Summer 2012

Connections

ISSN 1496-3876

www.cmpt.ca CMPT QUARTERLY ON-LINE NEWSLETTER Volume 16 Number 2

Participants' Perspective on the CMPT Supplemental Gram stain program

By Dr. Michael Noble, CMPT Chair

In 2008 CMPT was approached with a request to consider developing a supplemental Gram stain program to provide additional slides of critical clinical samples that laboratories do not receive very often. The two samples proposed were samples of Cerebral Spinal Fluid (CSF) and Joint Fluid. In many laboratories these are important but rare samples; in some hospital laboratories these samples are received as rarely as once or twice a year, and often even less.

Over the years CMPT has developed the technical ability to create simulated smear from samples containing host cells, serous or proteinaceous background and bacteria typical and consistent with true specimens.

The supplemental Gram stain program was initiated in 2009 and consists of two sets of two slides each per year. In 2012, over eighty laboratories participate in the program.

After having now had the opportunity to participate in the program for a number of cycles, it was considered as an important quality step forward to monitor participant opinions on the samples and the program.

An electronic survey was sent out in mid June 2012, and within a week we received some 35 responses. Considering this was the beginning of the summer vacation season, we were very happy with the response which represented nearly 45 percent of participants.

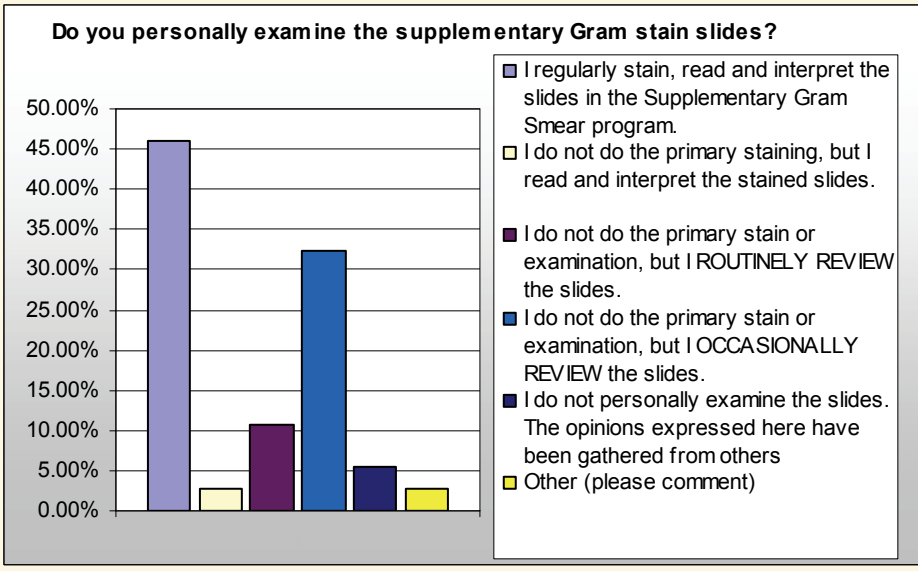
With respect to the structure of CMPT surveys, they follow a consistent model. They are usually short, with fewer than 10 questions, and there are no 'required' answers. They can be completed either by using the pre-selected scale or by providing comments, or both. Their design is such as to ensure they can be easily completed in 5-7 minutes, unless the participant wants to spend more time.

Survey results

1: The responders

We were interested to know who was responding to the survey and what did they know about program. The largest group of responders reported that they were the people that regularly stained, read and interpreted the slides in their laboratory; the second largest group were reviewer to the slides but did not do the primary work. There were a small number of responders that had not looked at the slides, but recorded the opinions of the people that had.

When the survey was cross tabulated to see if the different groups had similar or different opinions, the results indicated no substantial or significant differences. So for the purpose of this report, the cross tabulations are not reported. They are available upon request.



