Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

P141
EFFECTIVENESS AND FINANCIAL IMPACT OF A PROVINCIAL POLICY ELIMINATING ROUTINE USE OF CREATINE KINASE TESTING FOR WORK-UP OF SUSPECTED ACUTE CORONARY SYNDROME IN THE EMERGENCY DEPARTMENT

R Mao, A Sokoro, S Kirby, C Seifer, E Wiens

Winnipeg, Manitoba

BACKGROUND: Creatine kinase (CK) has long been a cornerstone in the diagnosis of ACS. However, it has been demonstrated that CK is not useful in the era of high-sensitivity troponin (hsTn) assays. In August 2020, a joint Choosing Wisely Manitoba® and Shared Health Manitoba practice change statement eliminating the routine use of CK for diagnosis of ACS was adopted. The policy was a written document highlighting that CK was an unnecessary test for ACS screening, and was distributed broadly to all health regions in Manitoba. We conducted a study to determine whether this policy change successfully reduced CK testing in emergency departments (EDs) across Manitoba, and the potential cost savings achieved.

METHODS AND RESULTS: A retrospective study was conducted using the Diagnostic Services Manitoba Laboratory Information Management System database. The total number of CK and hsTn tests ordered in all EDs across Manitoba were collected. As surrogates for total ED presentations and CK ordered for non-ACS indications, total number of CBCs and myoglobin tests were obtained. Data was collected 5-months (March 1 to July 31, 2020) prior to the policy change and 5-months (September 1 to January 31, 2021) following the policy change, which occurred in August 2020. Hypothesis testing was done with Chi square testing, with significance defined as $p < 0.05$. Prior to the policy change 88792 CBCs, 33079 hsTn, 2826 Myoglobin, and 20035 CK tests were ordered among all provincial EDs during the study period. Urban teaching hospitals ordered CK concurrently with hsTn 15.8% of the time, while it was ordered concurrently 33.1% of the time in peripheral EDs. Following the policy change, there was no difference in CBCs, hsTn, or myoglobins ordered, but there was a significant reduction in CK tests ordered (20035 vs 11840, $p < 0.0001$). There was a 54% relative reduction in CK use across the province following the policy change, (22.6% vs 12.2%; $p < 0.0001$). Individually, urban teaching hospitals decreased CK testing to 10.2%, while peripheral EDs decreased their CK testing to 15.3%. Based on a cost of $4/test, the 54% relative reduction in CK testing was estimated to result in a >$31000 in cost-savings over the course of a year.

CONCLUSION: The results of this study suggest that passive intervention through public health policy change is effective in reducing unnecessary testing across an entire health region.

Canadian Cardiovascular Society (CCS) Abstracts — Prevention

P142
COVID-19 PANDEMIC INDUCED DISRUPTIONS IN TROPONIN AND LOW-DENSITY LIPOPROTEIN CHOLESTEROL LABORATORY TEST VOLUMES ACROSS ALBERTA

S Goodman, E Mackinnon, J Gregoire, P Raggi, R Wani, M Packalen, S Avcil, M Farris, E Graves, T Cowling, T Anderson

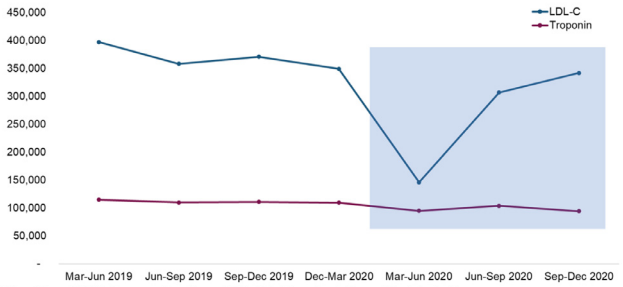
Toronto, Ontario

BACKGROUND: Atherosclerotic cardiovascular disease (ASCVD) is a leading cause of morbidity and mortality in Canada and worldwide. Laboratory tests, including troponin and low-density lipoprotein cholesterol (LDL-C), are important biomarkers of ASCVD risk. The objective of this study was to investigate patterns of testing for troponin and LDL-C test volumes among Alberta residents during the coronavirus disease 2019 (COVID-19) pandemic.

METHODS AND RESULTS: A repeated cross-sectional study design captured population-level laboratory test volumes between March 15, 2019 and December 14, 2020. Three-month cross-sections were derived to report laboratory test volumes by different COVID-19 restriction periods during 2020-2021 and using 2019-2020 as a preceding control period. Percent change for troponin and LDL-C test volumes were calculated for both control and COVID-19 periods among adult (≥18 years of age) Alberta residents, and stratified by age (18-49, 50-65, 66-79, and ≥80 years), sex, and geographic zones (urban, rural). This preliminary data is part of an ongoing study for which further troponin and LDL-C test volumes will be available up until March 14, 2021 (representing one year of data throughout the COVID-19 pandemic). Among the Alberta population, 292,836 troponin and 794,789 LDL-C tests were captured between March 15, 2020 and December 14, 2020 (Figure 1). Testing patterns during the COVID-19 restriction period showed marked reduction in test volumes from the previous year. The initial cross-section of the COVID-19 period (March-June 2020) was characterized by the largest overall reduction with troponin test volumes decreasing 18% and LDL-C test volumes decreasing 63%, compared to the year prior. As restrictions eased in the summer months of 2020, testing volumes rebounded to near pre-pandemic volumes for both tests. However, in the fall of 2020, troponin tests decreased again (-15%). Within these drops in utilization, slightly larger relative declines were observed for troponin test volumes in women (-20%) and patients ≥80 years-old (-25%) and for LDL-C test volumes among urban residents (-64%), women (-67%) and patients aged 18-49 (-66%) and 50-65 (-65%) years (Table 1).

