

# Statin Initiation: Guideline Concordance and Characteristics of New Users in Quebec, Canada

Sarasa JOHNSON<sup>1,2</sup>; Manon CHOINIÈRE<sup>2,3</sup>; Michèle BALLY<sup>2,3</sup>; Marie-Pierre DUBÉ<sup>4,3</sup>; Jean-Claude TARDIF<sup>4,3</sup>; Jacques LELORIER<sup>1,2,3</sup>

<sup>1</sup>Canadian Network of Observational Drug Effect Studies (CNODES), Montreal, QC, Canada; <sup>2</sup>Centre de Recherche du CHUM, Montreal, QC, Canada; <sup>3</sup>Université de Montréal, Montreal, QC, Canada; <sup>4</sup>Institut de Cardiologie de Montréal, Montreal, QC, Canada; **Conflicts of Interest/Funding:** The authors have no conflicts of interest to declare

## Background

Statins are widely prescribed for the prevention of cardiovascular (CV) events such as myocardial infarction (MI), hospitalization for acute coronary syndrome and CV-related death

## Objective

To describe the characteristics of patients newly prescribed a statin by general practitioners and assess the concordance of prescribing with national guidelines

## Methods

- **Study Design:** Prospective cohort
- **Study Period:** January 2009 – December 2010
- **Data Sources:** Structured questionnaire and biological parameters measured at nurse visits
- **Study Cohort:** General practitioners located within 2 hours of Montreal, Quebec City, and Chicoutimi were asked to invite all patients newly initiated on a statin to participate
  - **Inclusion criteria:**
    - Age  $\geq 18$
    - Able to understand French
  - Available for the 2-year study duration
  - **Exclusions:** Previous statin use, participation in a different study of lipid modifying therapy

