Is There an Educational Explanation for the Decrease in Proficiency Noted in CMPT Challenges M013-1 and M013-5?

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Introduction Two recent CMPT challenges showed a dramatic reduction in successful performance when compared to the same challenges over the past decade. The challenges in question were both from the November 2001 M013 series. Challenge M013-1, a simulated throat swab, contained pure growth of *Streptococcus constellatus* and the intended response was "negative for group A streptococci". Overall, only 56% (106/181) of laboratories reported a pathogen-negative result. Challenge M013-5, simulated cerebrospinal fluid that contained pure growth of C*ryptococcus neoformans,* was sent to category A laboratories only with a request to set up and report as per their laboratory protocol. Only 77% (58/75) of the laboratories received a grade of 4/4 or 3/4 for this challenge. Decreased competency was noted across Canada and prompted the inquiry; could there be a systemic reason (other than the obvious ones of re-structure, downsizing or rightsizing)?

Educational programs recently changed from syllabus-based to competency-based curricula; could the change in training have had a contributing effect? Those of us involved in the program redesign would argue there is no relation, as that places too much emphasis on initial training. Teaching technologists have long held the opinion that there are three stages of "growth" for a technologist in clinical microbiology. First is the novice or student stage, followed by the entry-level, and finally expert practice stage. Each has undergone tremendous change over the past five years. Which change resulted in decreased competence in reporting non-pathogenic streptococci and pathogenic yeast?

Changes to the student phase Training programs, past and present, give the two organisms honourable mention at best. The difference now is how we determine curriculum since details offered in the "old" syllabus are gone**.** The competency-based system asks, "what do entry level technologists do?" or in other words, "what knowledge will they apply?" Our goals are to design the curriculum and clinical practices to fit. Communication with local employers is required, and has eliminated the memorization of irrelevant facts common in the syllabus-based approach. With respect to the two organisms, I expect students to find and use the appropriate resources to work out the identity and clinical relevance of each organism. This approach is much different than recall, and more useful to them in the long run. Of course at this stage, their major resources are the technologists and bench protocols. The competency-based national certification examination has been in place three years and most graduates currently find their first employment in CORE laboratory areas [1]. Relatively few new technologists are working in clinical microbiology, certainly not enough to allow a direct link to the reduction in overall performance in CMPT challenges.

Changes to the entry-level phase The second phase begins when students have proven basic competencies in the workplace, or real world atmosphere. Competencies can only be proven in the laboratory practicum, where challenges are met in context. Conversations over the years led to a common understanding that it takes five years full-time practice to arrive at a fully competent technologist in clinical microbiology. Recent causation of the workforce might have disrupted the normal progression a technologist makes over time. Considerable scheduling/monitoring effort is required to provide the entry-level technologist opportunity to increase their knowledge and skill over a variety of bench areas, but is often too expensive to do. More often than not, the casual employee leaves their employer as soon as a permanent position comes available. The result is constant training and turnover of casual employees. Another observation we have received is the new graduate is somehow different in personality than those of us who trained in the old system. Much has been said about the differing values exhibited by the Generation-X [2]. The potential conflict between existing staff and the new recruits are often based on unfounded expectations. Change and computers are just two areas the Gen-X is better suited for; so, in my opinion, we can relax! The entry-level technologist may be called on to work on the CMPT challenge, though usually with consultation from a senior "expert" technologist before final reports are returned for grading. The laboratory's standard operating procedures (SOP) would be the main resource for them. If the laboratory did not fair well in the CMPT challenges discussed here, a review of the use of the procedures would be recommended.

Changes to the expert stage The last stage is the "expert" practice stage, occurring post-five years experience. At this stage a technologist is prepared to take on new roles, including leadership activities. Some have chosen to further their knowledge and skills, for example, the ART or managerial training. In a supervisory role, these technologists have the ultimate responsibility of reporting CMPT challenges. External pressures forcing change upon us have left many technologists with an overwhelming feeling of being spun out of control. These technologists have either faced more responsibilities with each downsizing, or have been relegated to the "bench" and feel undervalued and demoralized. Technologists at this stage have less time to devote to CMPT challenges, and every other task for that matter. That being said, these technologists also benefit the most from the educational opportunities the CMPT challenges offer. Currently there is no incentive to further one's level of knowledge in clinical microbiology to the level of the "old" ART. As the current generation retires and leaves the profession, a lack of expertise at the bench level is anticipated. Ongoing continuing education is clearly an expectation.

Conclusion And yet, despite all these changes, if the same two challenges were offered four times in six years as they were from 1989 through 1994, I predict the same improvements would be noted today. CMPT challenges remind us to review standard operating procedures and perhaps re-write them to reflect updated points of view. Training programs function as gatekeepers and springboards for new technologists. We

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parachute in potential technologists who have proven abilities to learn and perform. Learning must continue throughout one's ever-changing technology career. Our best hope is to prepare students with skills to succeed in a rapidly changing landscape.

References

1. The Canadian Society of Medical Laboratory Science.
2. Bridging the laboratory generation gap. 2001. Laboratory Medicine. 6:32, p. 299-302.

[Ed. notes: 1. Regarding the need for technologists to be able to recognize Cryptococcus neoformans, consider the public health advisory issued by the BCCDC on June 6, 2002 about fungal infections on Vancouver Island (www.bccdc.org). It states, "More than 50 cases of cryptococcal disease, including one death, have been reported by Vancouver Island residents or ***visitors*** *since 1999." The "visitors" could be returning to your province. Look for more on this topic by Dr. Pamela Kibsey in our Fall Issue. 2. CMPT strongly argues that all technologists, both "expert" and "entry-level" and the laboratory benefit, when all personnel have the opportunity to participate in EQA, especially when they adhere to the existing standard operating procedures. Through this approach the person has the ability to challenge their own interpretive skills, and the validity of the existing SOP. EQA can and should be recognized for its educative value.]*