

# CHANGE-Rx: Frailty, Falls, Polypharmacy, and Inappropriate Medication Use in a Canadian Cohort of People Aged 65 and Older Living With HIV

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## Background

### Who?

- Older patients (≥65 years) living with HIV

### ↑ risk for comorbidities:

- Neurocognitive effects, falls and frailty.

### Associated with ↑ risk of negative outcomes:

- Polypharmacy (≥5 non-ARV medications)
- Severe polypharmacy (≥10 non-ARV medications)
- Potentially inappropriate medications (PIMs)
- Anticholinergic and sedative burden

### Objective:

- We aimed to characterize the prevalence of polypharmacy, PIMs, anticholinergic/sedative burden, frailty/falls in a Canadian cohort of older people with HIV.

### Cohort:

- Correlates of Healthy Aging in Geriatric HIV (CHANGE-HIV), a longitudinal Canadian cohort of people with HIV aged ≥65 years

### Variables:

- Polypharmacy, severe polypharmacy and PIMs (Beers and STOPP criteria).
- Anticholinergic burden (ACB) → combination of Anticholinergic Cognitive Burden scale and German Anticholinergic Burden Scale (GABS). Cumulative score of ≥3 = high burden.
- Sedative burden (SB) → Anticholinergic and Sedative Burden Catalog (ACSBC). Cumulative score of ≥3 = high burden.
- Frailty → Fried Frailty Phenotype; Falls → Self-reported.
- Medication complexity → Medication Regimen Complexity Index (MRCI).

### Statistics:

- Chi-Square T-test to compare % of patients with falls or frailty depending on potential risk factors: frailty, falls, recurrent falls (≥2 within 6 months), high ACB, high SB, polypharmacy, severe polypharmacy and PIMs.
- Multivariate logistic regression analysis to assess the association with medication and falls/frailty.

Table 1. Baseline Characteristics

Characteristics (N=440 <sup>a</sup> )		n (%) <sup>a</sup>
Age (years)	Median (range)	69 (65-89)
Sex at birth	Male	403 (91.6)
Ethnicity (n=439)	Black	55 (12.5)
	White	333 (75.6)
	Other	51 (11.6)
Virally Suppressed	Percentage	99.5%
Years since HIV diagnosis (N=425)	Median (range)	26.0 (0-41)
CD4 Nadir (N=367)	Median (range)	200 (0-1354)
Comorbidities (N=437)	Median (range)	5 (0-14)
	Frailty (n=429)	Pre-Frail
	Frail	71 (16.1)
Falls (last 6 months)	1 fall (n=429)	88 (20.5)
	Recurrent Falls (≥2) (n=88)	36 (8.2)
<b>Medications</b>		
Non-ARV Meds	Median/person (range)	5 (0-26)
OTC/NHP + Non-ARV meds	Median/person (range)	7 (0-28)
Polypharmacy (N=431)	Polypharmacy (≥5 meds)	232 (53.8)
	Severe polypharmacy (≥10 meds)	63 (14.6)
Potentially Inappropriate Medications (PIMs)	Average #/person (range)	0.85 (0-7)
	No PIMs	219 (50.8)
Of those with PIMs (N=213)	1 PIM	124 (58.2)
	2 PIMs	48 (22.5)
	≥3 PIMs	40 (18.8)
Anticholinergic Burden (ACB) (N=431)	No high ACB	360 (83.5)
	High ACB (total score: ≥3)	71 (16.5)
Sedative Burden (SB) (N=431)	No high SB	191 (44.3)
	High SB (total score: ≥3)	240 (55.7)

<sup>a</sup>unless indicated otherwise, if N ≠ 440, percentages use new N as total population to account for missing data

## Methods

Figure 1: Comparison of prevalence of frailty in those with or without potential risk factors (N=429)

