

Health Services Utilization and Outcomes: Does ethnicity matter?

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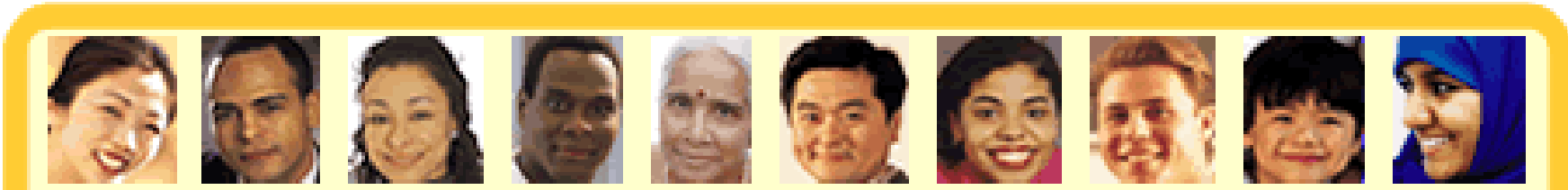
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Nadia Khan, MD MSc

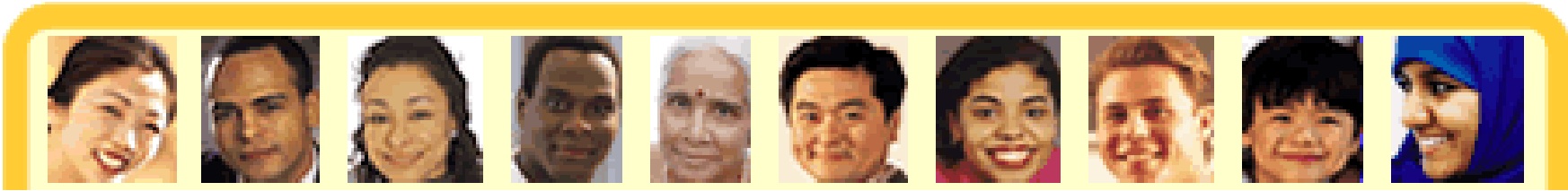
Assistant Professor, University of British Columbia

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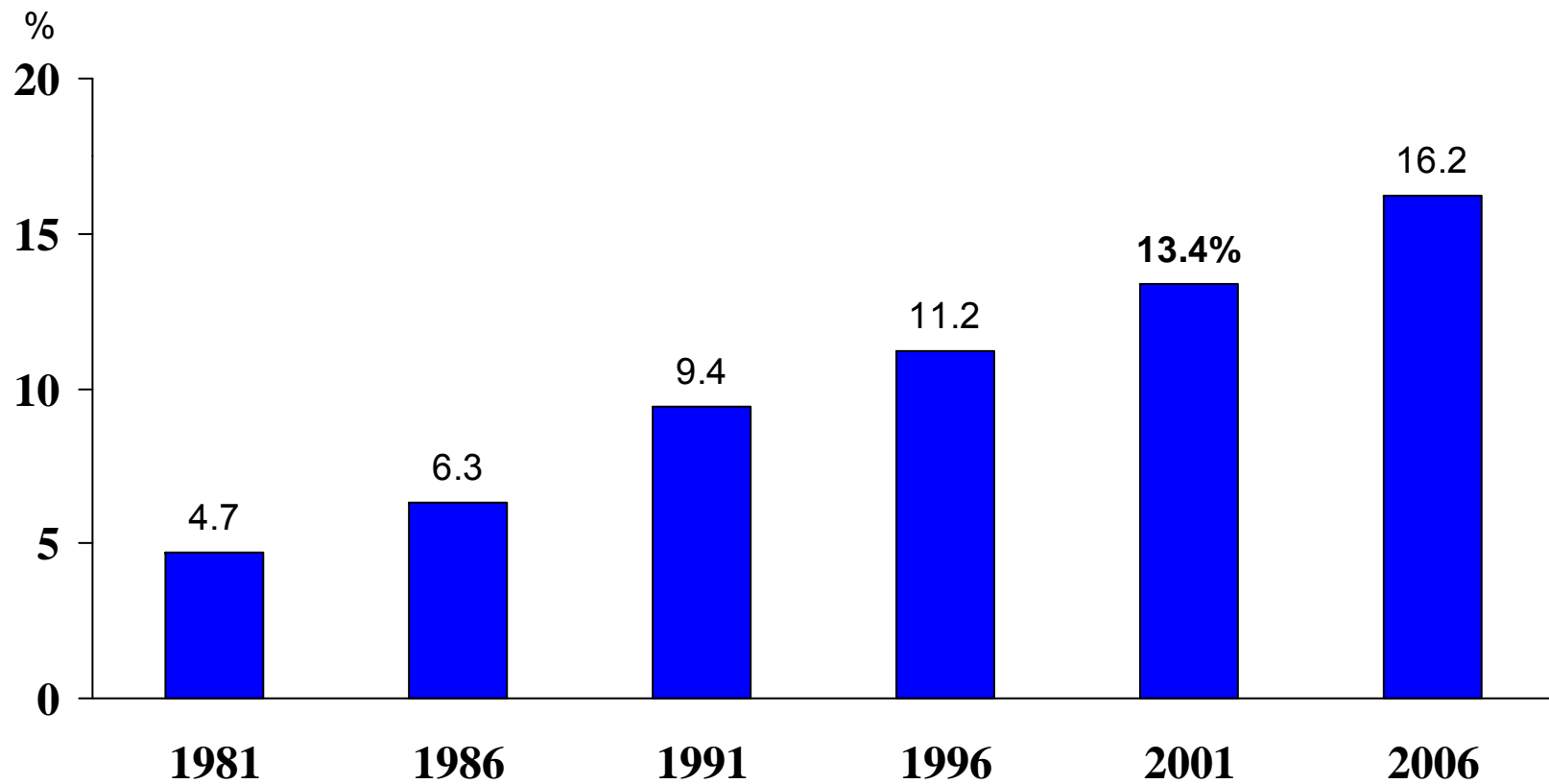
Professor, University of Calgary



