

# The Effect of Community Pharmacist Prescribing and Care on Cardiovascular Risk Reduction: The R<sub>x</sub>EACH Multicentre Randomized Controlled Trial

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# Background



- Cardiovascular diseases are one of the leading causes of death
  - Most are caused by modifiable risk factors and yet their identification and control is still suboptimal
- Pharmacists are accessible, frontline primary health care providers who see patients with, or at risk for, cardiovascular events frequently
  - In Alberta, Canada, pharmacists can independently prescribe and order laboratory tests
- Numerous trials have demonstrated the benefit of pharmacist care on individual risk factors, but not “all together” in a comprehensive, province-wide program

# Objectives



## Primary objective:

- To evaluate the effect of a community pharmacy-based case finding and intervention in patients at high risk for cardiovascular events on reduction in estimated risk for major cardiovascular events.

# Methods



- **Design:** Multicenter randomized controlled trial with patients as the unit of randomization
- **Setting:** 56 community pharmacies across Alberta for recruitment and follow-up

# Inclusion Criteria



- Adults at high risk for cardiovascular events, including patients with:
  - Diabetes
  - Chronic Kidney Disease (CKD)
  - Established atherosclerotic vascular disease
  - Multiple risk factors and Framingham risk score > 20%
- Patients were eligible if they had at least one uncontrolled risk factor (blood pressure, LDL-cholesterol, HbA1c, or current smoking)

# Exclusion Criteria



- Patients were excluded if they were
  - Unwilling to participate/sign consent form
  - Unwilling or unable to participate in regular follow-up visits
  - Pregnant

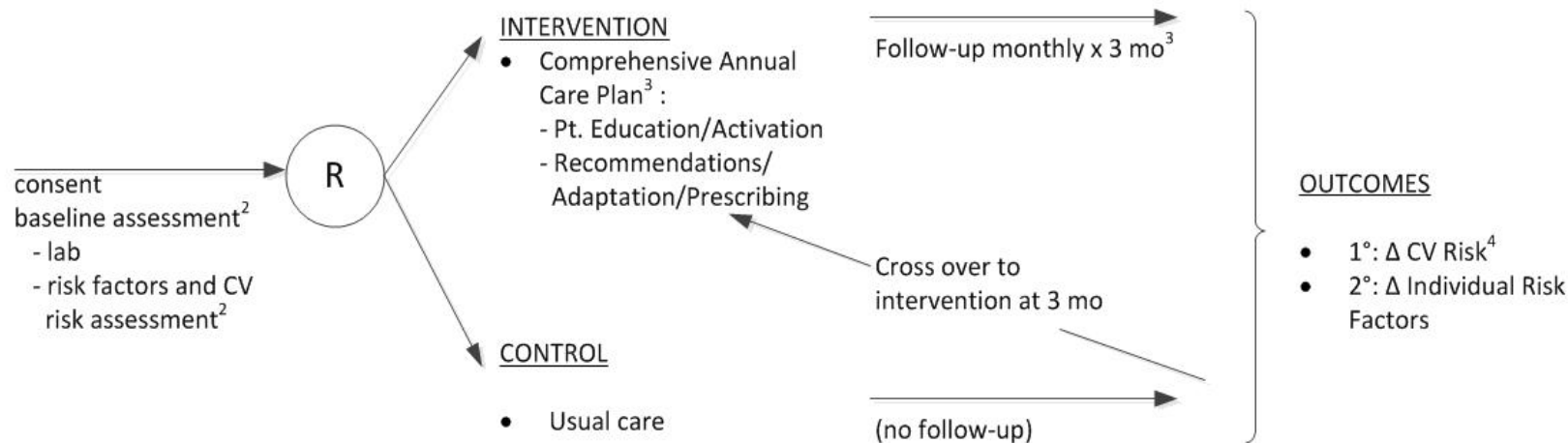
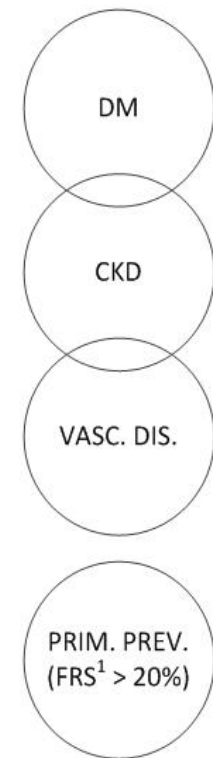
**Figure 1: Rx EACH Study Overview**



