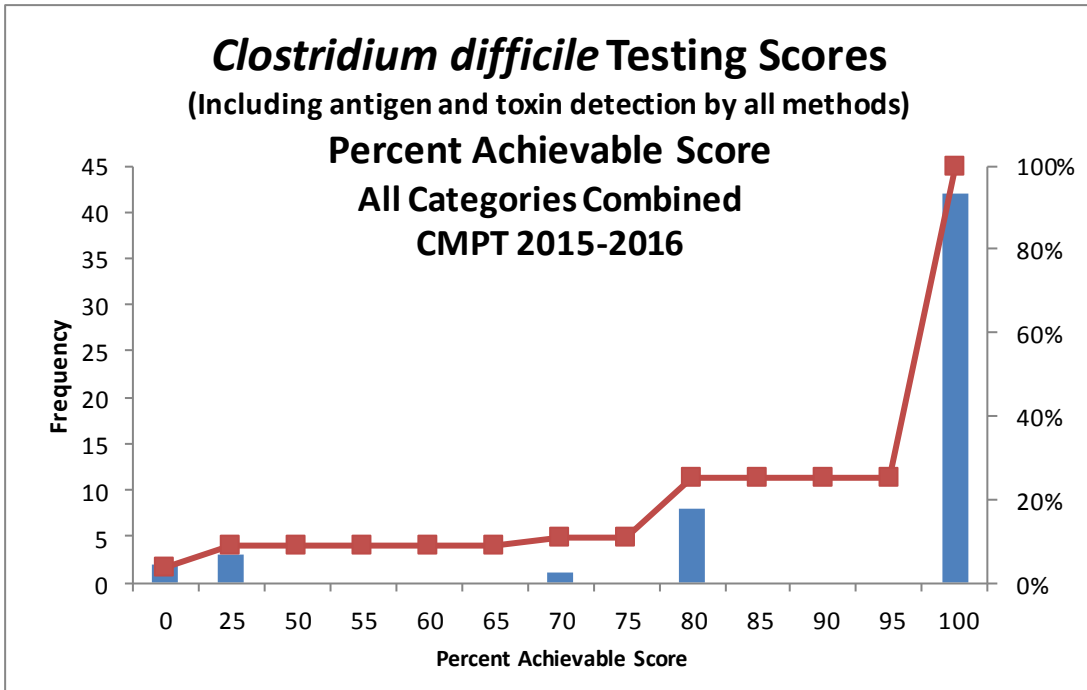
**Clinical Bacteriology - Histograms**



**Clinical Bacteriology - Histograms**



**Clinical Bacteriology - Histograms**



## WATER MICROBIOLOGY PROGRAM

CMPT acknowledges with appreciation the valuable and essential advisory and technical support of:

Chris Enick BSc.....Exova, Surrey, BC

Brian Auk BSc.....BCCDC Environmental Microbiology, Vancouver, BC

CMPT participates with the following organizations to provide external quality assessment challenges and assistance for water bacteriology.

- Enhanced Water Quality Assurance (British Columbia Water Bacteriology Approval Committee)
- BCCDC Environmental Microbiology Laboratory
- British Columbia Ministry of the Environment

Drinking Water challenge surveys are shipped to laboratories three times per year. Each survey consists of sets of 4 drinking water samples. Starting in 2015, the Heterotrophic Plate Count (HPC) program was offered to laboratories that tested drinking water samples with this method. Recreational Water challenge surveys are shipped two times per year. Each survey consists of one set of recreational water samples (spa water, freshwater beach or marine water). Participants participate in one, two or all the recreational challenge samples.

Not all laboratories perform all challenges and not all laboratories use the same methods when testing water samples. Laboratories perform testing use one to four methods depending on the laboratory's accreditation criteria. Laboratories also perform a qualitative method, the Presence/Absence method, as their primary method or in addition to the quantitative methods. The drinking water bacteriology (membrane filtration, Enzyme Substrate, MPN and Presence/Absence methods) challenge records for 2015 are shown in Table 1, the HPC challenge records are shown in Table 2, and the recreational water challenge records are shown in Table 3.

**Table 1: 2015 Drinking Water Bacteriology challenge record**

Date	Sample No.	Organism	Membrane Filtration mean/median/MU% cfu/100 ml		Enzyme Substrate mean/median MPN/100 ml		MPN mean/median MPN/100 ml		Presence/Absence (P/A)
			Total Coli- forms	<i>E.coli</i>	Total Coliforms	<i>E.coli</i>	Total Coli- forms	<i>E.coli</i>	Total Coliforms/ <i>E.coli</i>
W151 April 13, 2015	1	<i>Enterobacter</i> species	33/32/14	0/0/0	32/29	0/0	≥23/≥23	0/0	P/A
	2	<i>Escherichia coli</i>	38/40/24	36/36/24	43/41	42/43	≥23/≥23	≥23/≥23	P/P
	3	<i>Enterobacter</i> species	33/33/21	0/0/0	30/31	0/0	≥23/≥23	0/0	P/A
	4	no organisms present	0/0/0	0/0/0	0/0	0/0	0/0	0/0	A/A
W152 July 6, 2015	1	<i>Escherichia coli</i>	32/33/28	33/35/29	36/34	34/33	≥23/≥23	≥23/≥23	P/P
	2	<i>Enterobacter</i> species	15/16/21	0/0/0	18/18	0/0	≥23/≥23	0/0	P/A
	3	<i>Escherichia coli</i>	52/53/20	49/49/22	62/59	58/59	≥23/≥23	≥23/≥23	P/P
	4	<i>Enterobacter</i> species	50/46/23	0/0/0	56/56	0/0	≥23/≥23	0/0	P/A
W153 October 26, 2015	1	<i>Enterobacter</i> species	63/66/18	0/0/0	72.8/71.0	0/0	≥23/≥23	0/0	P/A
	2	no organisms present	0/0/0	0/0/0	0/0	0/0	0/0	0/0	A/A
	3	<i>Enterobacter</i> species	19/18/24	0/0/0	17.8/18.0	0/0	17/17	0/0	P/A
	4	<i>Escherichia coli</i>	18/16	16/16	17.3/16.4	16.9/16.4	15/14	15/14	P/P