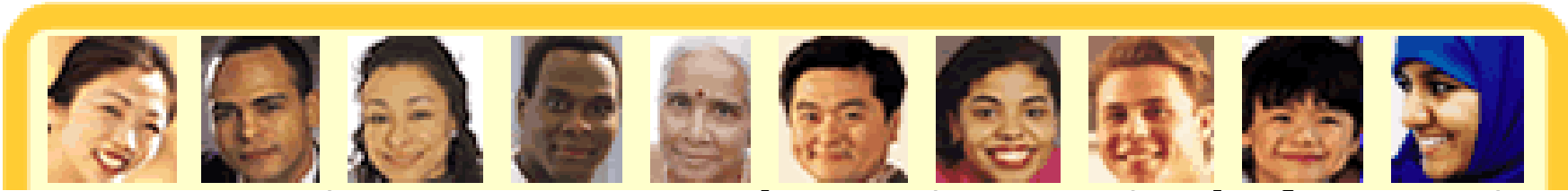
Ethnic Population in Canada



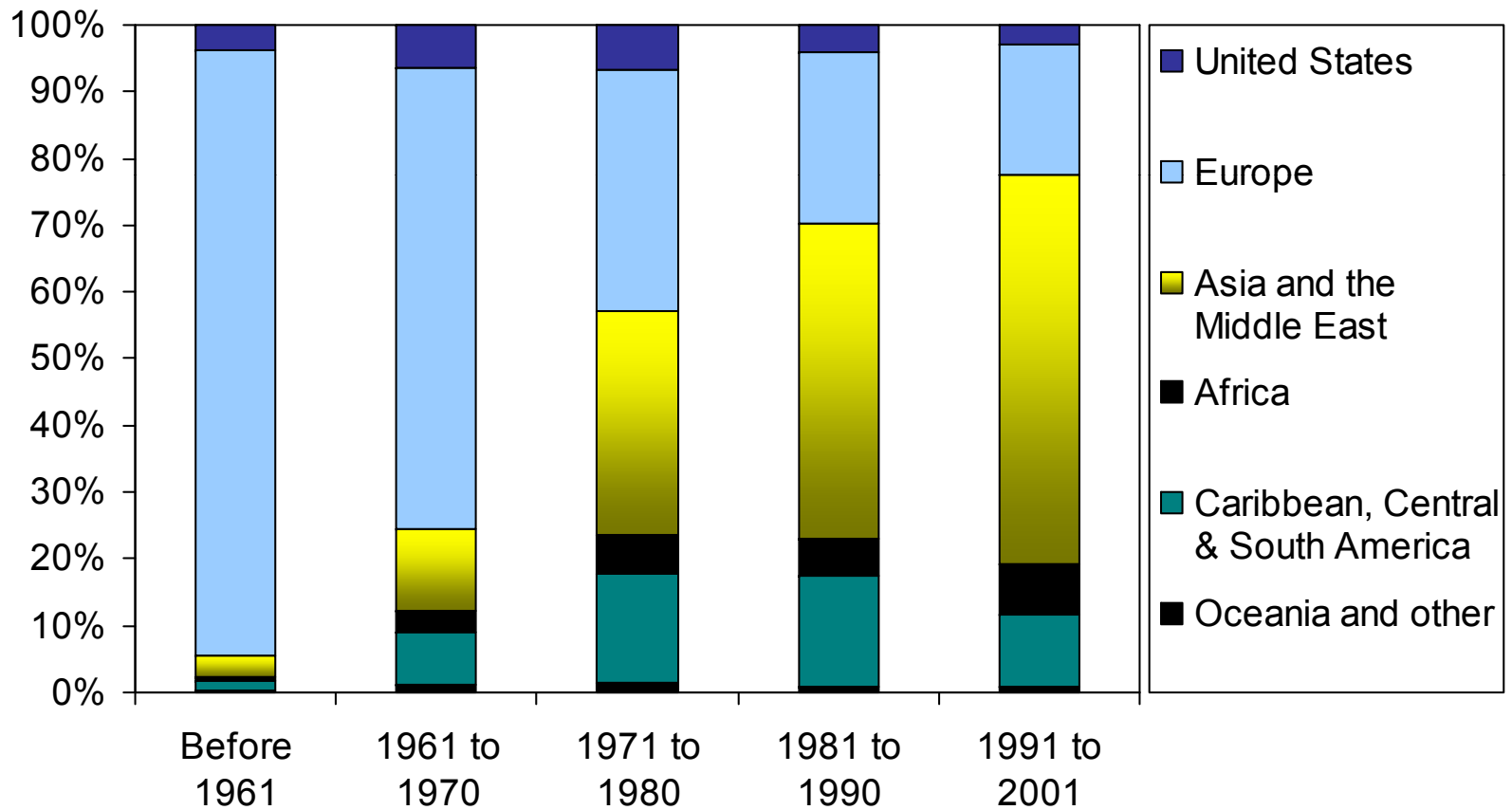
Visible minorities made up 16.2%



Source: Statistics Canada, 1981-2001 Censuses

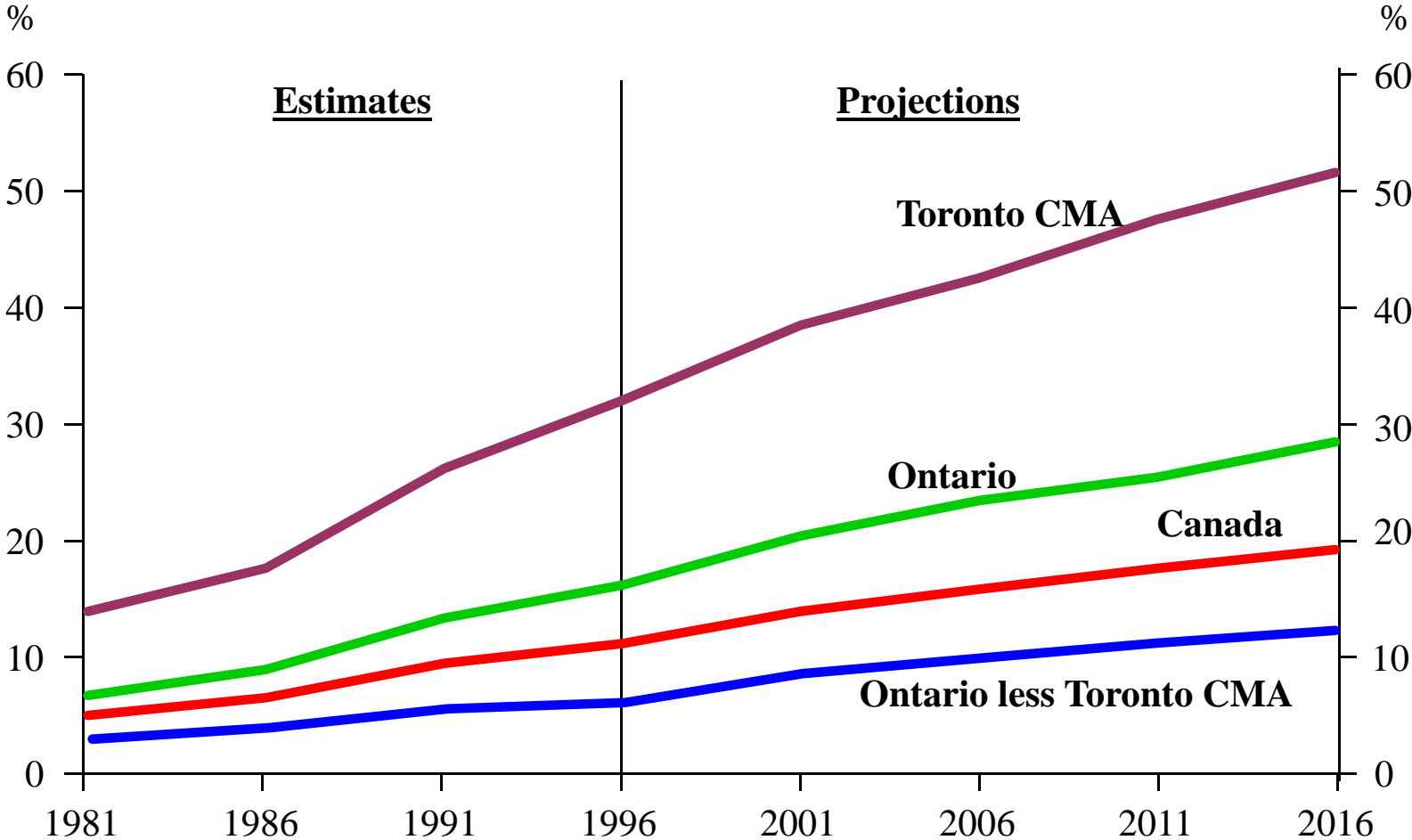


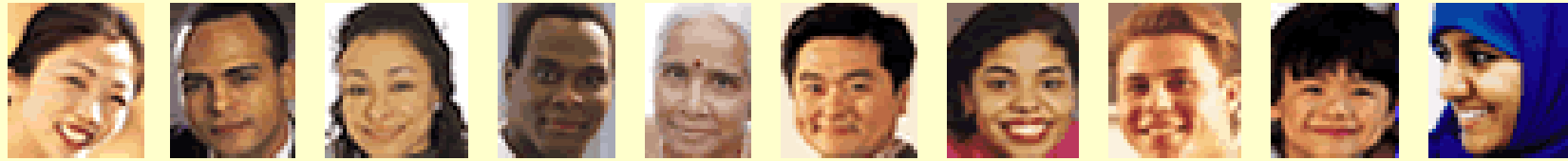
Immigrants to Canada are increasingly from Asia and the Middle East



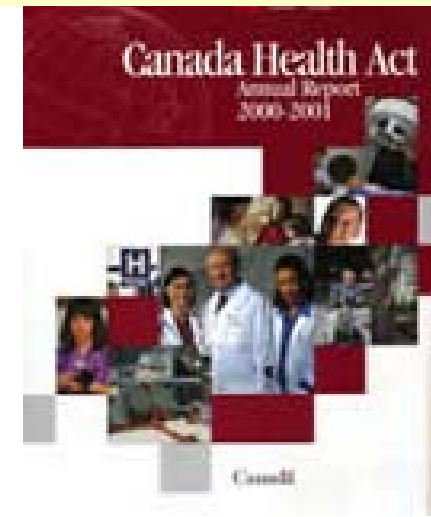
Source: Statistics Canada, 2001 Census

Visible minority populations continue to grow





Objective of Canada Health Act



To ensure that all residents of Canada have reasonable access to medically necessary insured services without direct charges.

Ethnicity/Race

An ethnic group shares common traits.

Cultural

Linguistic

Religious

Behavioral

Race usually refers to categorization of humans into groups based on various heritable characteristics.