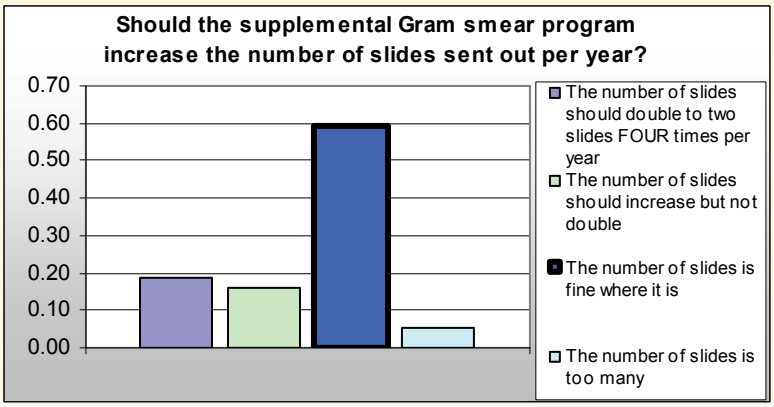
IN THIS ISSUE

Participant Perspective on the CMPT Supplemental Gram stain program __1
Reportable diseases _____2
Get connected_____3

CMPT Supplemental Gram stain program

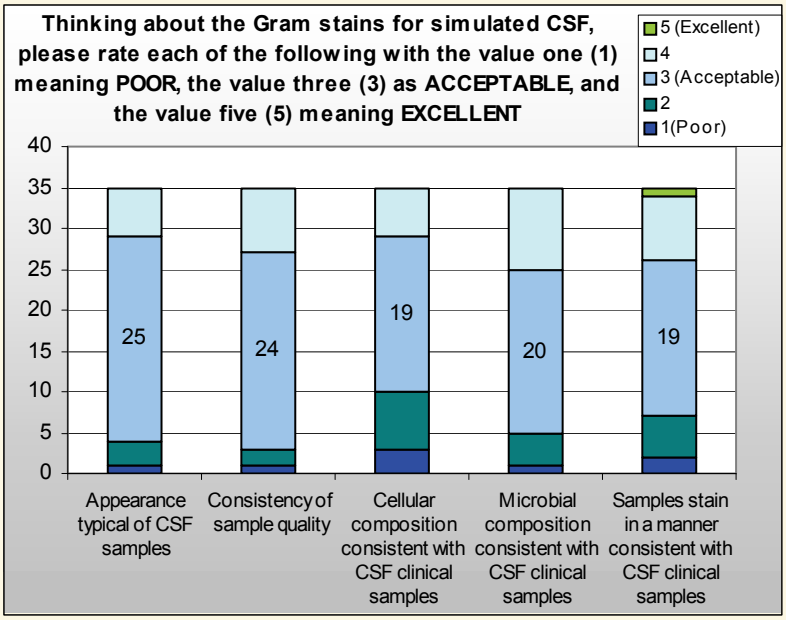
2: Number of Samples per year.

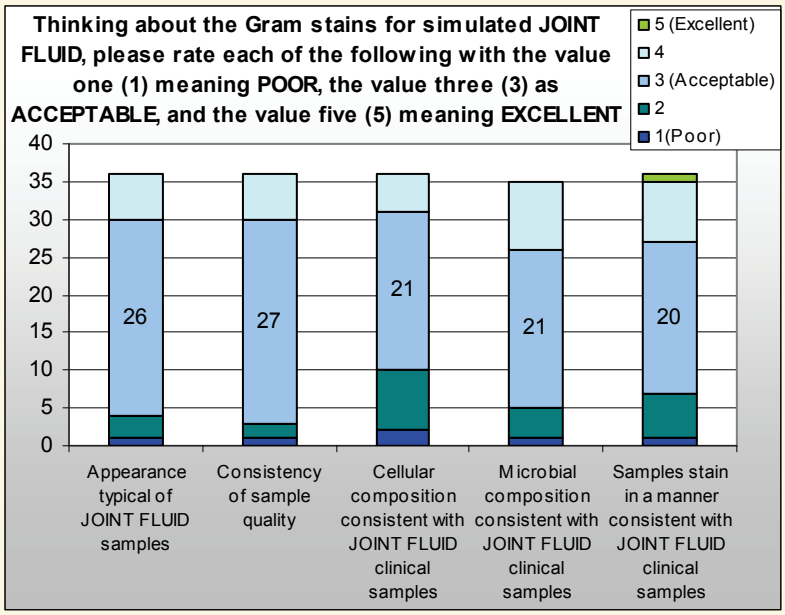
The participants were asked if they thought that the number of slides provided in the supplemental Gram stain program was appropriate, to which 59 percent of respondents said they were. Of some interest, 35 percent of responders thought the number of slides could be increased if they continued to address rarely seen samples. The two most common choices presented were Gram stains of positive blood cultures and pleural fluid.



