

## OBJECTIVES

Persons with complex healthcare needs, such as those with disabilities or complex chronic conditions, experience challenges in accessing quality primary health care. There is a gap in the literature with respect to understanding the extent to which the level of disability and multi-morbidity influence preventive health services such as breast cancer screening.

This study aims:

- To describe the rates of breast cancer screening by level of disability and multi-morbidity in Ontario using survey data
- To compare screening rates by level of disability and multi-morbidity

## DATA SOURCES & STUDY POPULATION

Data sources included but were not limited to:

- Canadian Community Household Survey (CCHS)
- Ontario Health Insurance Plan (OHIP) claims
- Ontario Breast Screening Program (OBSP)

Study population was selected from the CCHS cycles 2005 and 2007/2008 and included all eligible Ontario residents who met the following criteria:

- females aged 50 to 69 years during observation window
- answered the CCHS Participation and Activity Limitation (RACDPAL) questions

The CCHS cohorts were then linked to Ontario administrative data with the following exclusion criteria:

- invalid unique identifier number
- not alive in two year observation window
- not a resident of Ontario
- ineligible for OHIP services
- diagnosis of an invasive breast cancer prior to the end of the observation window
- prior bilateral mastectomy

## MEASURES & ANALYSIS

### Measures

- Socio-demographics:** Age, cultural background, education, number of chronic conditions, household income, geography (Rurality Index of Ontario), neighbourhood income quintiles
- Disability:** The RACDPAL item in the CCHS was used to define disability: 'No' disability (RACDPAL=never), 'Yes' disability (RACDPAL=often or sometimes). 'Yes' disability was further subdivided into 'moderate' disability (RACDPAL= sometimes) and 'severe' disability (RACDPAL=often).
- Breast Cancer Screening:** We used fee codes to identify services for mammography imaging. Screening rates were examined for a two year period as per provincial guidelines.

### Analyses

- Univariate and bivariate analyses, multivariate logistic regression modeling

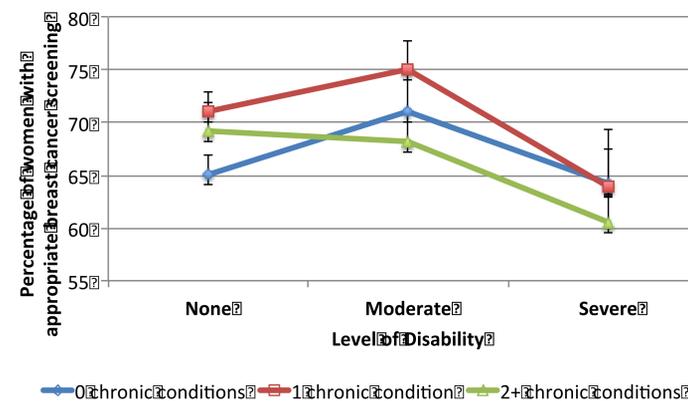
## RESULTS

**Table 1: Demographics by level of disability**

		No Disability (n= 5,703)	Yes Disability (n= 4,660)
<b>Total cohort N=10,363</b>		n (%)	n (%)
<b>Age*</b>	Mean ± SD	58.9 ± 5.5	59.4 ± 5.5
	50-59	3,105(54.4)	2,391(51.3)
	60-69	2,598 (45.6)	2,269(48.7)
<b>Country of Birth*</b>	Canada	4,272 (74.9)	3,702 (79.4)
	Other	1,315 (23.1)	877 (18.8)
<b>Education*</b>	Less than secondary	952 (16.7)	1,011 (21.7)
	Secondary/Some post	1,637 (28.7)	1,152 (24.7)
	Post secondary	3,096 (54.3)	2,481 (53.2)
<b>Household Income*</b>	\$30,000	972 (17.0)	1,337 (28.7)
	\$30,000 to \$59,999	1,756 (30.8)	1,420 (30.5)
	\$60,000 to \$99,999	1,348 (23.6)	935 (20.1)
	\$100,000 +	1,061 (18.6)	555 (11.9)
<b>Marital Status</b>	Married/Common Law	3,841 (67.4)	2,791 (59.9)
	Widowed/Single	1,009 (17.7)	939 (20.2)
	Separated/Divorced	850 (14.9)	927 (19.9)
<b>Chronic Condition*</b>	0	2,750 (48.2)	855 (18.3)
	1	1,956 (34.3)	1,533 (32.9)
	2 +	997 (17.5)	2,272 (48.8)
<b>Physician visits*</b>	Mean ± SD	16.2 ± 17.1	25.1 ± 22.8
	Median (IQR)	12 (6-21)	19 (10-33)