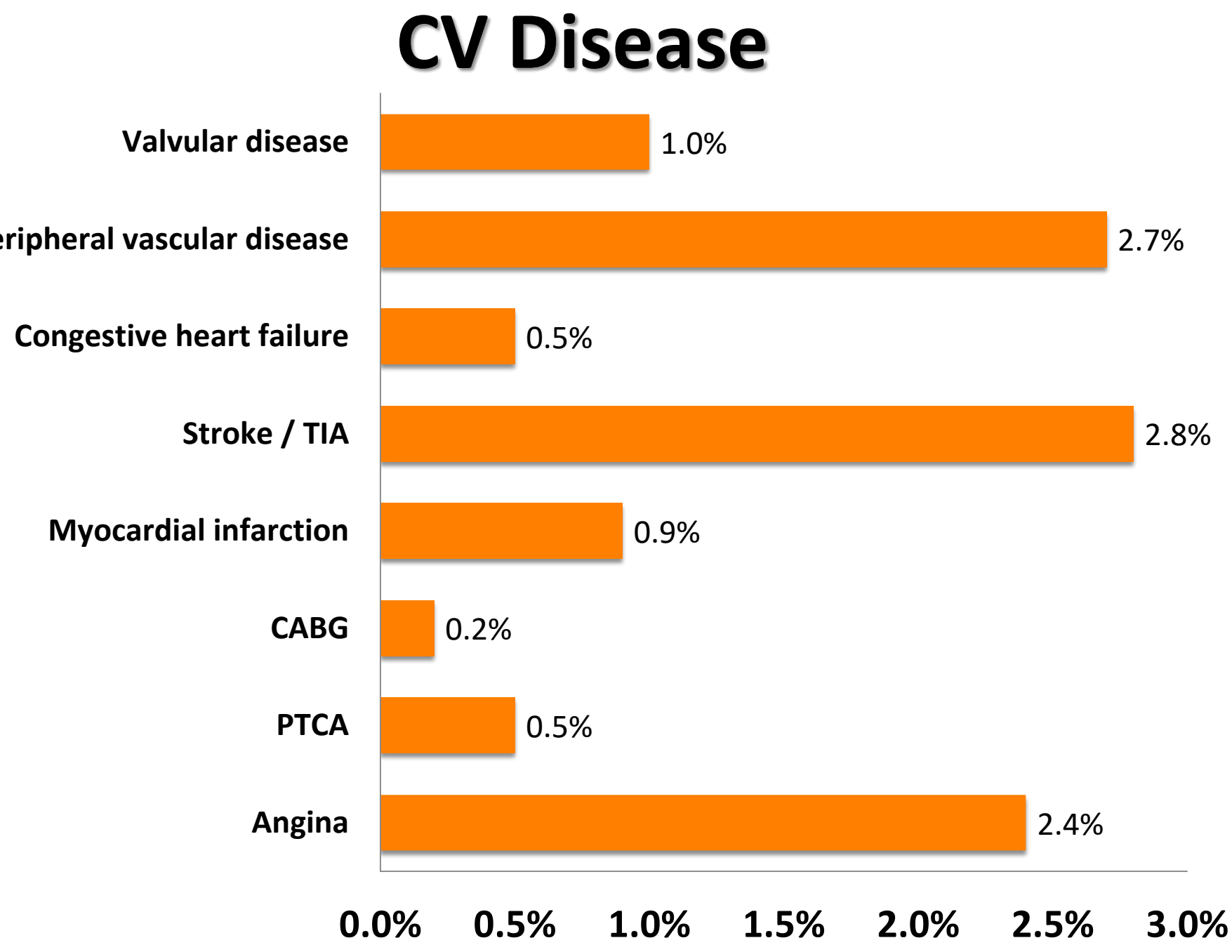
## OBSTAT Study Baseline Questionnaire

Section	Data Collected
Family history	Family history of high blood pressure, high cholesterol, diabetes, heart attack, stent, stroke, angioplasty, CV-death
Context for statin initiation	Events leading up to statin initiation, discussions with a doctor regarding the risks of high cholesterol, benefits of statins, intention to modify lifestyle to reduce cholesterol levels etc.
Cardiovascular history	History of myocardial infarction, angina, stroke or transient ischemic attack, arrhythmia, valve disease, congestive heart failure, peripheral vascular disease, hypertension, cardiac interventions (PTCA, CABG etc.)
Non-cardiovascular history	History of diabetes, dyslipidemia, smoking
History of chronic pain	Fibromyalgia, migraines, neck pain, back pain, nerve pain, arthritis etc., family history of chronic pain
Physical activity	Number of times during a week doing intense, moderate, or light physical activity
Medications	Medications currently taken (including prescribed and over-the-counter), medications previously taken for cholesterol reduction
History of side effects	Side effects or pain experienced during use of past cholesterol reduction medications
Rhabdomyolysis	Details on experience with rhabdomyolysis
Statin details	Information including date, dosage, and frequency of newly initiated statin
Biological parameters	Weight, height, waist circumference, hip circumference, blood pressure, pulse, serum creatinine, ALT, CK, TSH, glycated hemoglobin, total cholesterol (TC), LDL cholesterol, HDL cholesterol, total cholesterol / HDL ratio
Quality of life	Short Form 12 version 2 (SF-12V2)
Anxiety and depression	Hospital anxiety and depression scale (HADS)
Demographic information	Age, sex, ethnicity, education level attained, employment, living situation, family income, medical insurance etc.