Setting: Community Pharmacies

Design: Per patient randomized controlled trial

PATIENTS (All high CV risk)



1. PRIM. PREV. = Primary Prevention; FRS = Framingham Risk Score
2. Risk of CV events calculated using most appropriate risk engine (i.e., UKPDS, International, or Framingham)
3. Billing to Alberta Health, includes New CKD Fee Code.
4. Difference in change in CV risk (from risk engine used at baseline) between intervention and control groups.

# Intervention



## A standard Medication Therapy Management consultation:

- Patient assessment (BP, waist circumference, weight and height measurements)
- Lab assessment of HbA1c, lipids and kidney function
- Individualized CVD risk calculation and education about this risk (web-based graphic CV risk calc.)
- Treatment recommendations, prescription adaptation, and prescribing as appropriate to meet treatment targets as per latest Canadian practice guidelines
- Regular follow-up every 3-4 weeks for 3 months

# Usual Care



- Usual pharmacy/physician care with no specific interventions or follow-up for 3 months
- At the end of follow-up, patients crossed over to receive intervention

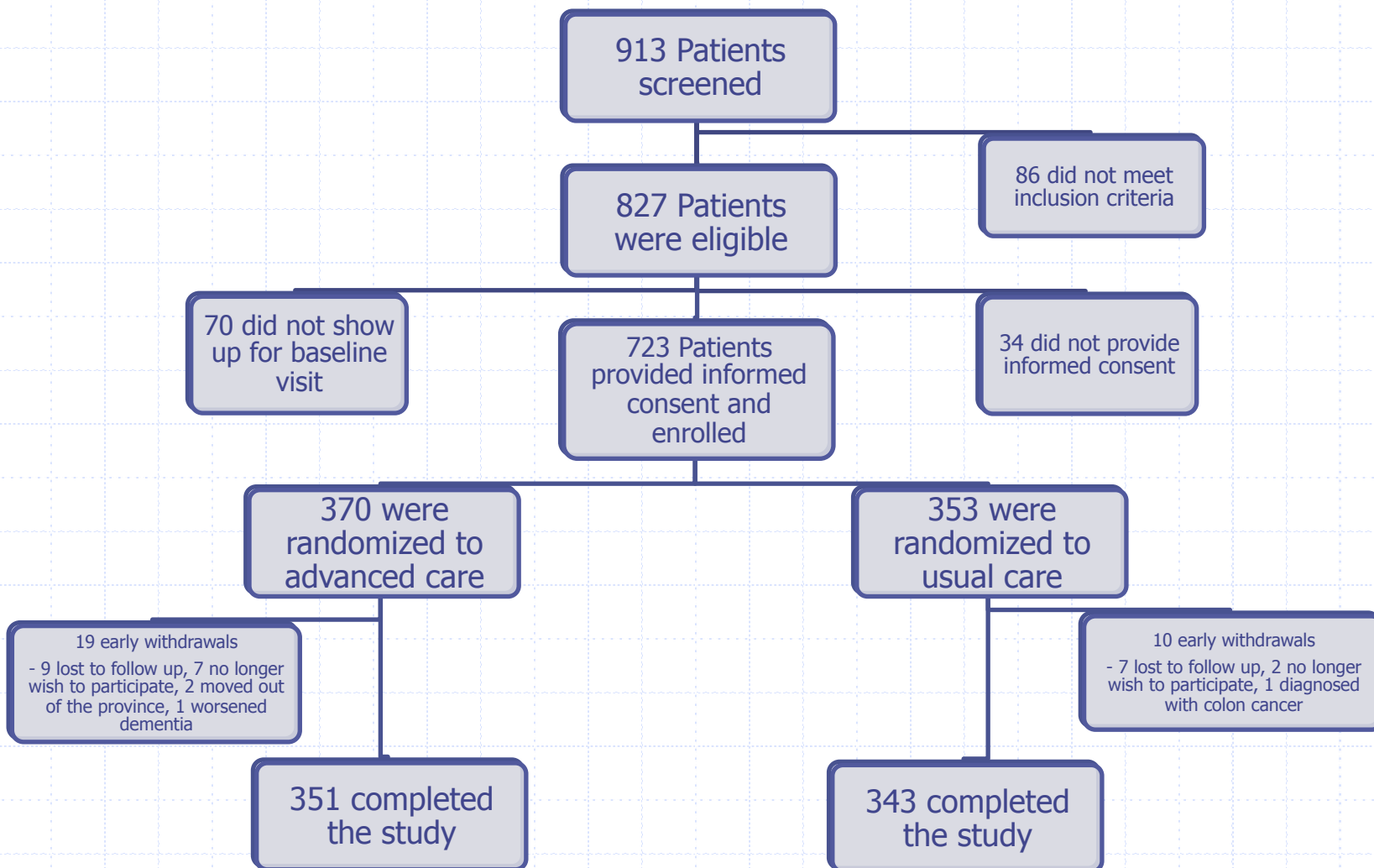
# Outcomes



## Primary outcome:

- Difference in estimated risk for cardiovascular events between intervention and usual care groups
  - Risk for future cardiovascular events was calculated using validated risk engines (UKPDS, International, Framingham)
- Secondary outcomes: change in individual risk factors