CONCLUSION: This study describes declines in troponin and LDL-C test volumes in the initial and second COVID-19 lockdown periods. Women had overall smaller total troponin and LDL-C test volumes and larger relative declines during the pandemic compared to men. The decrease in these ASCVD-related laboratory test volumes during the pandemic may have been accompanied by other important changes in indicators of healthcare utilization and associated clinical outcomes. Ongoing analyses will further explore the impact of the pandemic.

Figure 1. Laboratory test volumes across Alberta in control and COVID-19 periods



Abbreviations: COVID-19: coronavirus disease 2019; LDL-C: low-density lipoprotein cholesterol
Note: the initial COVID-19 lockdown period in Alberta started March 16, 2020 with restrictions gradually being lifted in May 2020; a second lockdown period started December 8, 2020 with restrictions being lifted starting in January 2021.

Table 1. Laboratory test volumes in the March 15–June 14 control and COVID-19 periods stratified by age, sex, and geographic zone

Stratifications	Troponin			LDL-C		
	Control, n	COVID-19, n	Control to COVID-19, Percent Change	Control, n	COVID-19, n	Control to COVID-19, Percent Change
Age, years						
18-49	27,410	24,815	-10%	141,728	48,673	-66%
50-65	32,824	27,235	-17%	146,523	50,872	-65%
66-79	31,712	25,419	-20%	85,523	32,635	-62%
80+	23,034	17,359	-25%	23,411	13,788	-41%
Sex						
Female	53,861	43,217	-20%	201,095	67,068	-67%
Male	61,119	51,611	-16%	196,090	78,900	-60%
Geographic zone						
Urban	84,525	70,175	-17%	324,098	115,878	-64%
Rural	30,455	24,653	-19%	73,087	30,090	-59%

Abbreviations: COVID-19: coronavirus disease 2019; LDL-C: low-density lipoprotein cholesterol; n: number
[a] The geographic zone stratification was derived based on the Alberta Health Services geographic zones and were dichotomized as urban (Calgary, Edmonton) and rural (Central, North, South).

Amgen Inc

P143
TIMING AND DETERMINANTS OF THE DETERIORATION OF FUNCTIONAL STATUS IN PATIENTS WITH AORTIC STENOSIS

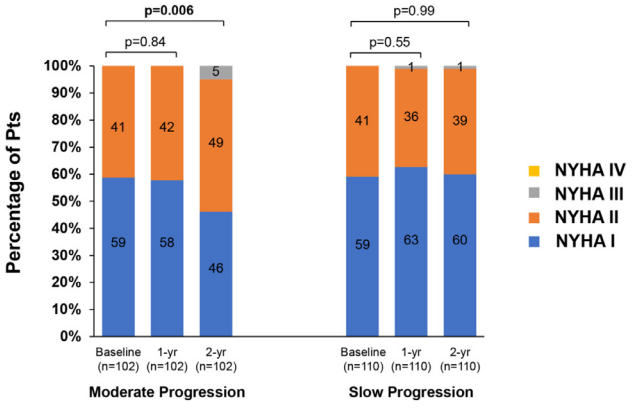
L Tastet, M Shen, R Capoulade, M Arsenault, E Bédard, N Côté, M Clavel, P Pibarot

Québec, Québec

BACKGROUND: The assessment of changes in symptomatic/functional status during follow-up is critical to determine the optimal timing for intervention in asymptomatic patients with severe aortic valve stenosis (AS). However, there is very few data on the correlation between the progression of AS severity and the deterioration of symptomatic status. Fast progression of hemodynamic severity of AS (i.e. annualized progression of peak jet velocity [Vpeak] ≥30 cm/s) is among the risk markers (Class IIa) recommended in the guidelines to trigger early intervention in asymptomatic severe AS. We investigated the association between the progression of AS hemodynamic severity and the change in functional status during follow-up of patients with asymptomatic mild-to-moderate AS at baseline.

METHODS AND RESULTS: 285 patients with AS (mean age 65±13 years, 28% women) prospectively recruited in the PROGRESSA study (NCT01679431) were included in this analysis. Functional status was evaluated using the New York Heart Association (NYHA) classification. Baseline NYHA class was similar (class I, II, III: 57%, 41%, 2% versus 58%, 41%, 1%; p=0.75) between patients with moderate (i.e. Vpeak progression ≥12 cm/s/year; median of cohort) versus those with slow AS progression rate. During a mean follow-up time of 3.9±2.4 years, patients with moderate AS progression rate had larger increase in NYHA class compared to those with slow progression (+0.13±0.48 versus +0.01±0.21 class/year; p=0.008). From baseline to 2 years, a significant worsening of NYHA class occurred but only in the moderate AS progression group (Figure 1). In comprehensive multivariable analysis, AS progression rate remained significantly associated with the annualized change in NYHA class (p=0.04). A total of 156 clinical events (110 AVR and 46 deaths) occurred during a mean follow-up of 1.1±1.5 years after the last echocardiographic visit. Patients with an increase of at least one NYHA class (n=70) had significantly higher risk of events (adjusted hazard ratio: 1.75 [95% confidence interval: 1.12-2.75]; p=0.01).

CONCLUSION: In this prospective cohort of patients with mild-to-moderate AS at baseline, a moderate progression rate of AS severity was associated with a significant deterioration of patients' functional status at 2 years follow-up and with increased risk of major adverse clinical events, thereafter. The decline in functional status often occurs early in the course of the disease and is in large part determined by the progression rate of AS hemodynamic severity.



Le Fonds de Recherche Santé Québec