Methods

- Self-report
- Other assigned
- Surname methods
- Geographic methods – Country of birth

Census

	1991	1996	2001
Question	“To which ethnic or cultural group(s) did this person’s ancestors belong?”		
Format	15 categories. <ul style="list-style-type: none">• French• English• German• Scottish• Italian• Irish• Ukrainian• Chinese	24 categories <ul style="list-style-type: none">• French• English• German• Scottish• Canadian• Italian• Irish• Chinese	25 categories <ul style="list-style-type: none">• Canadian• French• English• Chinese• Italian• German• Scottish• Irish

NPHS/CCHS

To which ethnic or cultural group(s) did your ancestors belong?

19 categories

- Canadian
- French
- English
- German
- Scottish
- Irish
- Italian
- Ukrainian
- Dutch
- Chinese

People living in come from many different cultural and racial backgrounds. Are/is... you/he/she?

13 categories

- White
 - Chinese
 - South Asian (e.g. East Indian, Pakistani, Sri Lankan, etc.)
 - Black
 - Filipino
 - Latin American
 - Southeast Asian (e.g., Cambodian, Indonesian, Laotian, Vietnamese, etc.)
-

Other Countries

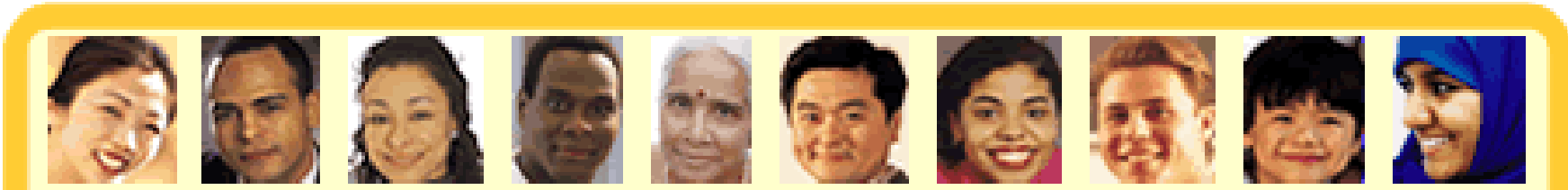
US	UK	New Zealand
White American Indian Asian Black Hispanic	White Black Caribbean Black African Black other Indian Pakistani Bangladeshi Chinese	European Maori Samoan Cook Island Maori Tongan Niuean Chinese Indian

Agreement between surname and self-report for Chinese

Surname list	Prevalence	Sensitivity	PPV	Specificity	NPV
Hage et al.	1.2	56.2	75.5	99.7	99.3
Choi et al. for male	1.4	65.4	83.4	99.8	99.4
Choi et al. for female	0.9	50.2	79.9	99.8	99.3
Lauderdale et al.	1.2	67.6	87.8	99.8	99.5
Tjam	1.8	68.9	60.8	99.3	99.5
Quan et al.	1.5	77.7	80.5	99.7	99.6

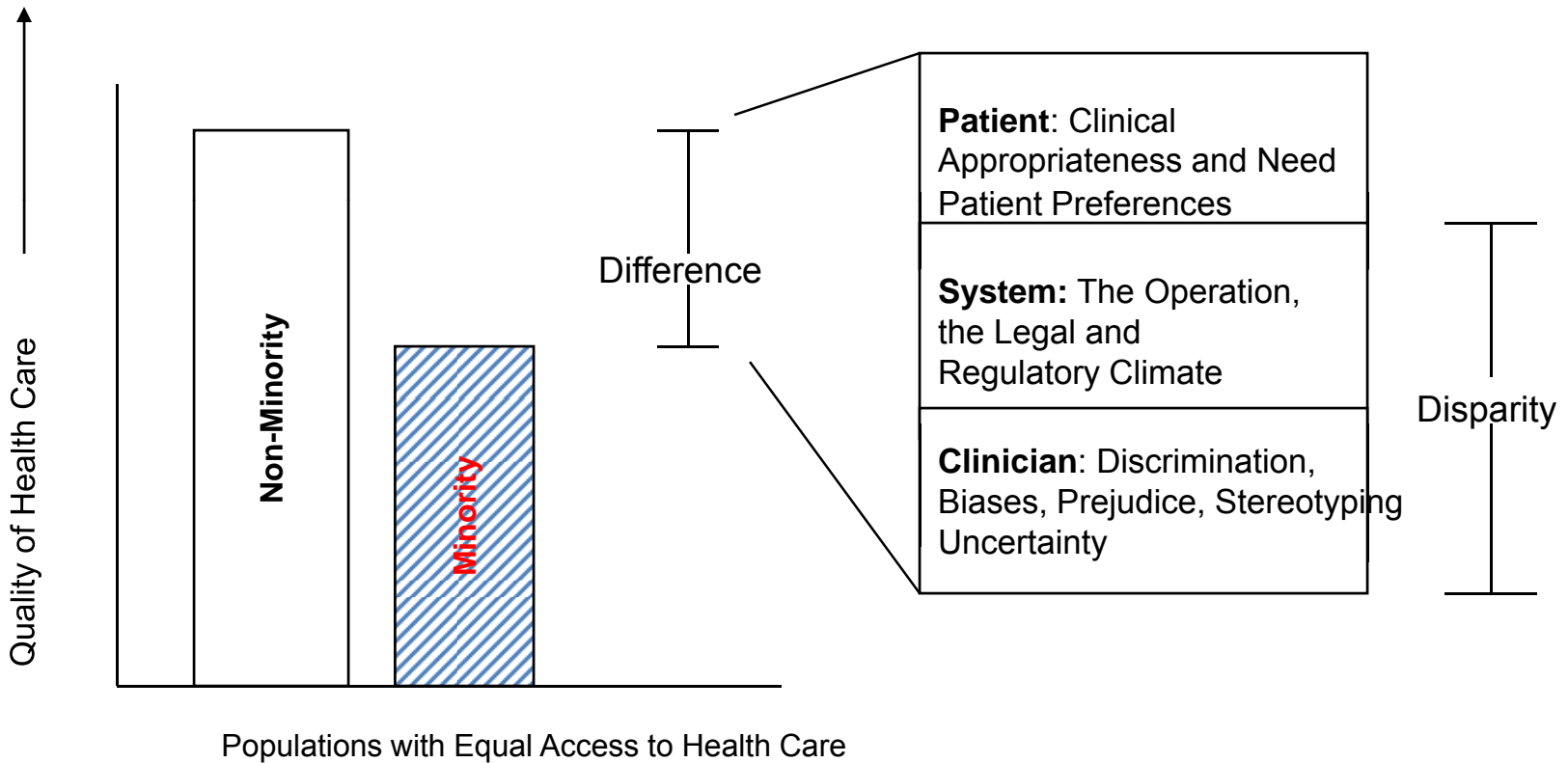
If you were admitted to a hospital, would you feel comfortable having your ethnic or cultural background recorded in hospital charts?