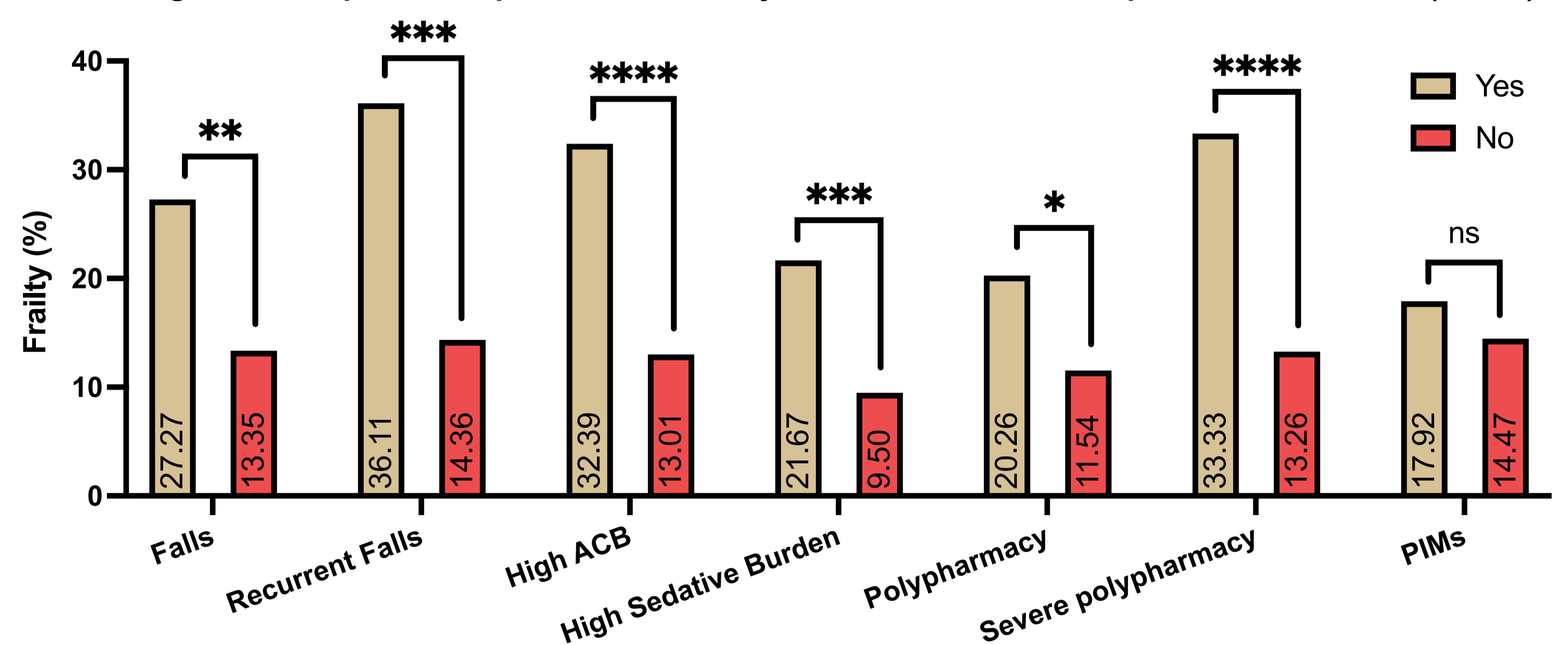
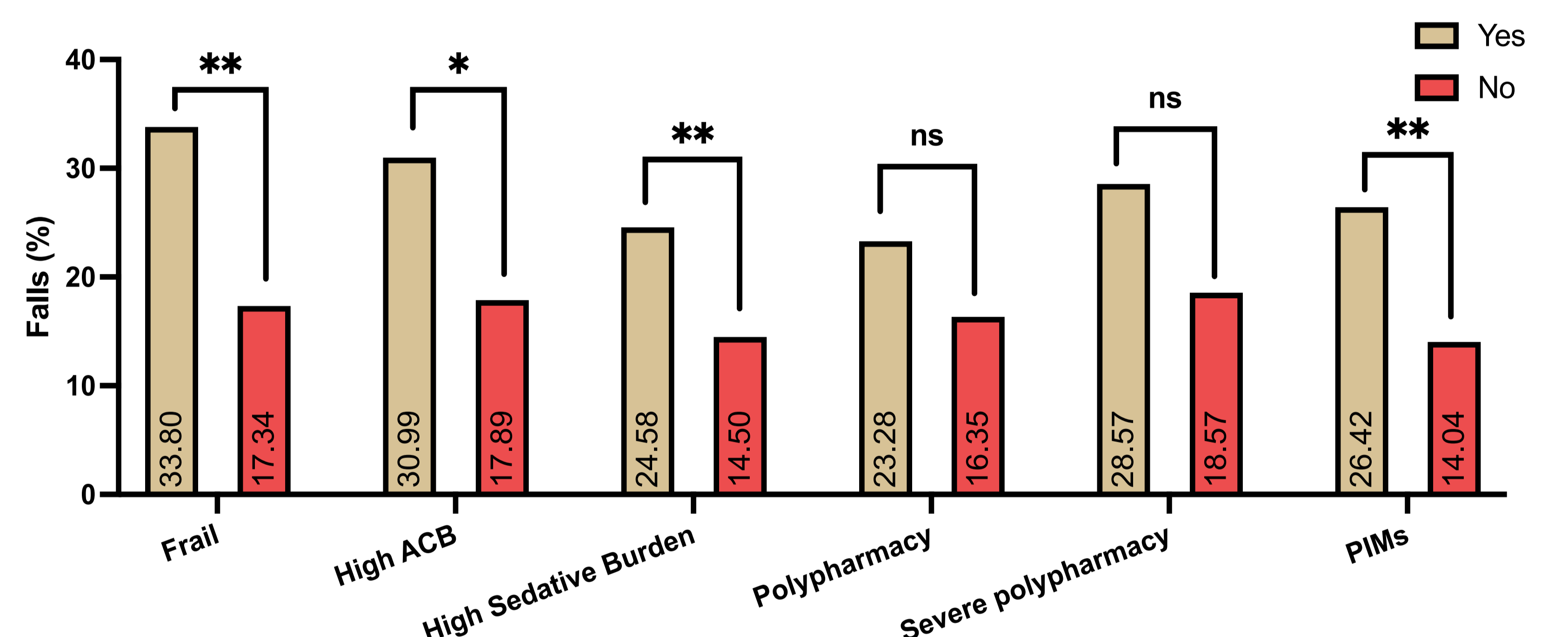