3: Quality of the slides

In all questions about the quality of the slides (appearance, consistency, cells, bacteria, stainability) the clear majority rated the slides as acceptable or better. There were some continued comments of concern on the appearance of the cells for both the CSF and the Joint Fluid samples; 25 percent considered the cells' quality as below acceptable or poor.



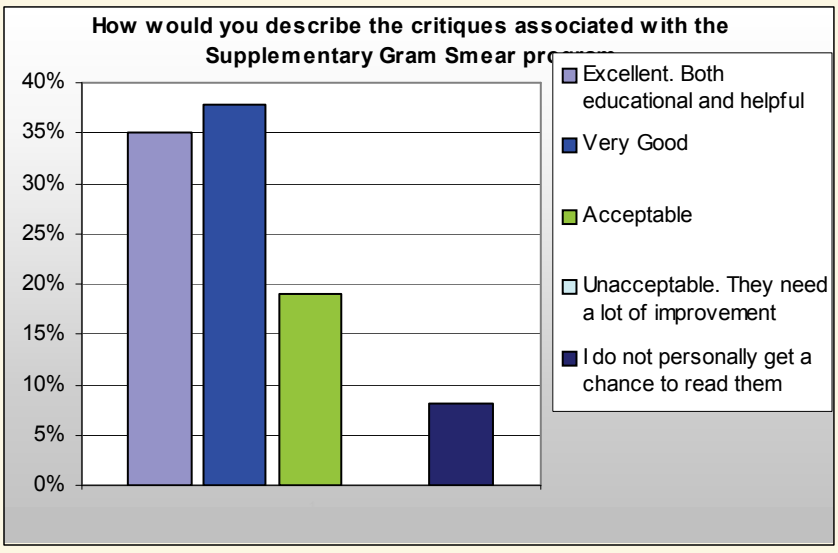


4: Educational value

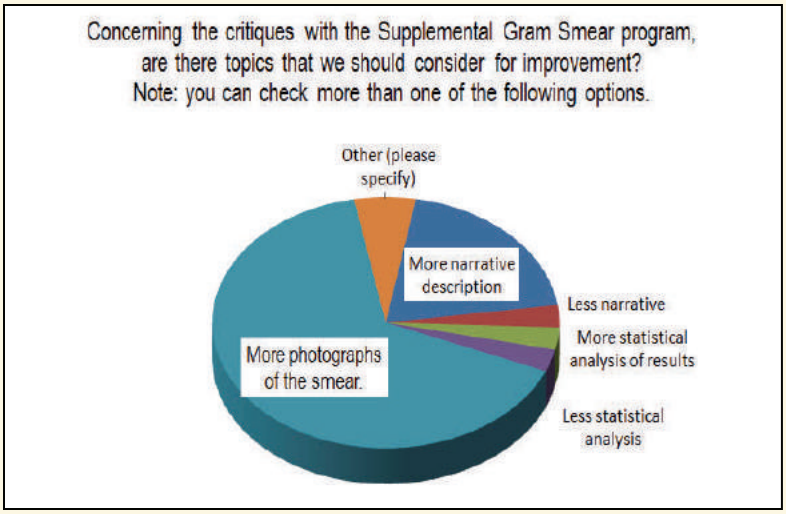
The responders found the educational value of the supplemental Gram stain program very strong with all comments being acceptable or better. When asked if the critiques could be improved, there was strong support of our providing more photographs than the single one currently provided.

We noted with interest that, while a very small group, there were people working in laboratories that do not take full advantage of the program by actually reading the critiques.

We noted that the educational value of the program was top of mind for some of the participants. This is much appreciated since CMPT considers the educational component as critical. As aforementioned, the purpose of the program was to provide laboratories that do not commonly perform Gram stains on CSF and Joint Fluid with realistic simulated samples so that they would be able to gain experience and expertise.