Total		84.8	
Age	18 to 34	86.2	0.283
	35 to 64	83.8	
	65 or over	85.1	
Sex	Male	83.0	0.036
	Female	85.9	
Birth place:	Canada	86.2	<0.001
	Other	80.3	
Ethnicity	White	85.3	0.207
	Asian	80.9	
	Aboriginal	88.5	
	Others	85.1	

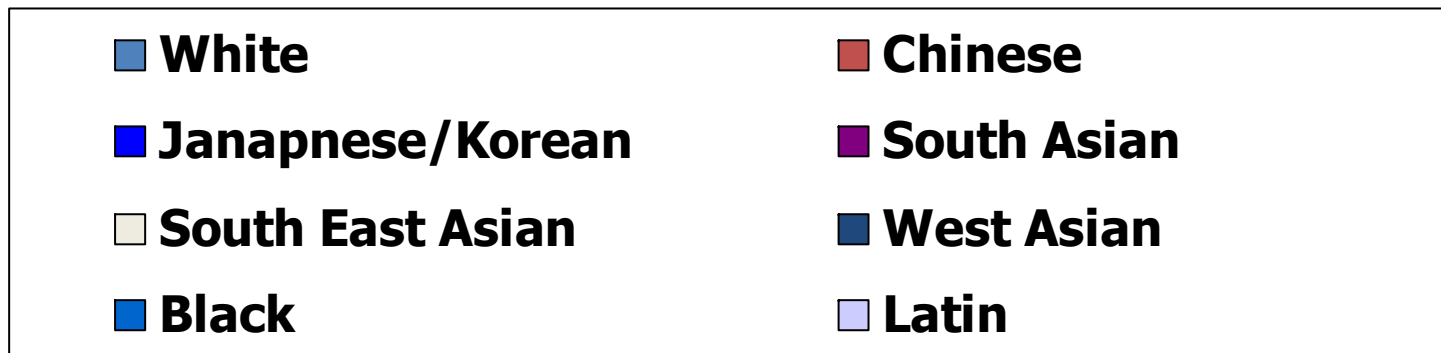
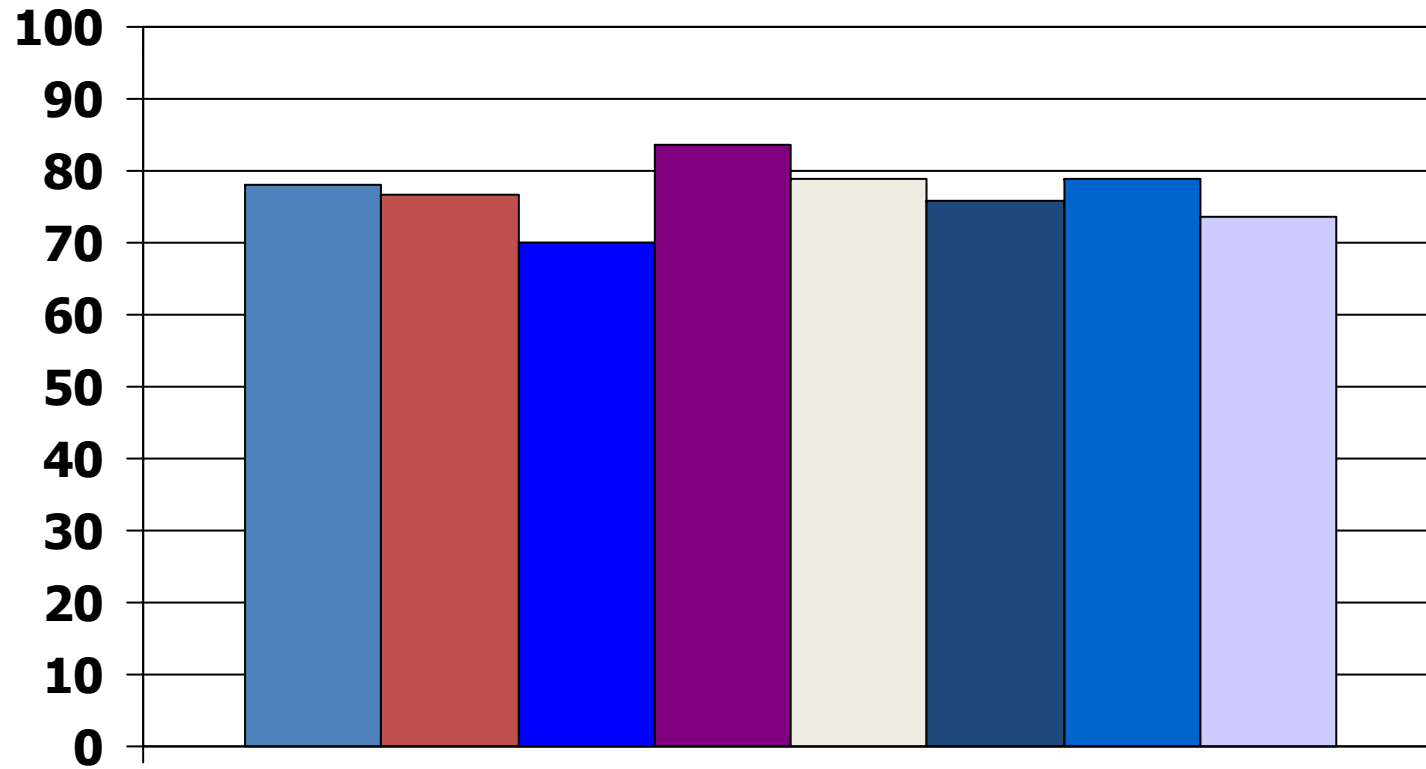