## WATER MICROBIOLOGY PROGRAM

**Table 2: 2015 Drinking Water Bacteriology—Heterotrophic Plate Count challenge records**

Date	Sample No.	Organism	mean/median (cfu/ml) /MU%
<b>H151</b> <b>April 13, 2015</b>	1	<i>Enterobacter</i> species	54/54/12
	2	<i>Escherichia coli</i>	82/82/9
	3	<i>Enterobacter</i> species	54/57/19
	4	no organisms present	0/0/0
<b>H152</b> <b>July 6, 2015</b>	1	<i>Escherichia coli</i>	65/67/11
	2	<i>Escherichia coli</i>	64/69/17
	3	<i>Escherichia coli</i>	101/102/6.5
	4	<i>Enterobacter</i> species	232/218/29
<b>H153</b> <b>October 26, 2015</b>	1	<i>Enterobacter</i> species	85/79/35
	2	no organisms present	0/0/0
	3	<i>Enterobacter</i> species	84/83/12
	4	<i>Escherichia coli</i>	82/83/19
	5*	<i>Escherichia coli</i>	57/55/17

\*extra sample included to replace sample H152-4 that could not be graded

**Table 3: 2015 Recreational Water Bacteriology challenge record**

Date	Source	Challenge	mean/median/MU%	
			Membrane Filtration (cfu/100mL)	Enzyme Substrate MPN/100 ml
<b>R151</b> <b>April 13, 2015</b>	Spa Water	<i>Pseudomonas aeruginosa</i>	103/107/27	80/81
	Freshwater Beach	<i>Escherichia coli</i>	214/223/15	242/227
	Marine Water	<i>Enterococcus</i> species	334/340/19	324/291
<b>R152</b> <b>August 17, 2015</b>	Spa Water	<i>Pseudomonas aeruginosa</i>	339/336/28	372/378
	Freshwater Beach	<i>Escherichia coli</i>	448/450/10	506/509
	Marine Water	<i>Enterococcus</i> species	189/190/18	180/166

MU% - not applicable for EST, MPN or PA methods

## WATER MICROBIOLOGY PROGRAM

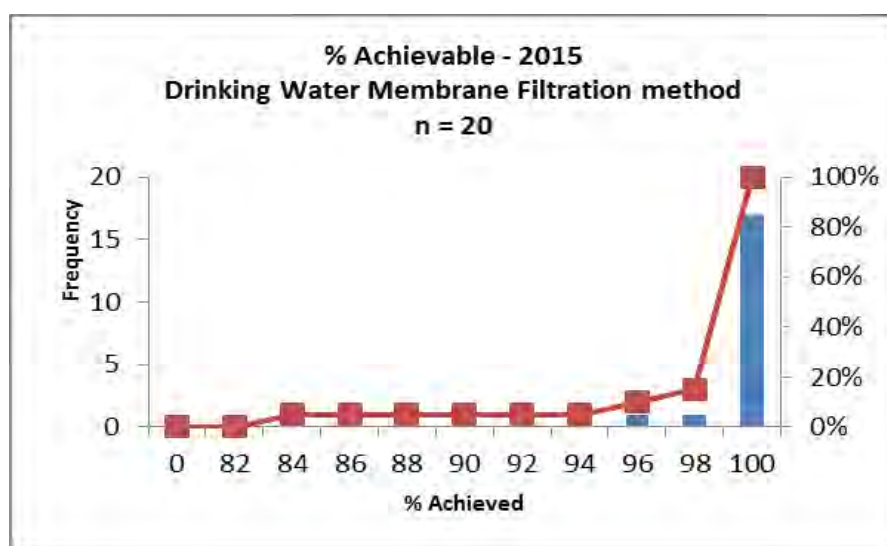
### Water Bacteriology (Drinking and Environmental Water Sample) Score

Laboratory testing results are graded based on the Membrane Filtration, Enzyme Substrate, MPN, Heterotrophic Plate Count (HPC) and/or Presence/Absence methods. All methods are graded on a point scale for assessment of water samples with the exception of the Presence/Absence method, a qualitative method and are, therefore, graded qualitatively. With 12 drinking water samples tested for the program year, the maximum score is 36. With 12 drinking water samples tested, using the HPC method, the maximum score is 36 for the program year. With 3 environmental water samples, laboratories can receive up to a maximum score of 9.

The following Score Tables illustrate the % Achievable scores for methods used for Drinking Water samples during 2015.

**Drinking Water Performance Table for the Membrane Filtration method, 2015**

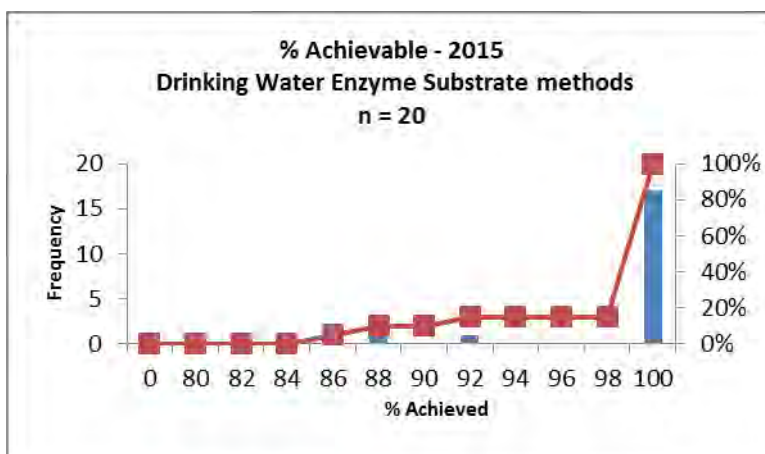
% Achievable	Labs (n=20)	Cumulative %
84	1	5
96	1	10
98	1	15
100	17	100