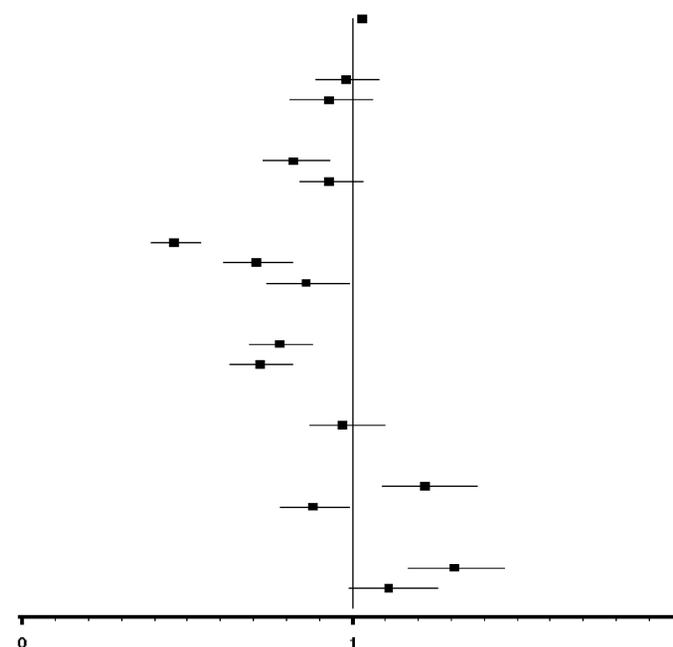
\*Statistically significant, p<0.001

**Figure 1: Screening rates by disability and conditions**



**Figure 2: Adjusted odds ratios and 95% confidence intervals for breast cancer screening**

VARIABLES	AOR [95% CI]
<b>Age</b>	1.03 [1.02-1.04]
<b>Rurality Index</b>	
Small urban vs. large urban	0.98 [0.89-1.08]
Rural vs. large urban	0.93 [0.81-1.06]
<b>Education</b>	
Less than secondary vs. post-secondary	0.82 [0.73-0.93]
Secondary vs. post-secondary	0.93 [0.84-1.03]
<b>Household Income</b>	
<\$30,000 vs. \$100,00+	0.46 [0.39-0.54]
\$30-59,999 vs. \$100,00+	0.71 [0.61-0.82]
\$60-99,999 vs. \$100,00+	0.86 [0.74-0.99]
<b>Marital Status</b>	
Widowed/single vs. married/common-law	0.78 [0.69-0.88]
Separated/divorced vs. married/common-law	0.72 [0.63-0.82]
<b>Country of Birth</b>	
Canada vs. other	0.97 [0.87-1.1]
<b>Disability</b>	
Moderate vs. no disability	1.22 [1.09-1.38]
Severe vs. no disability	0.88 [0.78-0.99]
<b>Chronic Conditions</b>	
1 vs. 0 conditions	1.31 [1.17-1.46]
2+ vs. 0 conditions	1.11 [0.99-1.26]



## KEY FINDINGS

An inverse V-shaped relationship between level disability and screening across all levels of chronic conditions

- Women with a moderate level of disability or women with one chronic condition had the highest odds of being screened
- Women with severe disability or 2 or more chronic conditions had the lowest odds of being screened.

Screening was lower for women with severe disabilities across all levels of chronic conditions

- 62.0% of women are screened if severe disability

Multiple measures of social vulnerability were also significant predictors of lower screening (e.g., lower income and lower education).

## IMPLICATIONS

Breast cancer screening is important to reduce the morbidity and mortality from breast cancer. This study identified lower breast cancer screening rates for persons with severe disability and multi-morbidity.

Future research is warranted to explore the contexts and mechanisms at the clinical and system setting regarding preventative care for persons with disability and multi-morbidity.

Despite the presence of a universal health insurance system in Ontario, our research highlights the persistence of significant health disparities in breast cancer screening, particularly for women who are more vulnerable due to severe disability, lower income and lower education.

Persons with disability and/or multi-morbidity are entitled to equitable preventive health care services.

## ACKNOWLEDGMENTS

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