CMPT Supplemental Gram stain program

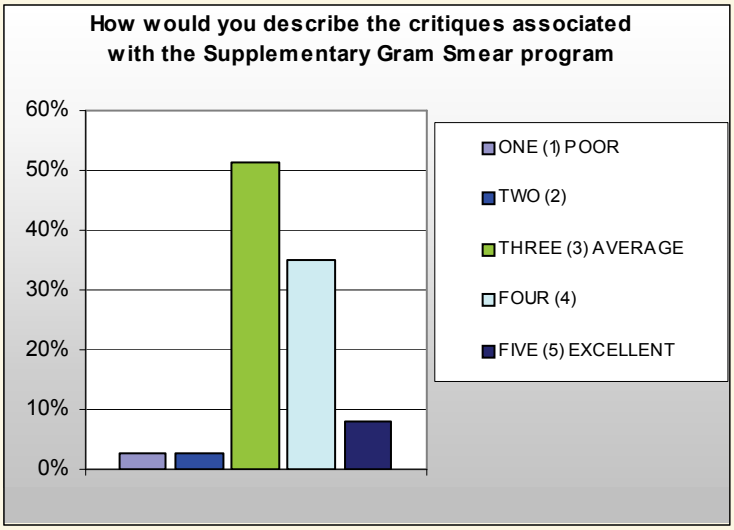


Key Comments

The supplemental Gram stains should be available for labs that don't perform microbiology but do perform Gram stains on stat CSF and stat joint fluids..

I cannot accurately rate these slides. I work in a very small rural and remote facility. I have read one clinical CSF gram stain in the last 3 years. We look to the CMPT challenges to improve our skill set

I cannot accurately rate these slides, I work in a small rural and remote facility. I have never clinically read a Joint Fluid smear. We use the CMPT Challenges as educational challenges



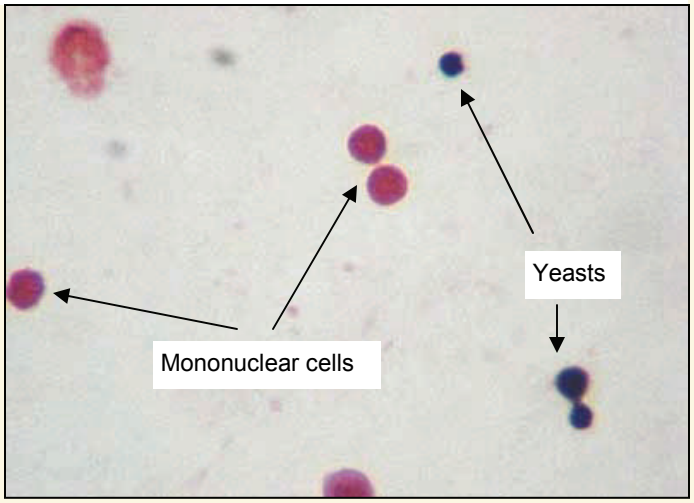
5: Overall rating

Despite the lingering concern by some of the quality of the cellular content, the supplemental Gram stain program received an acceptable or better rating by 96 percent of responders.

As commentary on the findings of this survey, we interpret them as a strong endorsement of the program. There appears to be consistent support for almost all aspects of the program and some constructive suggestions on how we might be able to enhance it. More pictures of the slides will be added to indicate some of the variety of views that might be seen.

There appears to be some interest in adding 1 or 2 more slides, perhaps of other normally sterile samples, such as blood culture or pleural fluid, or perhaps dialysis fluid. With increasing home care dialysis and elder care, the number of blood cultures and fluids being seen in smaller facilities is known to be increasing.

CMPT is aware of the persistent concerns of some of the visual appearance of neutrophils in our slides. In response to a 2008 survey that indicated concerns by over 30 percent of participants we have done considerable research and development to improve the appearance of inflammatory cells. We have found that by adding specific fixatives and refrigeration, the compacting of neutrophils can be substantially (but not completely) suppressed.