## WATER MICROBIOLOGY PROGRAM

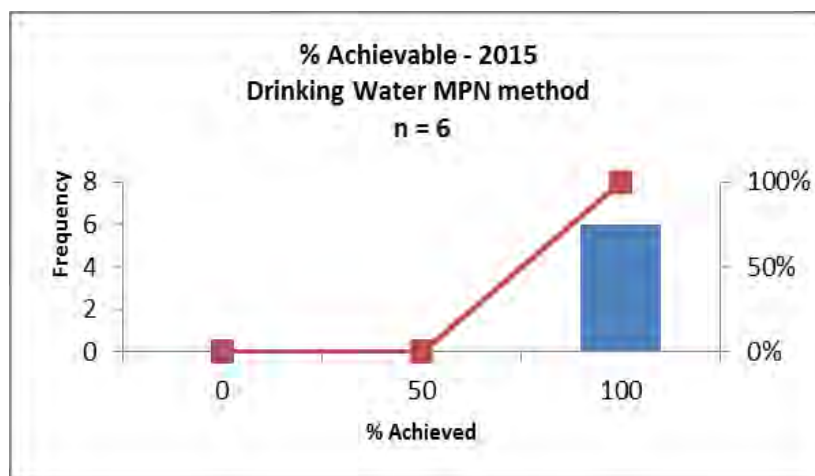
Drinking Water Performance Table for Enzyme Substrate methods, 2015

% Achievable	Labs (n=20)	Cumulative %
86	1	5
88	1	10
92	1	15
100	17	100



Drinking Water Performance Table for Most Probable Number (MPN) method, 2015

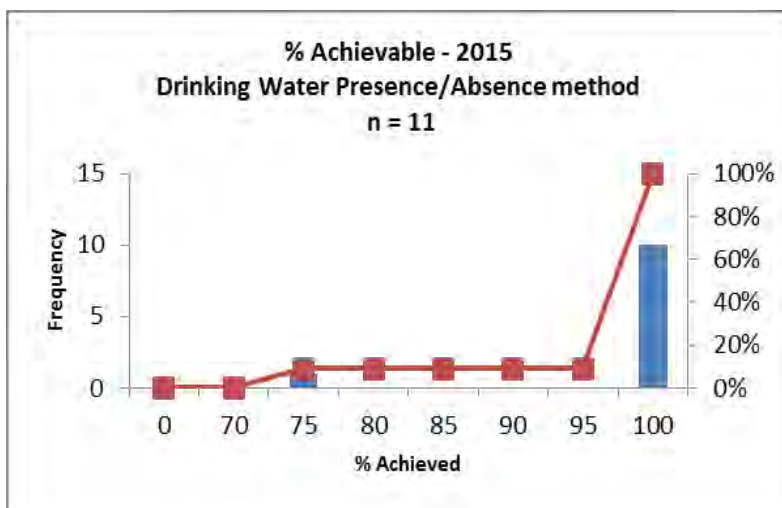
% Achievable	Labs (n=6)	Cumulative %
100	6	100



## WATER MICROBIOLOGY PROGRAM

Drinking Water Performance Table for Presence/Absence methods, 2015

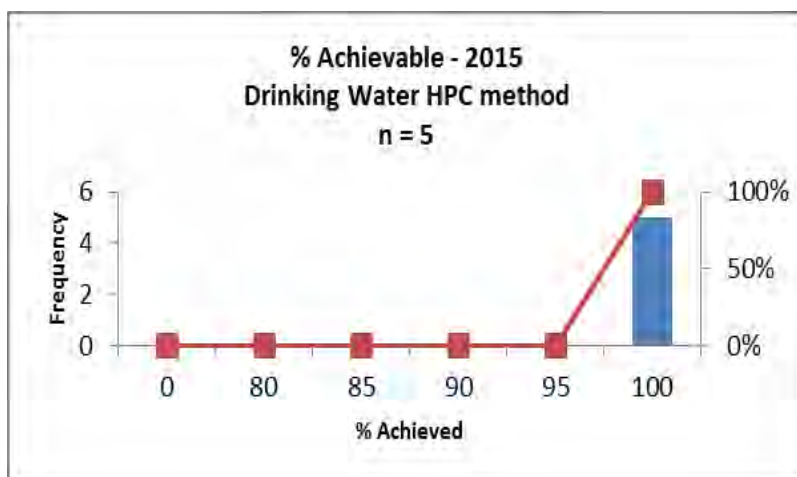
% Achievable	Labs (n=11)	Cumulative %
75	1	9.09
100	10	100



The following Table illustrates the % Achievable scores for the Heterotrophic Plate Count method used for Drinking Water samples during 2015.

Drinking Water Performance Table for the Heterotrophic Plate Count (HPC) method Table, 2015

% Achievable	Labs (n=5)	Cumulative %
100	5	100



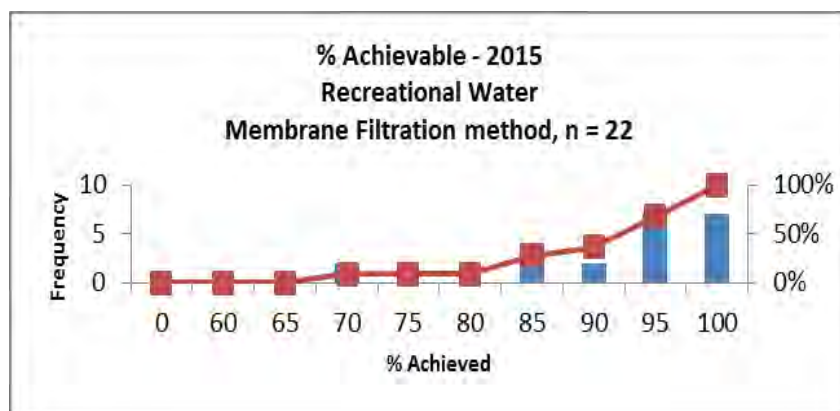


## WATER MICROBIOLOGY PROGRAM

The following Score Tables illustrate the % Achievable scores for methods used for Recreational Water samples during 2015.