## Study Population

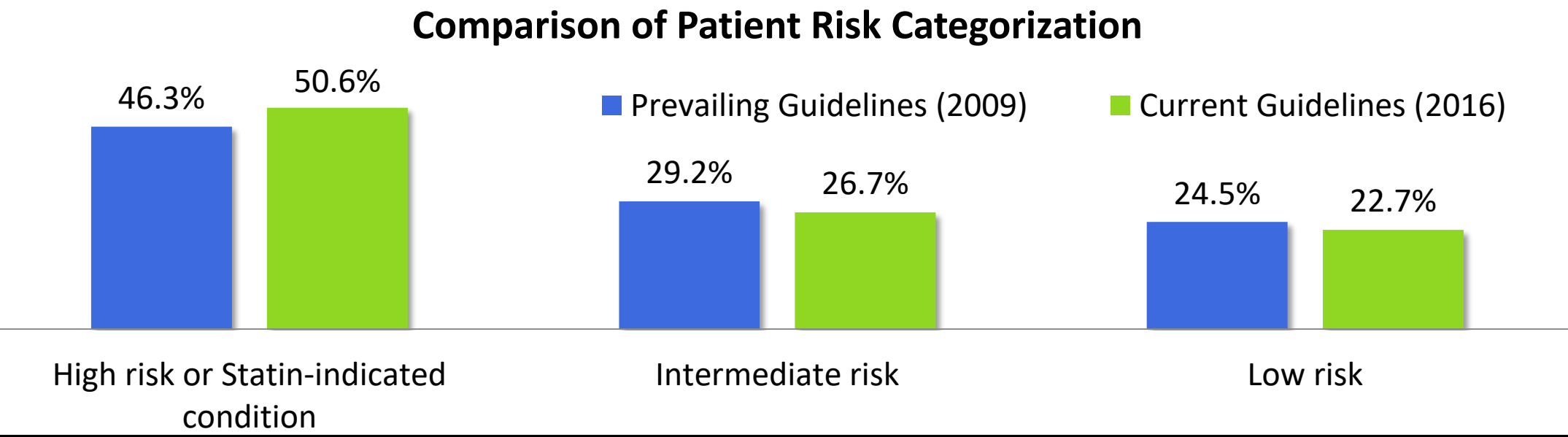
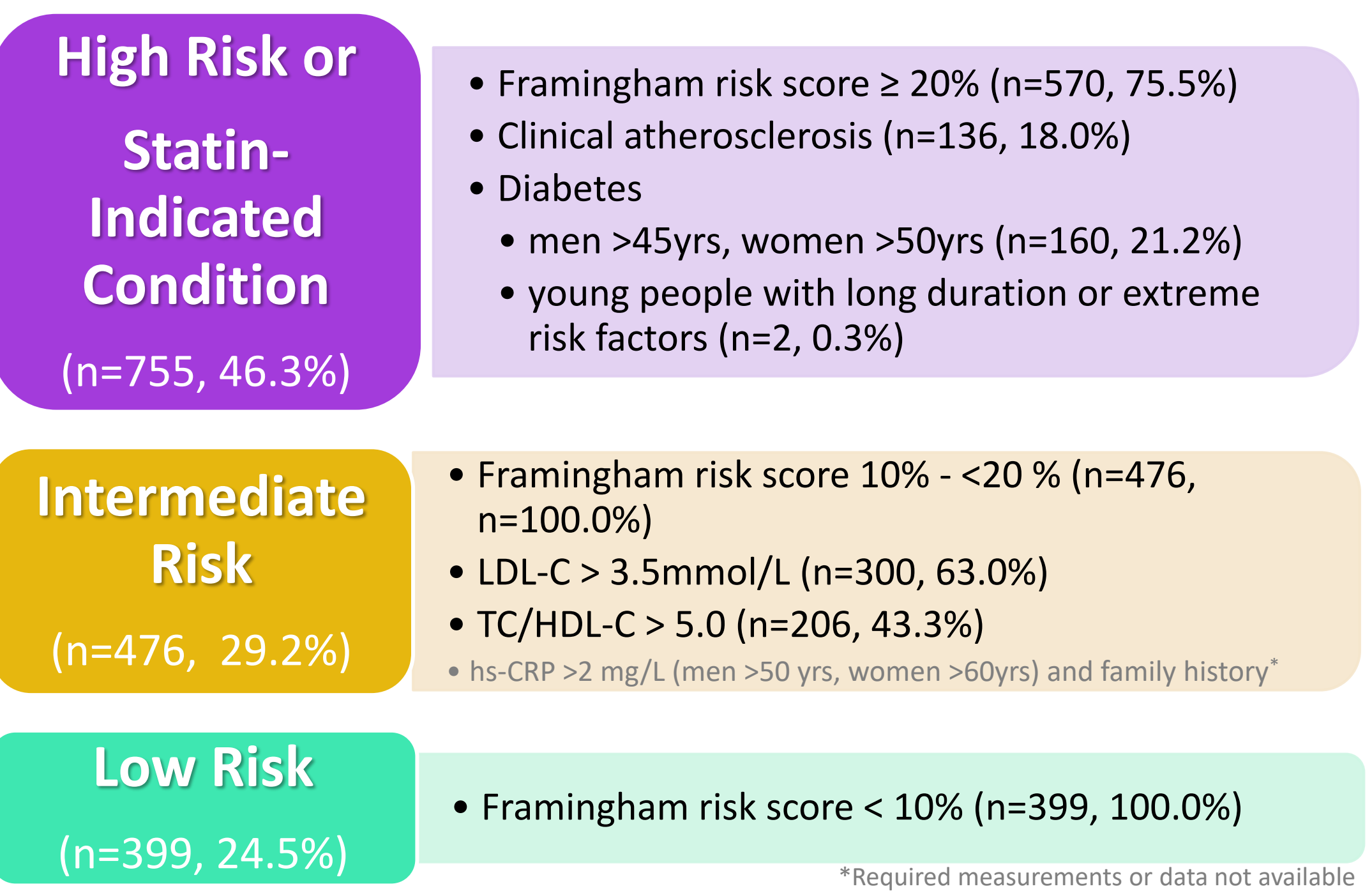
1631 new statin-users were enrolled in the study