There may also be some reading misinterpretations that occur that can affect readers' impressions. For example, in a CSF sample containing mononuclear cells and *Cryptococcus* (Challenge GS114-1 sent in February 2012), we noted that over 80 percent of laboratories misread or misinterpreted mononuclear cells and reported them as neutrophils. While we understand that microbiology laboratories commonly report all inflammatory cells seen on Gram stains as White Blood Cells (WBC), CMPT strongly encourages laboratories to differentiate these cells. In this particular situation, as well with other forms chronic meningitis, the predominant cell is a mononuclear cell (lymphocyte or monocyte) and the reporting of these as neutrophils can be clinically misleading. That being said, we commit to continued R&D to improve the appearance of all inflammatory cells seen on our smears.

In summary, CMPT performed an on-line participant satisfaction survey to determine the degree of support of the 3 year old Supplemental Gram Stain Program. The educational value of the program was strongly recognized. Overall 96 percent of participants viewed the program as acceptable or better, with some constructive comments on how the program could be enhanced. The addition of one or two slides of other uncommon but clinically important fluid samples per year will be considered for future development.

Reportable Diseases

Public Health Surveillance is an essential part of public health decision-making. This surveillance system is essential for the detection of unusual occurrences of diseases, monitoring trends, adjusting control programs and the prioritization of resource allocation.

Public Health officials rely on health care providers, laboratories, and other public health personnel to report the occurrence of notifiable diseases to local and national departments. (1)

There are multiple uses of disease notification data and the surveillance system should be able to accommodate the different needs.

Detection of outbrakes or epidemics requires the system to function as an early warning system thus, reporting, confirmation, decision-making, and response must be rapid.

On the other hand, the study of changes in the occurrence of an endemic disease, assessment of control measures, or measurement of vaccination effectiveness, require the analysis of data collected long term and the report of these diseases is then, not as urgent, and it can be done in aggregate.(1) (4)

For example, the New Brunswick Office of the Chief Medical Officer of Health, requires certain diseases (e.g. anthrax, cholera, diphtheria, etc) to be verbally communicated within 1 hour of being detected and in writing by the end of the next working day. Diseases like brucellosis, campylobacteriosis, tuberculosis, etc. are required to be reported verbally within 24h and in writing within 7 days. Diseases like gonococcal infection and HIV, can be reported in writing only within 7 days. (5)

A reporting system functions at four levels

1. Collection of basic data at the local community

By international law, plague, cholera, and yellow fever are reportable to WHO.

2. Assembling of data at the provincial level

3. Aggregation of national data

4. Reporting of prescribed diseases by the national authority to the WHO.

Physicians or other health care workers are required to report all notifiable illnesses. Within hospitals, a specific officer should be responsible for submitting required reports to the provincial health authority. (3)

Although the sensitivity of reporting has been estimated to be as low as 5% for common diseases, if the methods of reporting, case definitions, and the reporters do not change, then the data is still adequately represent the trend of the disease occurrence for control and prevention purposes.

Disease reporting systems should be evaluated at regular intervals to assure that they are functioning as planned.

I n Canada, the reporting of notifiable diseases is mandated by provincial legislation, and the list of notifiable diseases differs by province/territory. The Public Health Agency of Canada has published a list of communicable diseases that are reportable at the federal level (Tables 1 – 3) however, provinces and territories may have particular interest in reporting additional diseases.

Most provinces require the report of VRE, MRSA, chancroid, psittacosis, yersiniosis, and Q-fever. Other viral diseases reportable in some provinces include: viral meningitis or encephalitis, smallpox, hepatitis E and D and neonatal herpes.

In addition to the list of notifiable diseases at the federal or provincial level, any unusual or group expression of illness that may be of public concern should be reported to the local health authority by the most expeditious means.