Health Services Access and Utilization

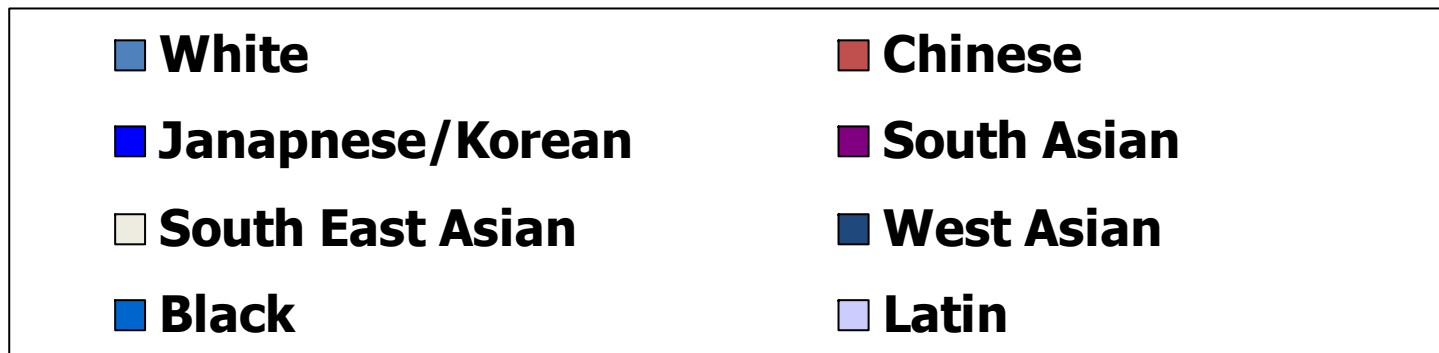
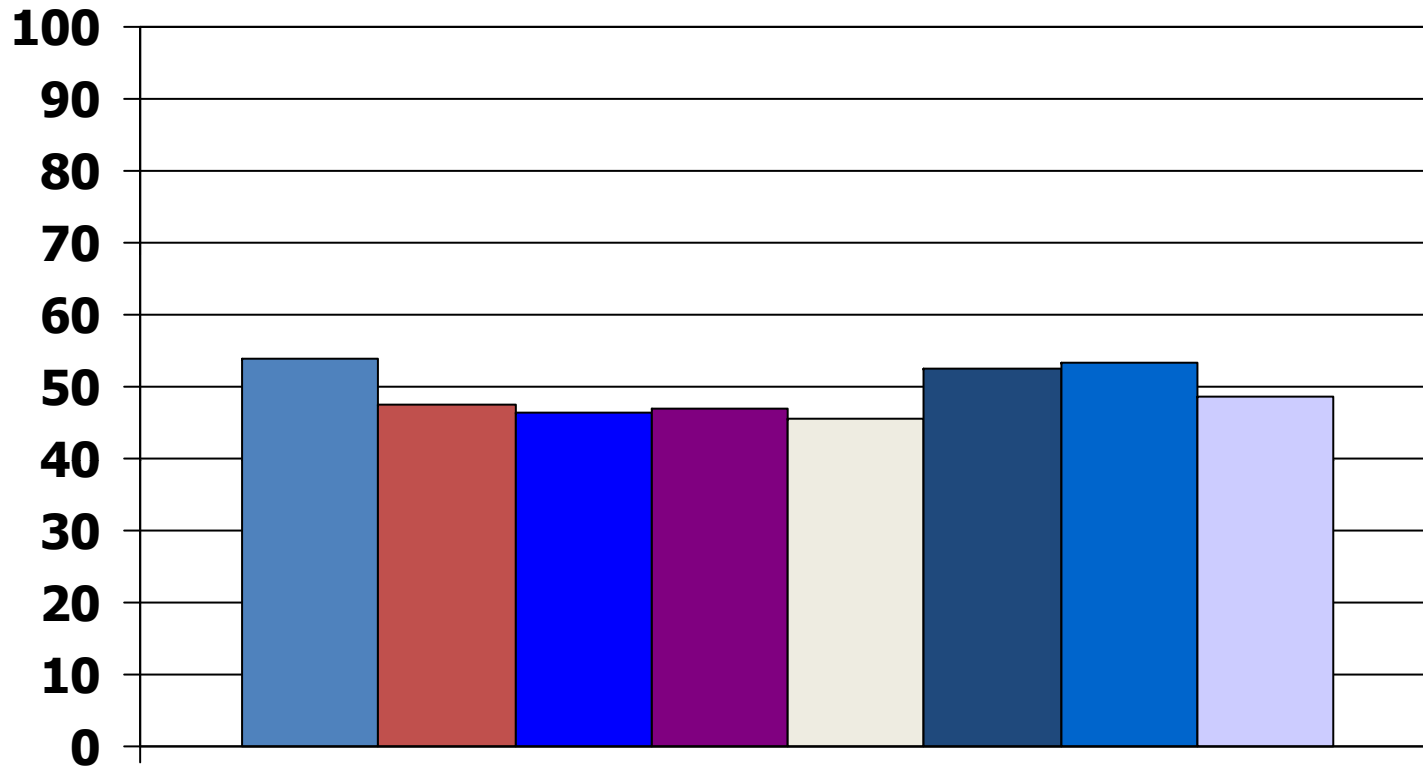
Differences, Disparities, and Discrimination: Populations with Equal Access to Health Care