# Results



# Results: Demographics

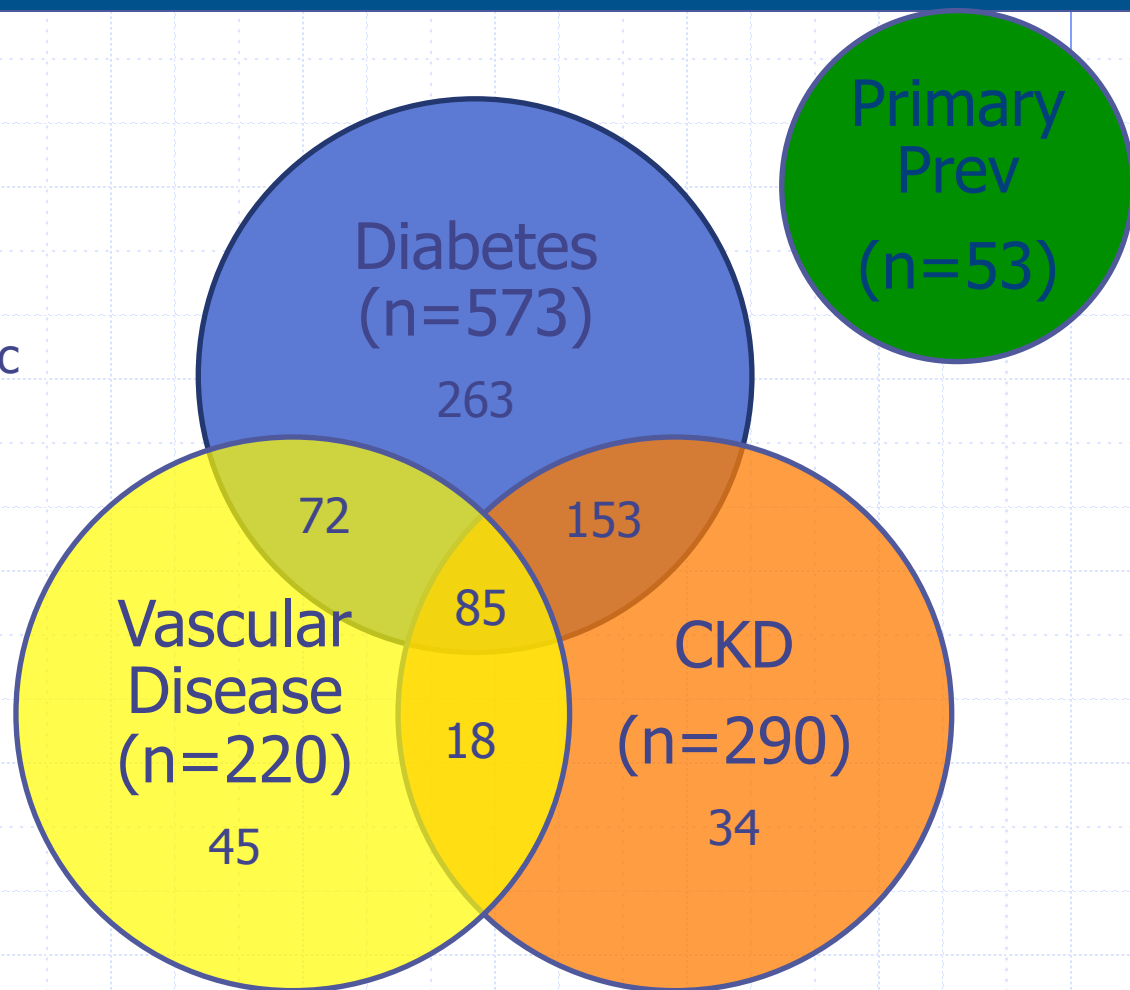