Characteristic	% or mean (SD)
Age (mean(SD))	57.4 (10.8)
Female (%)	47.6
White ethnicity (%)	97.9
Treatment centre (%)	
Montreal	65.1
Quebec City	2.9
Chicoutimi	32.0
Public Insurance coverage (%)	41.3
Urbanity (%)	86.6
Education (years, mean(SD))	12.8 (3.6)
Living alone (%)	17.8
Employed/student (%)	54.5
Family income (%)	
< \$30,000	15.2
\$30,000 - \$59,999	25.5
\$60,000 - \$99,999	23.0
> \$100,000	17.4
Does not want to answer	19.0

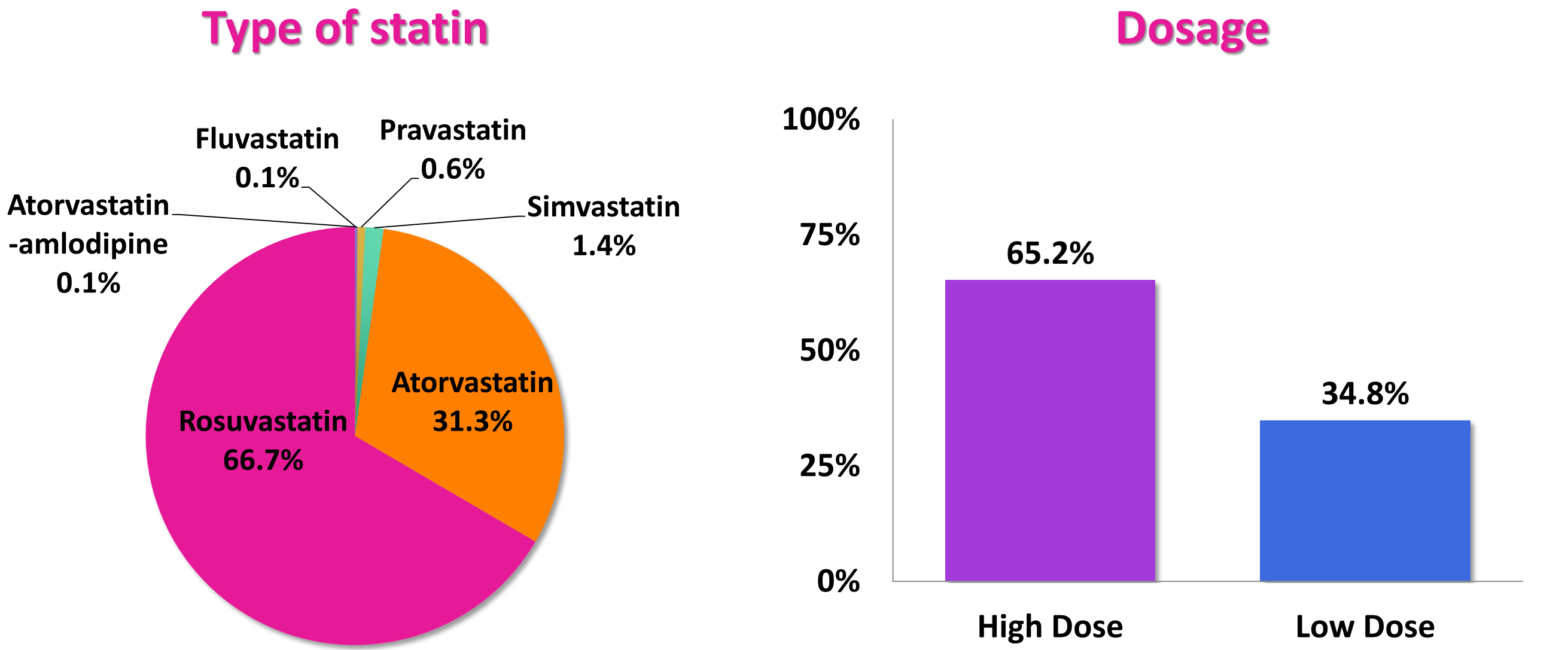


## CV Risk Assessment Based on the Canadian Dyslipidemia Guidelines

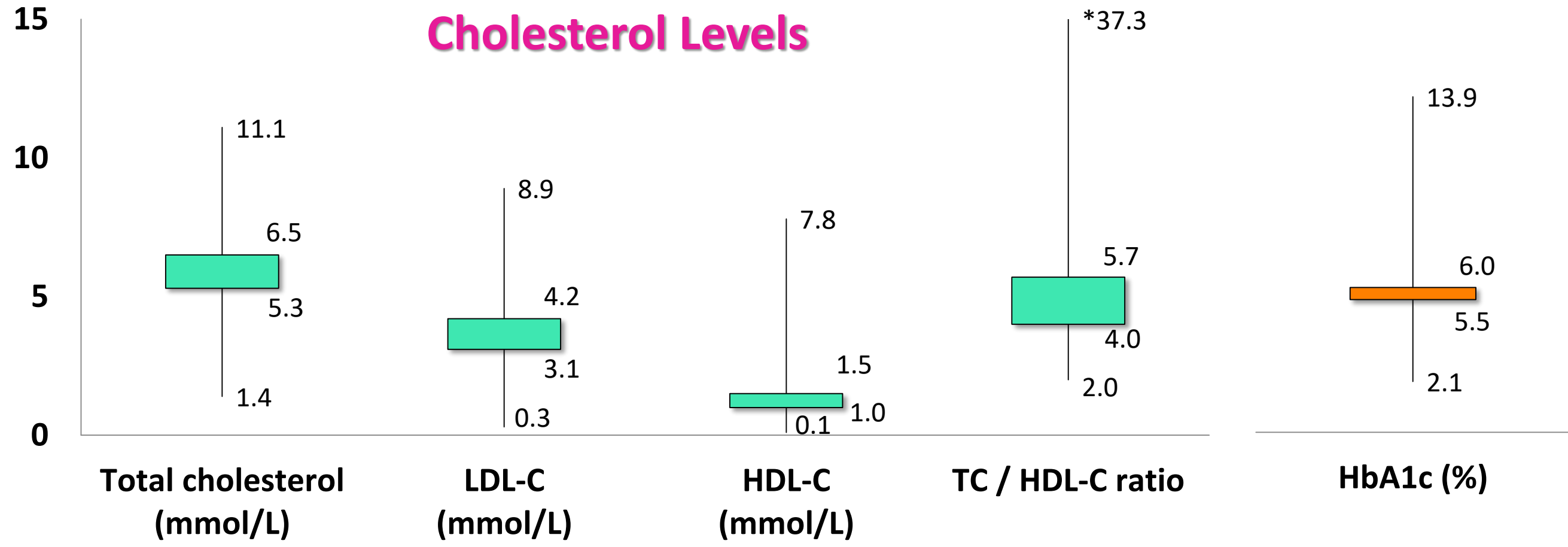
### Prevailing Guidelines at Time of Treatment (2009)