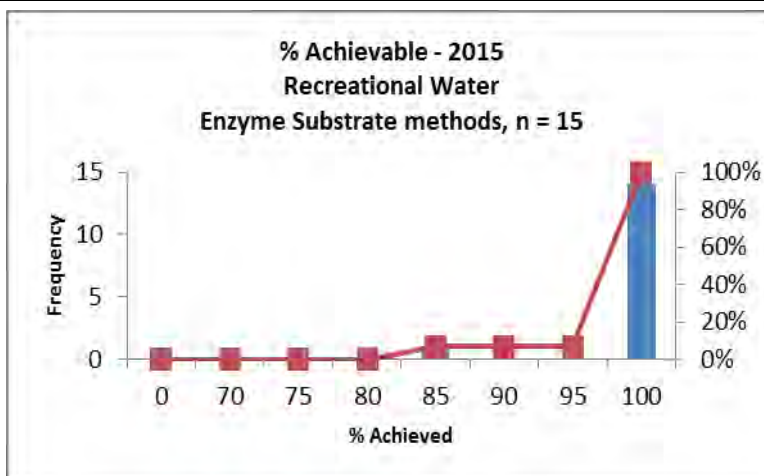
**Recreational Water Performance Table for the Membrane Filtration method, 2015**

% Achievable	Labs (n=22)	Cumulative %
70	2	9.09
85	4	27.27
90	2	36.36
95	7	68.18
100	7	100



**Recreational Water Performance Table for Enzyme Substrate/MPN methods, 2015**

% Achievable	Labs (n=15)	Cumulative %
85	1	6.67
100	14	100



## WATER MICROBIOLOGY PROGRAM

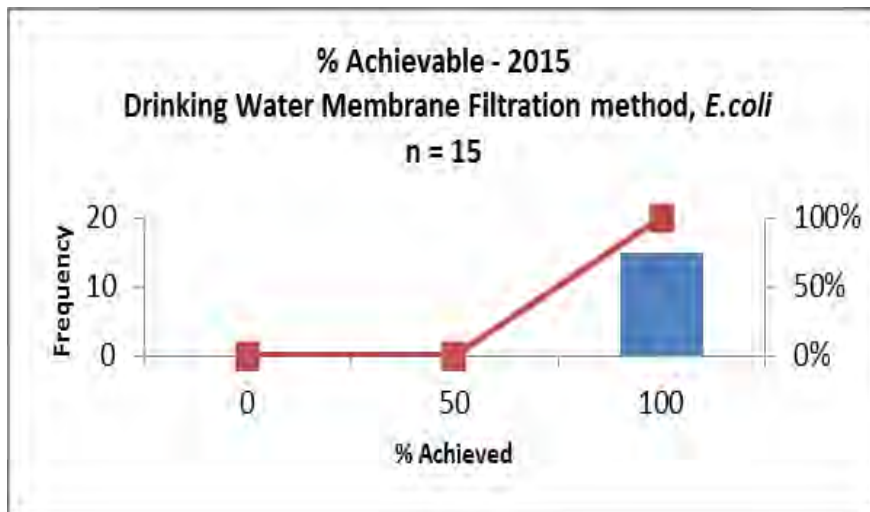
### *E.coli* Supplemental Testing

Laboratories perform supplemental water bacteriology testing to discern *Escherichia coli* from other thermotolerant coliforms. These laboratories are assessed as a separate group and are assessed an additional 36 points maximum for the program year per method, if *Escherichia coli* and thermotolerant coliforms are reported.

The Membrane Filtration and the MPN methods are the primary methods used for testing, however, two laboratories tested the water samples using the Enzyme Substrate method.

Drinking Water Performance Table for Membrane Filtration method, *E.coli*, 2015

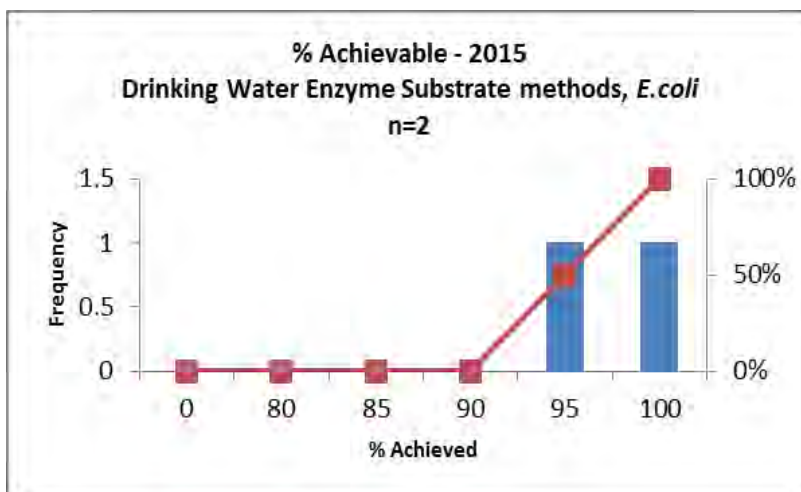
% Achievable	Labs (n=15)	Cumulative %
100	15	100