Table 1. Canada's Nationally Reportable Diseases - Bacterial
Anthrax
Botulism
Brucellosis
Campylobacteriosis
Chlamydia, genital
Cholera
Clostridium difficile associated diarrhea
Diphtheria
Gonococcal infection
Group A Streptococcal Disease Invasive
Group B streptococcal disease of Newborn
Haemophilus influenzae Invasive disease (type b and non-b)
Legionellosis
Leprosy (Hansen's Disease)
Listeriosis, invasive
Lyme Disease
Meningococcal Disease Invasive
Pertussis
Plague
Pneumococcal Disease Invasive
Salmonellosis
Shellfish Poisoning (Amnesic, Domoic, Paralytic)
Shigellosis
Syphilis
Tetanus
Tuberculosis
Tularemia
Typhoid
Verotoxigenic *E. coli*

Table 2. Canada's Nationally Reportable Diseases - Parasitic
Amebiasis
Cryptosporidiosis
Cyclosporiasis
Giardiasis
Malaria

Table 3. Canada's Nationally Reportable Diseases - Viral
Acquired Immunodeficiency Syndrome (AIDS)
Chickenpox
Congenital Rubella Syndrome
Creutzfeldt-Jakob Disease - (CJD)
Hantavirus Pulmonary Syndrome (HPS)
Hepatitis A
Hepatitis B
Hepatitis C
Human Immunodeficiency Virus (HIV)
Influenza - Labortory Confirmed
Measles
Mumps
Norovirus
Poliomyelitis
Rabies
Rubella
Severe Acute respiratory Syndrome (SARS)
Viral Hemorrhagic Fevers
West Nile Virus (WNV)
Yellow Fever

CMPT encourages laboratories to forward reports of Notifiable Diseases to Public Health or the Medical Health Officer and since 2001, laboratories have been graded on such reporting and subsequently downgraded for not indicating notification for significant isolates.

For a Canadian perspective on notifiable diseases please check a previous article in Connections by Robin Barteluk: "Notifiable Diseases Reporting Requirements Reviewed" Vol 11. No 4; Winter 2007.

References

1. CDC - National Notifiable Diseases Surveillance System. Available at: http://www.cdc.gov/osels/ph_surveillance/nndss/casedef/introduction.htm
2. WHO Recommended Surveillance Standards. Second edition. Available at: http://www.who.int/csr/resources/publications/surveillance/whocdscsrisr992.pdf
3. Reporting of Communicable Diseases. UCLA Fielding - School of Public Health. Available at: http://www.ph.ucla.edu/epi/bioter/anthapha_reporting_a.html
4. Notifiable Diseases - Brachman P.S. enotes. Available at: http://www.enotes.com/notifiable-diseases-reference/notifiable-diseases
5. Reportable Diseases and Events. Office of the Chief Medical Officer of Health, New Brunswick.
6. National Notifiable Diseases. Public Health Agency of Canada. http://dsol-smed.phac-aspc.gc.ca/dsol-smed/ndis/list-eng.php

Accommodations

Meterra Hotel on Whyte
10454 82 Avenue, Edmonton, AB

Varscona Hotel on Whyte
8208 106 Street, Edmonton,AB

Campus Tower Suite Hotel
11145 87 Ave NW, Edmonton, AB

University of Alberta rates apply. Click HERE for more info

Happy 30th Birthday CMPT!

This year CMPT celebrates its 30th year of working as a leader for EQA innovation, education and continued quality improvement for the benefit of health care.

We thank all of our participants and expert Committees for working with us all these years!

Upcoming events

AUGUST 2012

The 30th World Congress of Biomedical Laboratory Science

August 18 - 22, Berlin, Germany

More information: http://www.ifbls-dvta2012.com/

SEPTEMBER 2012

52nd ICAAC

September 9 - 12, San Francisco, CA

More information: http://www.icaac.org/

OCTOBER 2012

5th Antimicrobial Susceptibility Workshop

October 26—27, Edmonton, AB

More information: Workshop brochure

ABOUT CONNECTIONS

"Connections" is published quarterly by CMPT and is aimed at the Microbiology staff.

Editor: Veronica Restelli

Contact Connections

By mail

Room 328A, 2733 Heather street,

Vancouver, BC

V5Z 1M9

Canada

By phone: 604– 875-4685

By fax: 604-875-4100

By email: restelli@mail.ubc.ca

Connections is available online:

www.cmpt.ca/newsletter_connections.html

We want to hear from you. Please follow the link to submit questions, suggestions, articles, information about events, etc.

www.cmpt.ca/newsletter_bulletin/news_submissions.htm