Age: 62y (SD12)

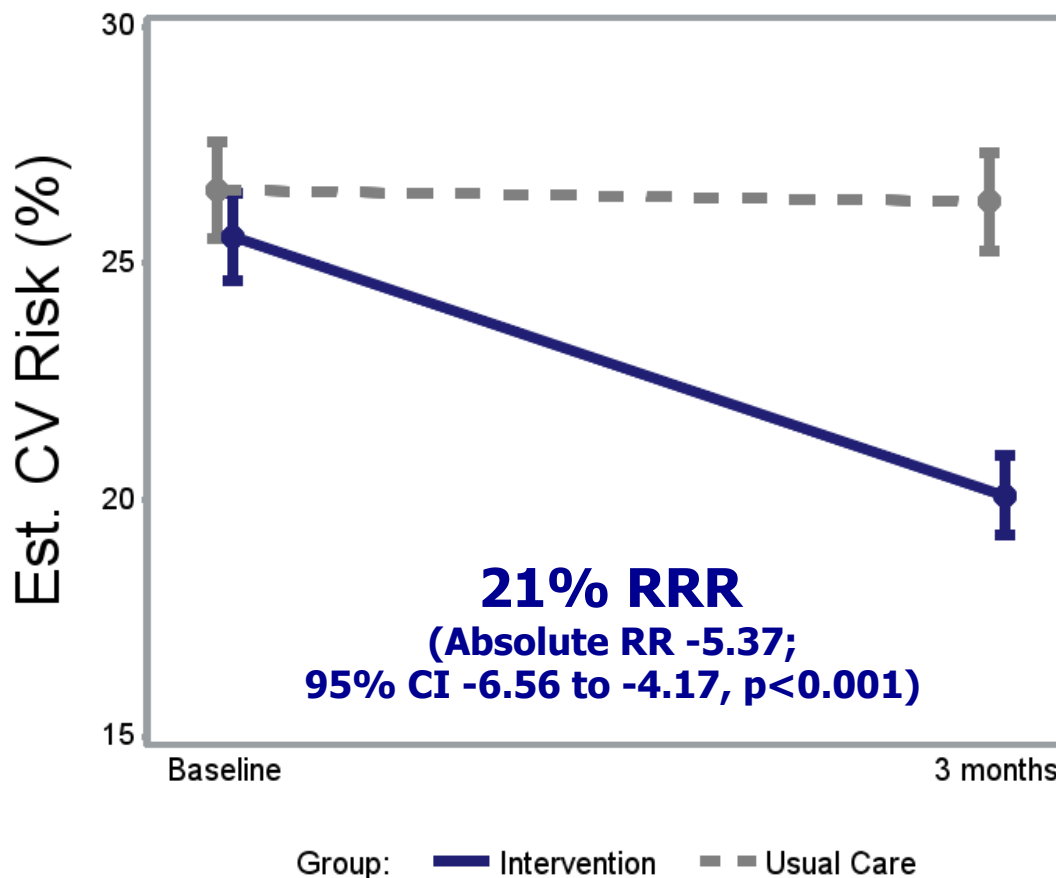
Male: 58%

Study Qualification:

- 79% uncontrolled HbA1c
- 72% uncontrolled BP
- 58% uncontrolled LDL
- 27% current smokers

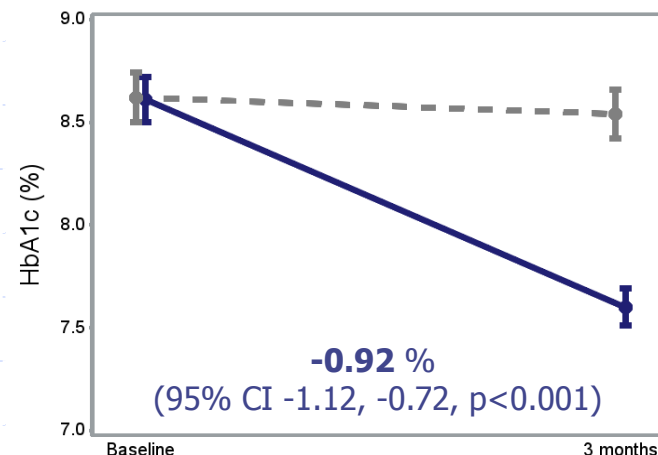
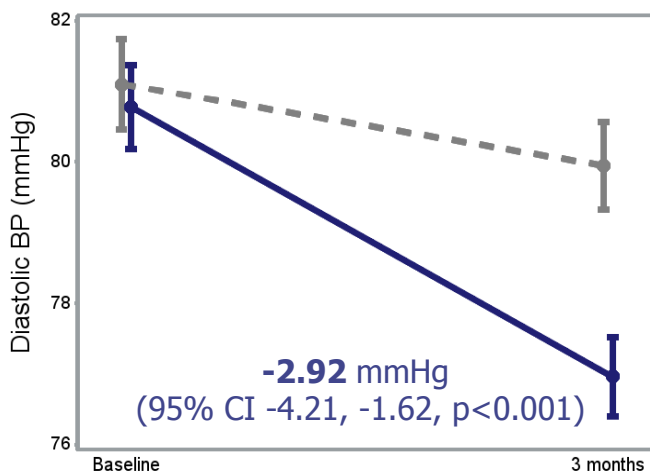
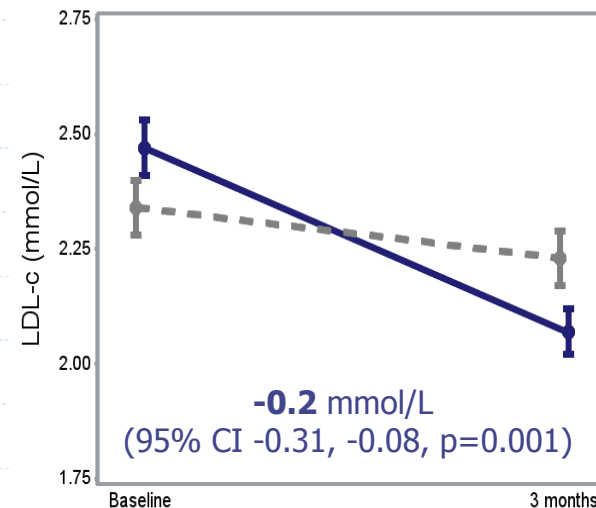
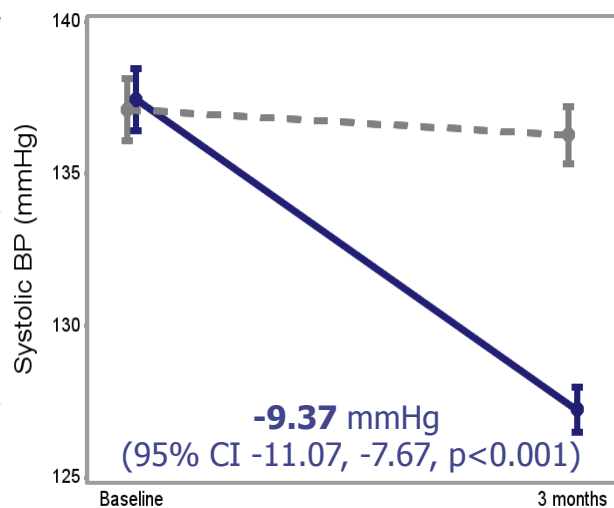