## WATER MICROBIOLOGY PROGRAM

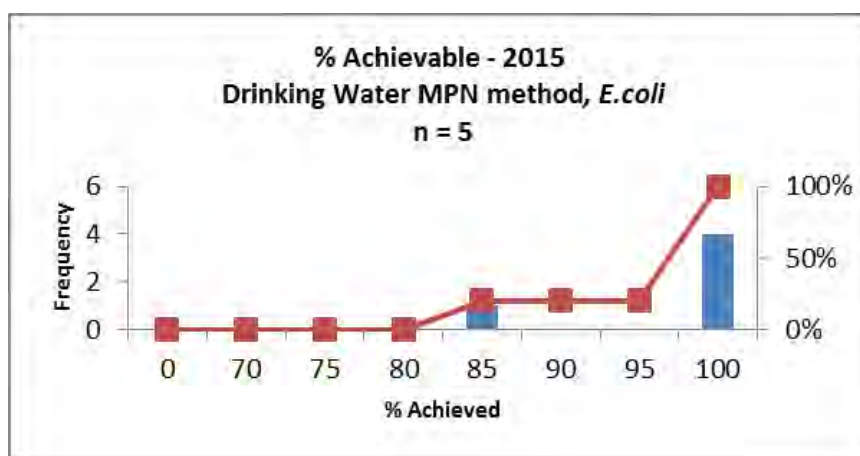
Drinking Water Performance Table for Enzyme Substrate methods, *E.coli*, 2015

% Achievable	Labs (n=2)	Cumulative %
95	1	50
100	1	100



Drinking Water Performance Table for Most Probable Number (MPN) method, *E.coli*, 2015

% Achievable	Labs (n=5)	Cumulative %
85	1	20
100	4	100



## MYCOLOGY PROGRAM

CMPT acknowledges with appreciation the valuable and essential advisory and technical support of:  
 Robert Rennie, MD FRCPC.....University of Alberta Hospital, Edmonton, AB  
 Jeff Fuller, FCCM, (D) ABMM.....Provincial Laboratory for Public Health, Edmonton, AB  
 Romina Reyes, MD FRCPC.....LifeLabs, Burnaby, BC  
 Brad Jansen BSc, MLT..... Provincial Laboratory for Public Health, Edmonton, AB

### Dermatophyte (Basic) Mycology Program

The Basic Mycology Program serves two constituent groups:

- British Columbia clinical dermatologists who perform mycology cultures in office laboratories.
- Microbiology laboratories that participate in this program to supplement other quality assurance programs to maintain proficiency in handling and identifying dermatology related fungi and yeasts.

For the past 26 years, CMPT has provided a **Dermatophyte (Basic) Mycology Program** for proficiency testing suitable for those doing office mycology and as a supplement for laboratories requiring a small number of additional challenges. The primary focus is the identification of dermatophytes and commonly recovered contaminants. In 2013-2014, CMPT added an additional fungal smear to the program. The four fungal isolates for 2015-2016 are listed in Table 1.

Table 1. Basic Mycology Program Challenges 2015 - 2016

Survey		Sample		Fungal Smear /Identification Challenge
1509	September 14, 2015	Fungal Smear	A	positive
			B	positive
		Culture samples	1	<i>Candida albicans</i>
			2	<i>Trichophyton rubrum</i>
1604	April 18, 2016	Fungal Smear	A	negative
			B	positive
		Culture samples	1	<i>Candida lusitanae</i>
			2	<i>Epidermophyton floccosum</i>

## MYCOLOGY PROGRAM

### Mycology Plus Program

The Mycology Plus Program was introduced to participants in June 2001 and includes 12 proficiency challenges for dermatophytes, common laboratory contaminants, yeast identification and Fungal Smear slides. It is an extension to the Dermatophyte (Basic) Mycology Program and currently grades are not awarded.

Susceptibility challenges for yeasts were introduced in 2008 and laboratories that perform anti-fungal testing were encouraged to report their results. In 2013-2014, CMPT added an additional fungal smear to the program.

Survey	Fungal Smear			Yeast	Dermatophytes	Molds
	A	B	C	1	2	3
<b>1509</b> <b>Sept. 2015</b> <b>Results</b>	positive	positive	negative	<i>Candida albicans</i> - Midstream Urine sample	<i>Trichophyton rubrum</i> - Nail sample	<i>Aspergillus fumigatus</i> - Joint Fluid sample
	9* correct 1 snnp	9* correct 1 snnp	9* correct 1 snnp	9 – <i>C.parapsilosis</i>  4 laboratories performed susceptibilities	3 – <i>T.rubrum</i> 2 – <i>Trichophyton</i> species 1 – <i>T.mentagrophytes</i> 1 – <i>T.megninii</i> 1 – Dermatophyte, refer 1 – snnp	6 – <i>A.fumigatus</i> 3 – <i>Aspergillus</i> species
<b>1601</b> <b>Jan. 2016</b> <b>Results</b>	positive	positive	positive	<i>Prototheca</i> species -Skin/Wound swab	<i>Microsporum canis</i> -Skin Scraping sample	<i>Aspergillus niger</i> -Ear Swab
	10* correct	10* correct	10* correct	4 – <i>Prototheca</i> species 2 – <i>P. wickerhamii</i> 3 – Yeast, not <i>C.albicans</i>  no susceptibilities required	6 – <i>M.canis</i> 2 – <i>Microsporum</i> species 1 – Dermatophyte, refer	9 – <i>Aspergillus niger</i>
<b>1604</b> <b>April 2016</b> <b>Results</b>	negative	positive	negative	<i>Candida lusitaniae</i> - Peritoneal Fluid sample	<i>Epidermophyton floccosum</i> - Skin Scraping sample	<i>Scopulariopsis brevicaulis</i> -Toe Nail sample
	9* correct 1 incorrect	10* correct	10* correct	9 – <i>C.lusitaniae</i>  5 laboratories performed susceptibilities	8 – <i>E. floccosum</i> 1 – Dermatophyte, refer	1 – <i>S. brevicaulis</i> 8 – <i>Scopulariopsis</i> species

\* 1 laboratory participates in the Fungal Smear portion only

## ENTERIC PARASITOLOGY PROGRAM

CMPT acknowledges with appreciation the essential advisory and technical support of:

Tara Bonham, RT.....LifeLabs, Surrey, BC  
 Romina Reyes MD FRCPC.....LifeLabs, Surrey, BC  
 Joan Tomblin, MD FRCPC. ....Surrey Memorial Hospital, Surrey, BC  
 Pauline Tomlin, BSc. MLT..... Provincial Laboratory for Public Health, Edmonton, AB  
 Quantine Wong, BSc..... BCCDC PHL, Vancouver, BC

Samples are supplied by LifeLabs, DynaLife<sub>DX</sub> and BCCDC PHL. The program consists of 3 surveys. Each survey consists of 3 SAF preserved samples requiring a total of 9 challenge readings that include 3 concentrates and 3 stained smears.

