Introduction

Managing and engaging students in increased class sizes was a topic at the forefront of discussion during the Canadian Society for Medical Laboratory Science (CSMLS) open forum held on May 27, 2023. CSMLS realized collecting more information about this topic was a crucial next step in advocating for education staffing needs. This study reached out to all educators who were also CSMLS members requesting their participation in answering key questions about class sizes and outcomes.

Preliminary Statistics

An invitation to participate in the survey was sent out to 411 individuals. Each individual was 'paid thru' as of the survey launch date and had occupation in education. From the 49 responses received, a 13.2% margin of error (MoE) at a 95% confidence interval (CI) is achieved. This number will vary as different response rates were obtained for each question. For example, in instances where only 26 responses were collected, a resulting MoE of 18.6% at a 95% CI is obtained. In general, the participation rate for this survey was comparatively low with respect to surveys focused on other occupations within CSMLS (e.g. 1). The question on geographic region was only answered by 8 respondents. These responses are included for reference, but no strong patterns could be inferred from that data.

The tables below display preliminary statistics on the entire data set. Several outliers were identified and defined as being beyond 1.5 times the interquartile range (IQR). These outliers were not omitted in this section, but are either omitted or identified as outliers in subsequent sections of this report.

				Range					
	n	Ave.	StD	Min	Q1	Q2	Q3	Q4	Max
Ideal Instructor to Student Ratio									
Practical labs	49	10	5	1	6	10	12	30	30
Lectures	49	33	20	1	20	30	40	100	100
Drop-in hours	49	4	5	1	1	3	5	25	25
Current Instructor to Student Ratio									
Practical labs	39	13	6	1	8.5	12	15.5	30	30
Lectures	39	44	26	1	29.5	40	60	96	96
Drop-in hours	39	8	12	1	1	4	9	60	60
Number of lecture hours per semester	30	56	54	0	30	41	65.3	240	240
Number of lab hours per semester	30	46	36	0	21.8	42.5	60	150	150

		Limits			Outliers	
	n	IQR	Low	High	Low	High
Ideal Instructor to Student Ratio						
Practical labs	49	6	-3	21	0	1
Lectures	49	20	-10	70	0	2
Drop-in hours	49	4	-5	11	0	3
Current Instructor to Student Ratio						
Practical labs	39	7	-2	26	0	2
Lectures	39	30.5	-16.3	105.8	0	0
Drop-in hours	39	8	-11	21	0	3
Number of lecture hours per semester	30	35.3	-22.9	118.1	0	4
Number of lab hours per semester	30	38.3	-35.6	117.4	0	1

Instructor to Student Ratios

To explore ideal student to instructor ratios, respondents were asked two questions. One question was about the current number of students in their labs or lectures, and drop-in hours. The second, was about their ideal number of students or drop-in hours. For this section respondents who didn't answer both current and ideal questions were omitted since comparisons could not be made. Respondents who provided answers to these questions, for which the values are considered outliers, are still included in this calculation because the trend in their own responses could still be gauged. Most educators replied that they want a fewer number of students in their labs and lectures and they prefer to have fewer drop-in hours.

	Labs	Lectures	
Educators who want less students per instructor	64%	62%	-
Educators satisfied with current instructor to student ratios	23%	23%	
Educators who want more students per instructor	13%	15%	+
Response count	39	39	

	Drop-in	
Educators who want fewer drop-in hours	51%	-
Educators satisfied with current drop-in hours	33%	
Educators who want more drop-in hours	15%	+
Response count	39	

Provincial data breakdown of labs or lecture size and drop-in hours:

	Count	Labs	Lectures	Drop-in
British Columbia	1	-4	-36	-2
Manitoba	1	0	0	-9
Newfoundland and Labrador	1	-4	3	-4
Nova Scotia	1	0	-10	0
Ontario	4	-2	-15	0
		10	0	0
		-5	35*	-3
		-15	-10	3

*outlier

Next, the average amount respondents wanted to see their labs, lectures or drop-in hours decrease or increase, denoted by – or + respectively, was calculated. Note that when calculating an average, those who wanted no change, or held the opposite opinion were omitted. For example, only educators who wanted less students per instructor in their labs were included in the average decrease in lab size shown below. Also, responses that were identified as outliers were omitted from these averages as well.

Instructor to Student Ratio

	Labs		Lectures		Drop-in Hours	
	-	+	-	+	-	+
Average	-5.3	5.0	-20.9	6.8	-4.6	2.8
Standard Deviation	4.2	3.7	19.8	4.4	3.1	2.2
Response Count	24	4	24	5	17	6

The next question examined the average number of hours an educator spends conducting labs or lectures per semester. Four outliers for the lecture section and one for the lab section were identified and removed. Despite the removal of outliers, the standard deviation remains fairly large in comparison to the average, reflecting the large amount of variance observed in responses.

	Lecture	Lab
Average	38.3	42.9
Standard Deviation	26.5	30.2
Response Count	26	29

Provincial data breakdown of lab or lecture hours per semester:

	Count	Lecture	Lab
British Columbia	1	42	60
Manitoba	1	150*	100
Newfoundland and Labrador	1	45	30
Nova Scotia	1	30	60
Ontario	4	30	10
		36	36
		36	72
		72	12

*Outlier

Exam Administration and Outcomes

Respondents indicated that provide exams primarily in-person with no notes or books allowed for both their mid-terms and final exams. This is followed by exams provided remotely, with combinations of video/audio surveillance, and/or proctor, and/or lock-down browser for both mid-terms and finals. Provincial data collected indicates similar methods are used regardless of province.

	Mid-term	Final
In-person - notes or books allowed	7.3%	2.6%
In-person - no notes or books allowed	58.5%	63.2%
Remote - no video/audio surveillance, no proctor, no lock-down browser	7.3%	5.3%
Remote - with video/audio surveillance, and/or proctor, and/or lock-down browser	24.4%	23.7%
No exams	2.4%	5.3%
	41	38

Mid-term exam administration methods by province:

	BC	MB	NL	NS	ON	ON	ON	ON
In-person - notes or books allowed			Y					
In-person - no notes or books allowed	Y	Y	Y	Y		Y		Y
Remote - no video/audio surveillance, no proctor, no lock-down browser								
Remote - with video/audio surveillance, and/or proctor, and/or lock-down browser			Y		Y		Y	Y
No exams								

Final exam administration methods by province:

	BC	MB	NL	NS	ON	ON	ON	ON
In-person - notes or books allowed								
In-person - no notes or books allowed	Y	Y	Y	Y		Y		Y
Remote - no video/audio surveillance, no proctor, no lock-down browser								
Remote - with video/audio surveillance, and/or proctor, and/or lock-down browser			Y		Y		Y	Y
No exams								

When asked about exam pass rates, most respondents indicated there was no difference between their mid-terms and finals. Six responses received could be coupled with provincial data, namely Manitoba, Newfoundland and Labrador, Nova Scotia, and three from Ontario. One respondent from Manitoba indicated that pass rates were higher in mid-terms than finals but did not specify a value to quantify that difference. The other five responses noted no difference between mid-term and final exam pass rates.

		Difference	
		Ave.	StD
No difference between the exams was noted	68%	NA	NA
Yes, mid-term exam pass rates are higher than finals	29%	15%	5%
Yes, final exam pass rates are higher than midterms	3%	10%	NA
Response count	31		