Figure 2: Comparison of incidence of falls in the last 6 months in those with or without potential risk factors (N=429)



Legend: ns = P ≥ .05, \* = P < .05, \*\* = P < .01, \*\*\* = P < .001, \*\*\*\* = P < .0001

## Results

- Polypharmacy was prevalent in 53% of older adults living with HIV with ~50% having at least 1 PIM and ~10% having ≥3 PIMs. PIMs had good concordance between Beers and STOPP. 55% had high SB and 16% had high ACB.

- **Most common PIMs included:** Aspirin for 1<sup>o</sup> prophylaxis, testosterone without an indication, PPIs and benzodiazepines.

- **Higher prevalence of frailty** in patients with falls, recurrent falls, high ACB, high SB, polypharmacy and severe polypharmacy.

- **Higher incidence of falls (past 6 months)** in patients with frailty, high ACB, high SB and PIMs.

### - Association between medication factors and falls/frailty:

- After adjusting for confounders, the odds of **frailty** were **3.3x**, **2.6x** and **2.9x** higher among patients with **high ACB**, **high SB** and **severe polypharmacy**, respectively.
- After adjusting for confounders, the odds of having **falls in the last 6 months** were **1.9x** and **1.8x** higher among patients with **high SB** and **≥1 PIM**, respectively.

- **Limitations:** retrospective design: possible underreporting of PIMs as missing clinical data to apply STOPP/Beers criteria.

## Conclusion

- Polypharmacy is common among older adults living with HIV in Canada, with many taking PIMs, as well as having high ACB/SB.