Grading is assessed on the combined results of the stained smear and the concentrate and is based on a 2 point scale (acceptable or unacceptable). Table 1 lists the samples and grades received for the 2015 challenges.

**Table 1. Enteric Parasitology Challenges 2015**

Date	Sample	Parasite	Acceptable	Unacceptable	Ungraded
April 7, 2015	1504-1	<b><i>Strongyloides stercoralis</i></b>	21	0	0
	1504-2	<b><i>Giardia lamblia</i></b> <i>Blastocystis hominis</i>	21	0	0
	1504-3	no ova and/or parasites seen	21	0	0
July 6, 2015	1507-1	<b><i>Entamoeba histolytica/dispar</i></b> <i>Blastocystis hominis</i> <i>Endolimax nana</i>	19	2	0
	1507-2	<i>Entamoeba coli</i> <i>Endolimax nana</i> <i>Blastocystis hominis</i>	20	1	0
	1507-3	<b><i>Giardia lamblia</i></b> <i>Blastocystis hominis</i> <i>Entamoeba coli</i>	21	0	0
September 28, 2015	1510-1	no ova and parasites seen	21	0	0
	1510-2	<b><i>Taenia species</i></b> <i>Blastocystis hominis</i> <i>Entamoeba coli</i> <i>Chilomastix mesnili</i> <i>Endolimax nana</i> <i>Entamoeba hartmanni</i>	20	1	0
	1510-3	<i>Iodamoeba butschlii</i> <i>Endo-</i> <i>limax nana</i> <i>Blastocystis hominis</i>	21	0	0
<b>Total</b>			<b>185</b>	<b>4</b>	<b>0</b>

**BOLD** – pathogens/potential pathogens    **Blue** – potential pathogen

## TRICHOMONAS VAGINALIS ANTIGEN PROGRAM

CMPT launched the *Trichomonas vaginalis* Antigen Program with the first shipment on August 8, 2011. The program consisted of 2 surveys in 2011. Since 2012, the number of surveys has increased to 3. Each survey consists of 4 samples which are designed to be used with the Genzyme OSOM® *Trichomonas* Rapid Test Kit.

Grading is based on a 2 point scale (acceptable or unacceptable). Table 1 lists the samples and grades received for the 2015 challenges.

**Table1. *Trichomonas vaginalis* Antigen Challenges - 2015**

Date	Sample	Results	Acceptable	Unacceptable	Ungraded
April 7, 2015	1504-1	positive	32	2	0
	1504-2	positive	32	2	0
	1504-3	negative	34	0	0
	1504-4	negative	34	0	0
July 6, 2015	1507-1	negative	33	0	1
	1507-2	positive	34	0	0
	1507-3	positive	34	0	0
	1507-4	negative	34	0	0
September 28, 2015	1510-1	positive	32	2	0
	1510-2	negative	34	0	0
	1510-3	negative	34	0	0
	1510-4	negative	34	0	0
<b>Total</b>			<b>401</b>	<b>4</b>	<b>1</b>

## SHIGA TOXIN PROGRAM

CMPT launched the Shiga Toxin Program with the first shipment on May 7, 2012. The program consists of 2 surveys. Each survey consists of 3 simulated stool samples.

Grading is based on a 2 point scale (acceptable or unacceptable). Table 1 lists the samples and grades received for the 2015 challenges.

CMPT acknowledges with appreciation the essential advisory and technical support of Denise Sitter, Cadham Provincial Laboratory, Winnipeg, MB.

**Table 1. Shiga Toxin Challenges - 2015**

Date	Sample	Results	Acceptable	Unacceptable	Ungraded
<b>May 11, 2015</b>	1505-1	gene and toxin positive	10	0	0
	1505-2	gene and toxin negative	10	0	0
	1505-3	gene and toxin negative	10	0	0
<b>November 2, 2015</b>	1511-1	gene and toxin positive	10	0	0
	1511-2	gene and toxin positive	10	0	0
	1511-3	gene and toxin negative	10	0	0
<b>Total</b>			<b>60</b>	<b>0</b>	<b>0</b>



## MOLECULAR TESTING PROGRAM

CMPT launched the Molecular Proficiency Testing Program with the first shipment on March 23, 2009. The program consists of 2 surveys. Each survey consists of 4 samples for methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *Enterococcus* species (VRE) and group B *Streptococcus* (GBS). Laboratories can participate in some or all of the 3 sample types.

Grading is based on a 2 point scale (acceptable or unacceptable). Table 1 lists the samples and grades received for the 2015 challenges.