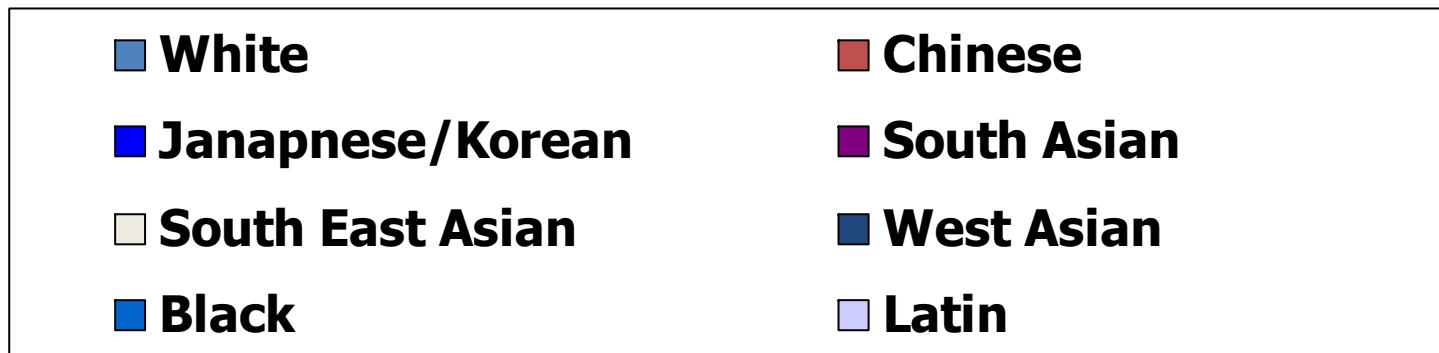
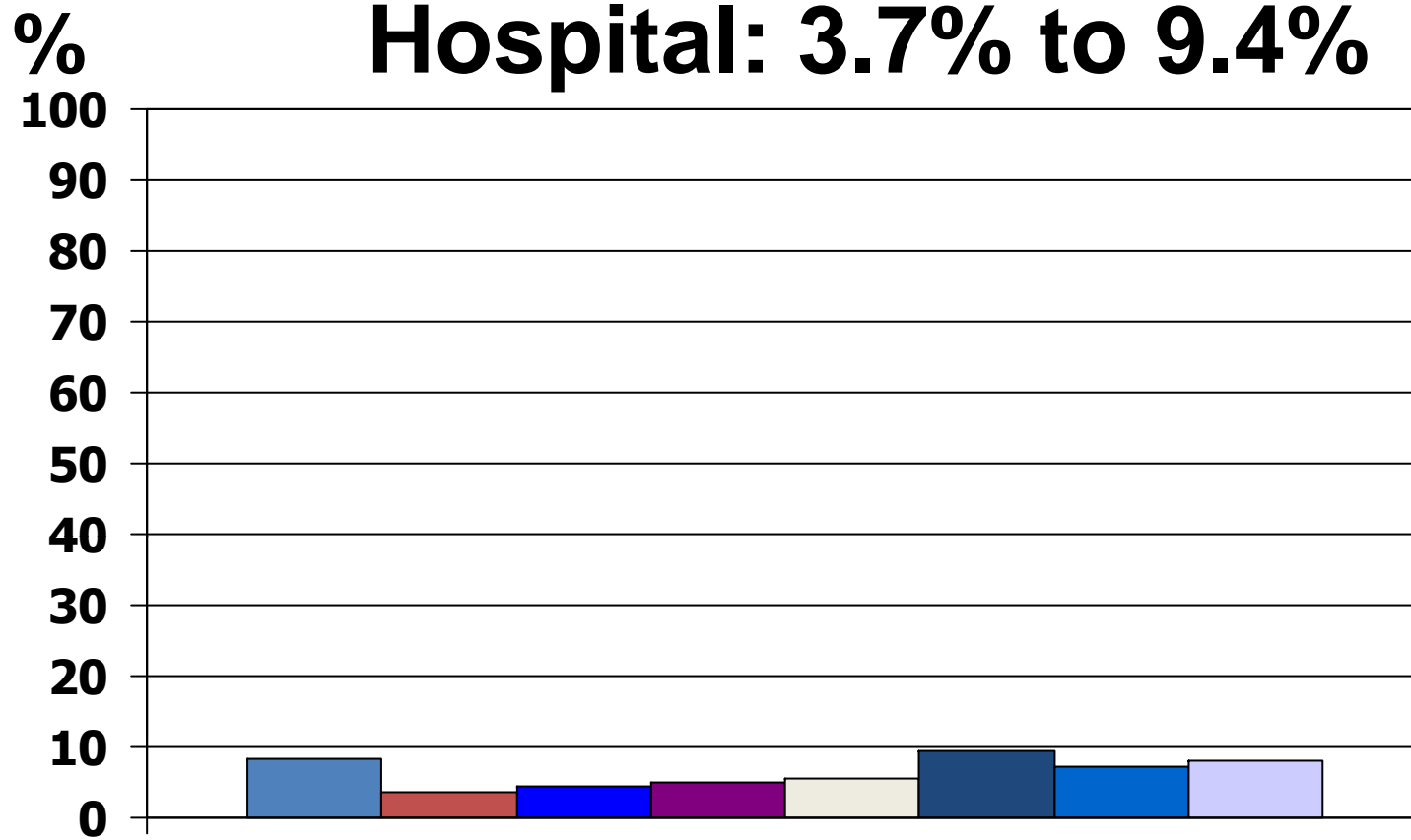
GP Visit: 70.0% to 83.6%