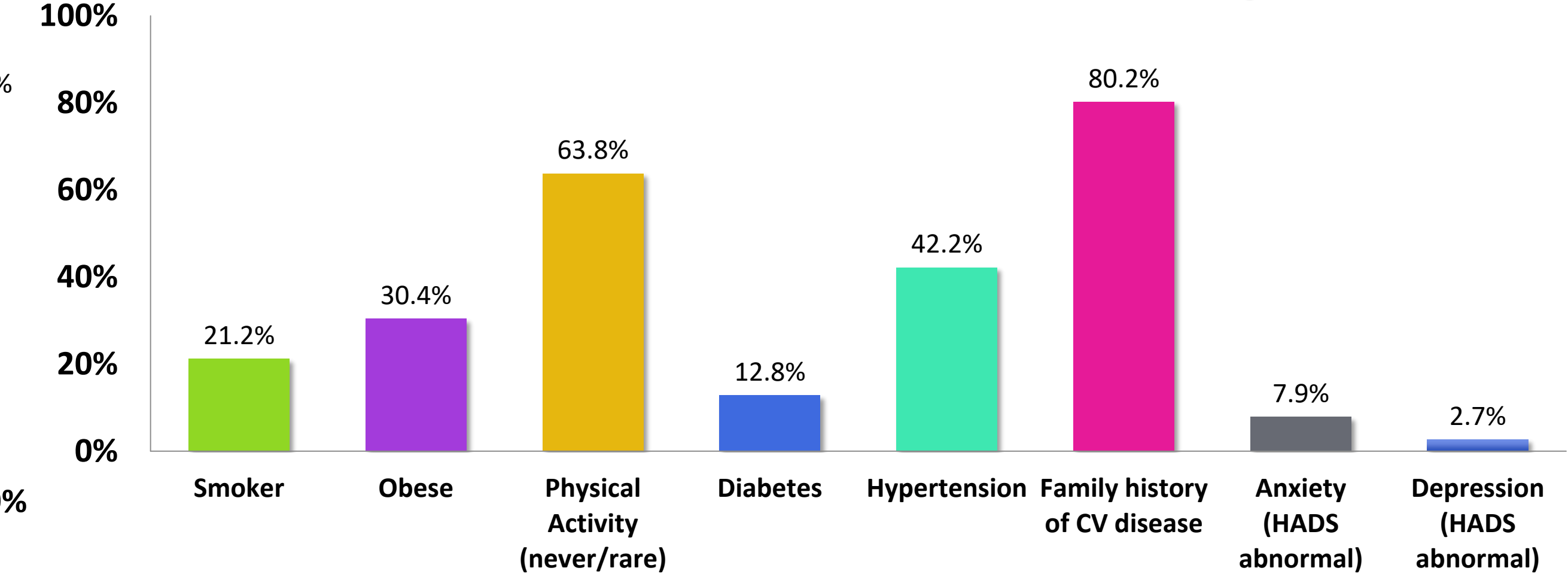
## Statin Treatment Characteristics



## Biological Parameters



## Risk Factors for CV Disease and Non-persistence



### High Risk or Statin-Indicated Condition (n=825, 50.6%)

- Framingham risk score  $\geq 20\%$  (n=570, 69.1%)
- Clinical atherosclerosis (n=136, 16.5%)
- Diabetes
  - age 40+ (n=181, 22.0%)
  - age  $\geq 30$ yrs and 15yrs duration (n=0, 0.0%)
  - Microvascular complications\*
- LDL-C  $\geq 5\text{mmol/L}$  (n=87, 10.6%)
- Abdominal aortic aneurysm\*
- Chronic kidney disease\*

### Intermediate Risk (n=435, 26.7%)

- Framingham risk score 10% - <20 % (n=435, n=100.0%)
- LDL-C  $\geq 3.5\text{mmol/L}$  (n=268, 61.6%)
- Non-HDL-C  $\geq 4.3\text{ mmol/L}$  (n=304, 69.9%)
- For men 50+ and women 60+
  - Low HDL-C ( $<1\text{ mmol/L}$ ) (n=36, 8.3%)
  - High waist circumference (m> 102cm, w>88cm) (n=157, 36.1%)
- Smoker (n=119, 27.4%)
- Hypertension (n=133, 30.5%)
- Impaired fasting glucose\*
- ApoB  $\geq 1.2\text{g/L}$ \*

### Low Risk (n=371, 22.7%)

- Framingham risk score  $< 10\%$  (n=371, 100.0%)

\*Required measurements or data not available

## Conclusions

Based on the current Canadian guidelines for the management of dyslipidemia and prevention of CV disease, half of all patients initiated on a statin were considered to be high-risk or have a statin-indicated condition. The remaining patients were almost equally likely to be considered at low or intermediate risk.