**Table 1. Molecular Challenges - 2015**

Date	Sample	Results	Acceptable	Unacceptable	Ungraded/DNP	
April 27, 2015	MRSA	MR1504-1	negative	2	0	1
		MR1504-2	negative	3	0	0
		MR1504-3	positive	3	0	0
		MR1504-4	positive	3	0	0
	VRE	VR1504-1	positive (van B)	2	0	1
		VR1504-2	positive (van B)	2	0	1
		VR1504-3	negative	3	0	0
		VR1504-4	negative	3	0	0
	GBS	GB1504-1	positive	1	0	0
		GB1504-2	negative	1	0	0
		GB1504-3	negative	1	0	0
		GB1504-4	positive	1	0	0
August 18, 2015	MRSA	MR1508-1	negative	2	1	0
		MR1508-2	negative	2	1	0
		MR1508-3	negative	3	0	0
		MR1508-4	positive	3	0	0
	VRE	VR1508-1	positive (van A)	3	0	0
		VR1508-2	positive (van B)	2	0	1
		VR1508-3	positive (van B)	2	0	1
		VR1508-4	positive (van A)	3	0	0
	GBS	GB1508-1	negative	1	0	0
		GB1508-2	positive	1	0	0
		GB1508-3	positive	1	0	0
		GB1508-4	positive	1	0	0
<b>Total</b>			<b>49</b>	<b>2</b>	<b>5</b>	

## 2015 - 2016 CMPT PROGRAMS' PARTICIPANTS

### Clinical Bacteriology - Distribution of Participant Laboratories

Province / Territory	Joined in	A	B	C	C1	Total
Alberta	1992	13		1		14
British Columbia	1982	14	3	1	16	34
Manitoba	2001	6	1			7
New Brunswick	1993	4				4
Nova Scotia	1993	8	1			9
Northwest Territories	1992	1				1
Ontario	2004	1				1
Prince Edward Island	1993	2				2
Saskatchewan	1996	10	1	1	2	14
Yukon	1992	1				1
<b>Total</b>		<b>60</b>	<b>6</b>	<b>3</b>	<b>18</b>	<b>87</b>

### Clinical Bacteriology - Reference Laboratories

Province	Laboratory
<b>Alberta</b>	Calgary Laboratory Services
	Division of Microbiology and Public Health, Edmonton
	DynaLIFE <sub>DX</sub> Medical Laboratories
<b>British Columbia</b>	Children's & Women's Health Centre of BC
	Royal Inland Hospital
	Royal Jubilee Hospital
	St. Paul's Hospital
	Vancouver General Hospital
<b>Manitoba</b>	Cadham Provincial Laboratory
<b>New Brunswick</b>	The Moncton Hospital (SE Healthcare Corp.)
<b>Nova Scotia</b>	Queen Elizabeth II Hospital & Health Sciences Centre
<b>Saskatchewan</b>	Regina General Hospital
	Royal University Hospital

## Clinical Bacteriology - Category A Laboratories

<b>Alberta</b>	<b>British Columbia</b>	<b>Saskatchewan</b>
Banff Mineral Springs Hospital	BCCDC/PHL	Battlefords Union Hospital
Bonnyville Health Centre	Children's & Women's Health Centre	Dr. F. H. Wigmore Regional Hospital
Calgary Laboratory Services	East Kootenay Regional Hospital	Melfort Hospital
Chinook Regional Hospital	GR Baker Memorial Hospital	Nipawin Hospital
Covenant Health, St. Mary's Hospital	Kelowna General Hospital	Regina General Hospital
Division of Microbiology and Public Health, Edmonton	Kootenay Boundary Regional Hospital	Royal University Hospital
DynaLIFE Dx - Northern Lights Health Care Complex	Royal Inland Hospital	Saskatchewan Disease Control Laboratory
DynaLIFE Dx Medical Laboratories	Royal Jubilee Hospital	St. Joseph's Hospital of Estevan
Medicine Hat Diagnostic Lab	St. Paul's Hospital	Victoria Hospital
Medicine Hat Regional Hospital	Surrey Memorial Hospital	Weyburn General Hospital
Provincial Laboratory for Public Health, Calgary	University Hospital of Northern BC	Yorkton Regional Health Centre
Queen Elizabeth II Hospital	Valley Medical Laboratory	<b>New Brunswick</b>
Red Deer Regional Hospital	Vancouver General Hospital	Dr. Everett Chalmers Hospital
<b>Nova Scotia</b>	<b>Manitoba</b>	Réseau de Santé Vitalité - Edmundston Regional Hospital
Aberdeen Hospital	Boundary Trails Health Centre	Saint John Regional Hospital
Cape Breton Regional Hospital	Cadham Provincial Laboratory	The Moncton Hospital
Colchester Regional Hospital	Churchill Regional Health Authority	<b>Prince Edward Island</b>
Cumberland Regional Healthcare Centre	Dauphin Regional Health Centre	Prince County Hospital
I.W.K. Health Center	Swan River Valley Health Centre	Queen Elizabeth Hospital
Queen Elizabeth II Hospital & Health Sciences Centre	Thompson General Hospital	<b>Ontario</b>
Valley Regional Hospital	<b>Northwest Territories</b>	Sioux Lookout Meno-Ya-Win Health Centre
Yarmouth Regional Hospital	Stanton Regional Hospital	<b>Yukon</b>
		Whitehorse General Hospital

## Clinical Bacteriology - Category B Laboratories

<b>British Columbia</b>	<b>Nova Scotia</b>	<b>Saskatchewan</b>
Fort St. John Hospital	South Shore Health Services Association	Cypress Regional Hospital
Mills Memorial Hospital	<b>Manitoba</b>	
Prince Rupert Regional Hospital	Unicity Laboratory Services	

### Clinical Bacteriology - Category C and C1 Laboratories

<b>British Columbia</b>	Mackenzie District Hospital	<b>Alberta</b>
Abbotsford Regional General Hospital	Nanaimo Regional General Hospital	St. Joseph's General Hospital
Aberdeen Laboratory	Royal Columbian Hospital	<b>Saskatchewan</b>
Bulkley Valley District Hospital	St. John Hospital	Meadow Lake Union Hospital
Campbell River Hospital	Stuart Lake Hospital	La Ronge Health Centre
Dawson Creek & District Hospital	West Coast General Hospital	<b>C. difficile program only</b>
Kitimat General Hospital	Wrinch Memorial Hospital	Victoria General Hospital, BC
Lakes District Hospital		Chu Sainte-Justine, QC