# Primary Outcome: Change in Risk of Cardiovascular Events

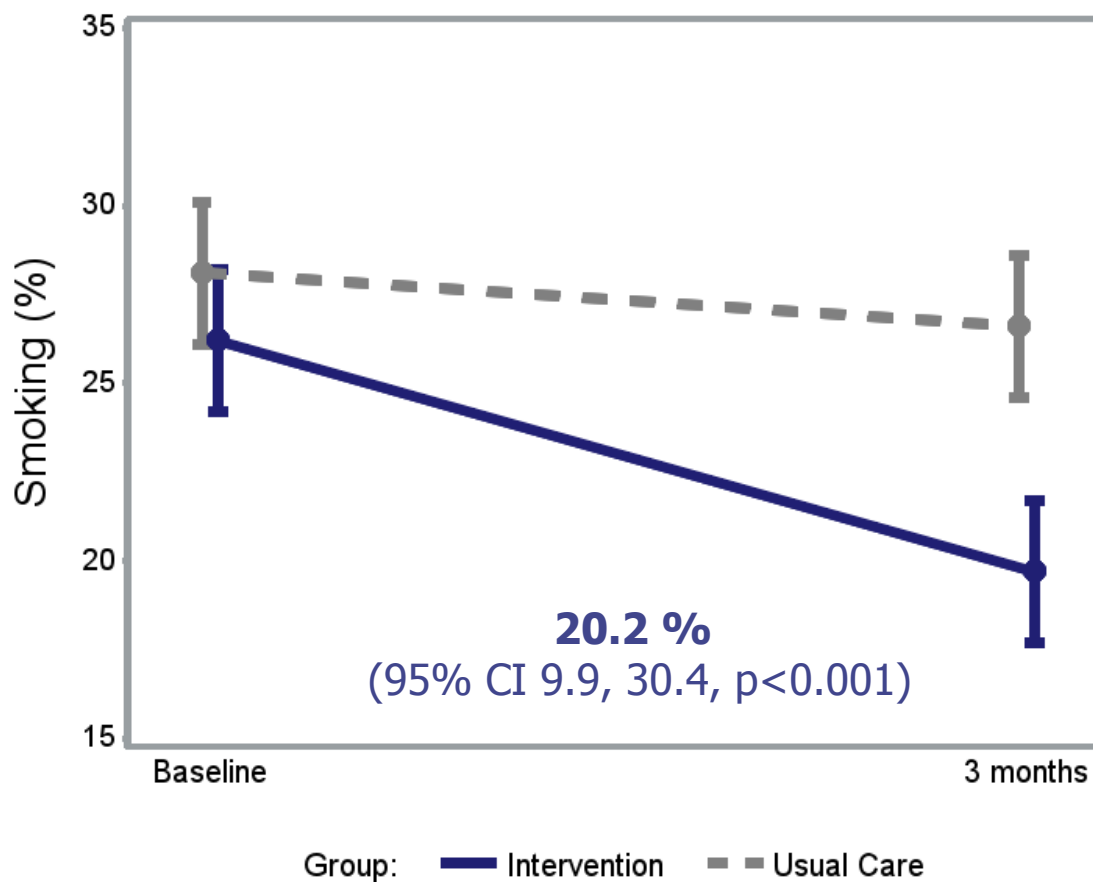


All differences adjusted for baseline values using ANCOVA

# Secondary Outcomes: Individual Risk Factors



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# Conclusions



- A community pharmacist case-finding and intervention program reduced the estimated risk for cardiovascular events by 21% in 3 months
  - Improvements in all major risk factors
- A new paradigm for community-based CV risk reduction
  - Complementary to, and in collaboration with, physician care
  - High patient satisfaction
  - Could have an additional 450,000 accessible primary care providers
- Acknowledgements:
  - Funders: Alberta Health; Cardiovascular Health and Stroke Strategic Care Network of Alberta Health Services; Merck (for educational resource development)
  - EPICORE Centre (data management)
  - Pharmacist Investigators