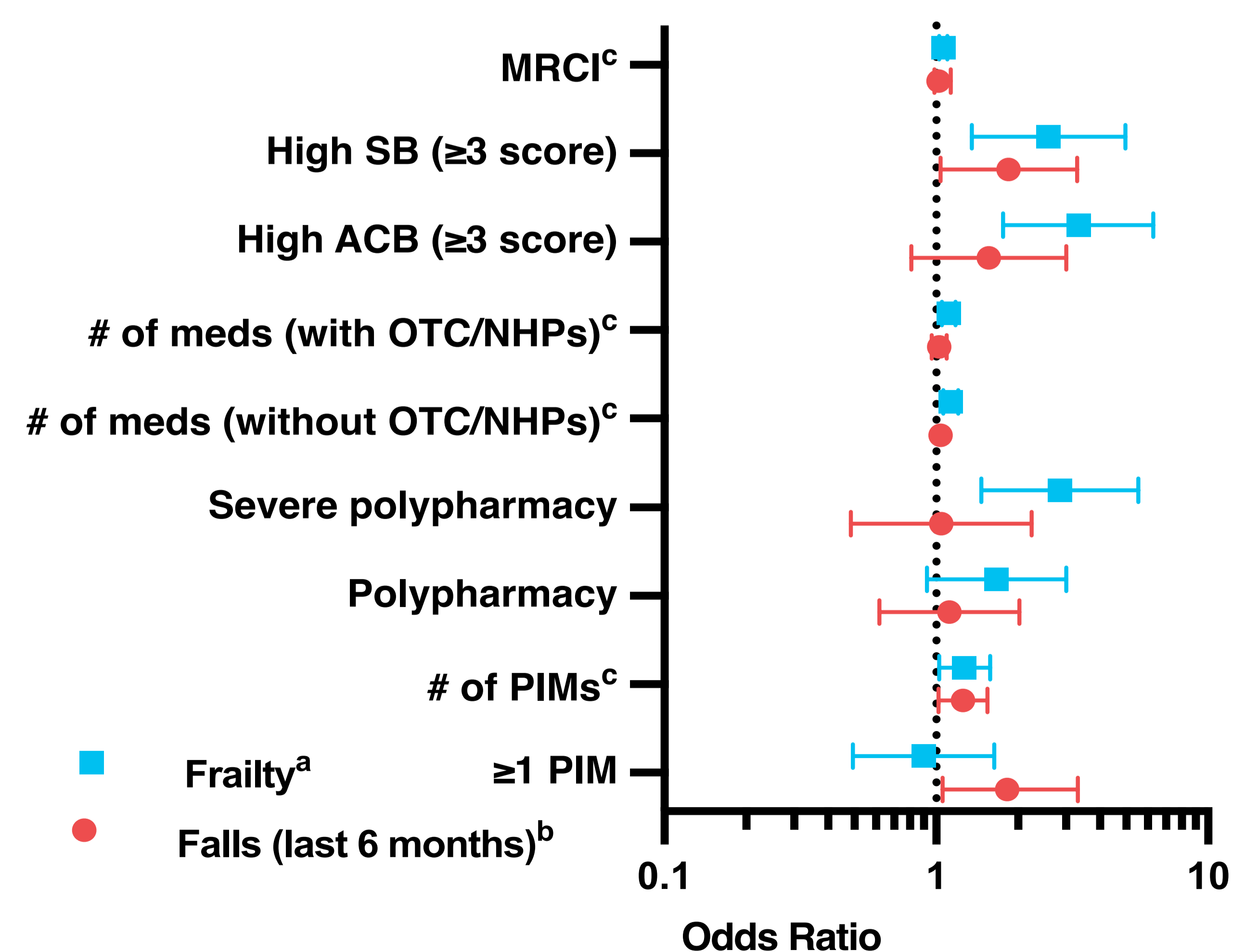
- Various medication-related factors contribute to higher odds of frailty/falls in the last 6 months

- **Interventions to address med-related issues in the aging populations are imperative.**

## Acknowledgements

- Thank you to Reina Bendayan, Olavo Fernandes, Sébastien Landry, Katherine Desforges, Benoît Lemire and others at UHN/MUHC for their support/comments on the project/poster.

Figure 3: Multivariable logistic regression analysis of effect of medication factors on frailty and falls



<sup>a</sup>Multivariable logistic regression analysis adjusted for age (years), sex at birth, number of comorbidities, falls in the last 6 months, time since HIV diagnosis (years), CD4+ nadir (cells/mm<sup>3</sup>), current smoker status, daily alcohol intake.

<sup>b</sup>Multivariable logistic regression analysis adjusted for age (years), sex at birth, number of comorbidities, frailty, time since HIV diagnosis (years), CD4+ nadir (cells/mm<sup>3</sup>), current smoker status, daily alcohol intake.

<sup>c</sup>variables are continuous, odds ratios are for each increase of 1