### Shiga Toxin Participants

<b>Alberta</b>	<b>Newfoundland and Labrador</b>	<b>Quebec</b>
Calgary Laboratory Services	Newfoundland Public Health Lab	CHU Sainte-Justine
Medicine Hat Regional Hospital Lab	<b>Saskatchewan</b>	<b>British Columbia</b>
Division of Microbiology and Public Health, Edmonton	Saskatchewan Disease Control Laboratory	BCCDC/PHL
<b>Manitoba</b>	Regina General Hospital	Royal Jubilee Hospital
Cadham Provincial Laboratory		

### Enteric Parasitology Participants

<b>British Columbia</b>	<b>Alberta</b>	<b>Nova Scotia</b>
BCCDC/PHL	Provincial Laboratory for Public Health	IWK Health Centre
Kelowna General Hospital	Red Deer Regional Hospital	Queen Elizabeth II Hospital & Health Sciences Centre
LifeLabs, Burnaby	<b>New Brunswick</b>	Dr. Everett Chalmers Hospital
LifeLabs, Surrey	Dr. Everett Chalmers Hospital	Saint John Regional Hospital
LifeLabs, Victoria	The Moncton Hospital	<b>Prince Edward Island</b>
Royal Inland Hospital	Saint John Regional Hospital	Queen Elizabeth Hospital
Surrey Memorial Hospital	<b>International</b>	<b>Saskatchewan</b>
University Hospital of Northern BC	Folkhalsomyndigheten Public Health Agency of Sweden	Royal University Hospital
Valley Medical Laboratory		Saskatchewan Disease Control Laboratory
Vancouver General Hospital		

### Mycology Participants (clinical laboratories only)

<b>British Columbia</b>	<b>Alberta</b>	<b>Nova Scotia</b>
Children's & Women's Health Centre of BC	University of Alberta Hospital	Queen Elizabeth II Hospital and Health Sciences Centre
LifeLabs, Burnaby	Calgary Laboratory Services	<b>Prince Edward Island</b>
Royal Columbian Hospital	<b>New Brunswick</b>	Queen Elizabeth Hospital
Royal Inland Hospital	The Moncton Hospital	<b>Saskatchewan</b>
Vancouver General Hospital		Royal University Hospital

## Water Microbiology Participants

### British Columbia

AGAT Laboratories  
 ALS Environmental - Fort St John  
 ALS Environmental - Kamloops  
 ALS Environmental - Vancouver  
 BCCDC/PHL Environmental Microbiology  
 Capital Regional District Water Dept. Lab  
 CARO Analytical Services  
 City of Kamloops, Wastewater Treatment Plant  
 City of Kelowna  
 Exova - Surrey  
 IG MicroMed Inc.  
 Maxxam Analytics Inc. - Burnaby  
 Maxxam Analytics Inc. - (f. North Island Laboratories)  
 Maxxam Analytics Inc. - Victoria  
 M.B. Labs Ltd.  
 Metro Vancouver  
 Northern Laboratories Ltd.  
 Passmore Laboratory Ltd.  
 Prince George Water Assay

### Alberta

ALS Environmental - Calgary  
 CARO Analytical Services –Edmonton  
 DynaLIFE<sub>DX</sub> Medical Labs  
 Exova - Calgary  
 Maxxam Analytics Inc. - Calgary  
 Maxxam Analytics Inc. - Edmonton  
 Provincial Laboratory for Public Health - Edmonton  
 Provincial Laboratory for Public Health - Calgary  
**Newfoundland and Labrador**  
 Central Newfoundland Hospital  
 Curtis Memorial Hospital  
 G.B. Cross Memorial Hospital  
 Labrador Health Centre  
 Labrador West Health Centre  
 Newfoundland Public Health Lab.  
 Western Memorial Hospital  
**Manitoba**  
 ALS Environmental - Winnipeg  
 Maxxam Analytics Inc. - Winnipeg

### Northwest Territories

Stanton Hospital  
 Taiga Environmental Laboratory

### Ontario

ALS Environmental - Waterloo  
 Maxxam Analytics Inc. - Mississauga

### Nova Scotia

Queen Elizabeth II Environmental Services Laboratory

### New Brunswick

NB. Dept. Environment, Public Health Lab  
 Réseau de Santé Vitalité/Zone 4

### Saskatchewan

Saskatchewan Disease Control Lab.

### Prince Edward Island

PEI Analytical Laboratories

### International

Central Government Laboratory, Bermuda

## *Trichomonas vaginalis* antigen Participants

### Alberta

Surrey Memorial Hospital  
 Chinook Regional Hospital  
 Covenant Health St. Mary's Hospital  
 Medicine Hat Diagnostic Laboratory  
 Queen Elizabeth II Hospital  
 Red Deer Regional Hospital Laboratory  
**British Columbia**  
 Aberdeen Laboratory  
 East Kootenay Regional Hospital  
 Fort St. John Hospital  
 Kelowna General Hospital  
 Mills Memorial Hospital  
 Prince Rupert Regional Hospital  
 Royal Inland Hospital

Valley Medical Laboratory  
**Manitoba**  
 Arborg & District Hospital Laboratory  
 Bethesda Hospital Laboratory  
 Boundary Trails Health Centre  
 Churchill Regional Health Authority  
 Dauphin Regional Health Centre  
 DeSalaberry District Health Centre Laboratory  
 Gimli Laboratory  
 Lakeshore -Ashern Diagnostics, DSM  
 Misericordia Health Centre  
 Selkirk & District General Hospital

Stonewall & District Health Centre  
 Swan River Valley Hospital  
 Teulon Diagnostics  
 The Pas Health Complex  
 Thompson General Hospital  
**New Brunswick**  
 The Moncton Hospital  
**Prince Edward Island**  
 Queen Elizabeth Hospital  
**Saskatchewan**  
 Royal University Hospital  
**Yukon**  
 Whitehorse General Hospital

## Molecular Testing Participants

LifeLabs, Burnaby (BC)

Aberdeen Hospital, New Glasgow (NS)

University Hospital of Northern BC (BC)