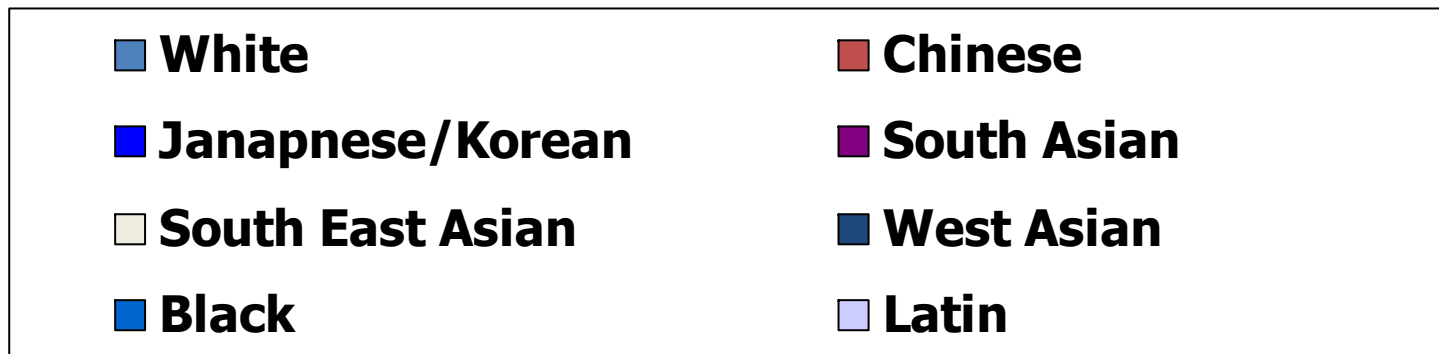
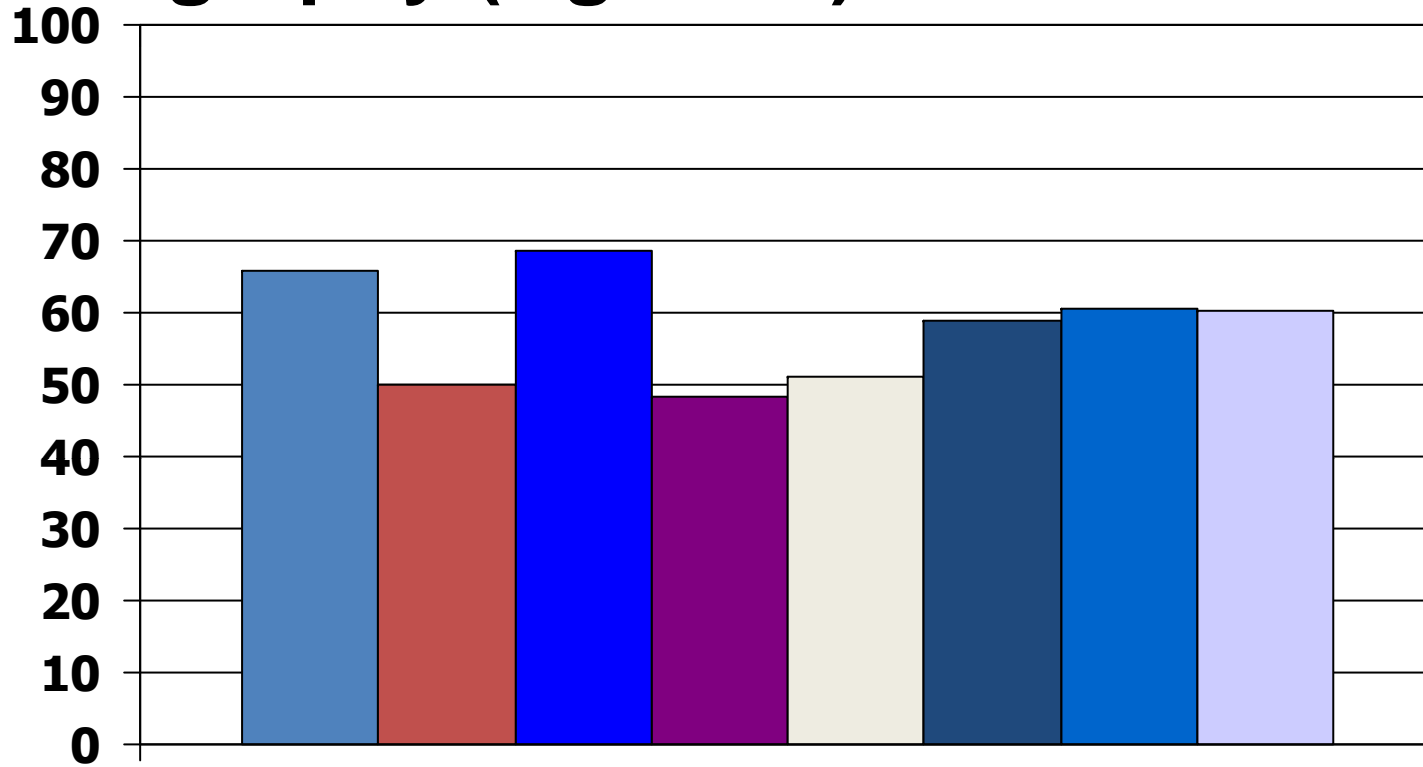
Specialist Visit: 45.5% to 54.7%



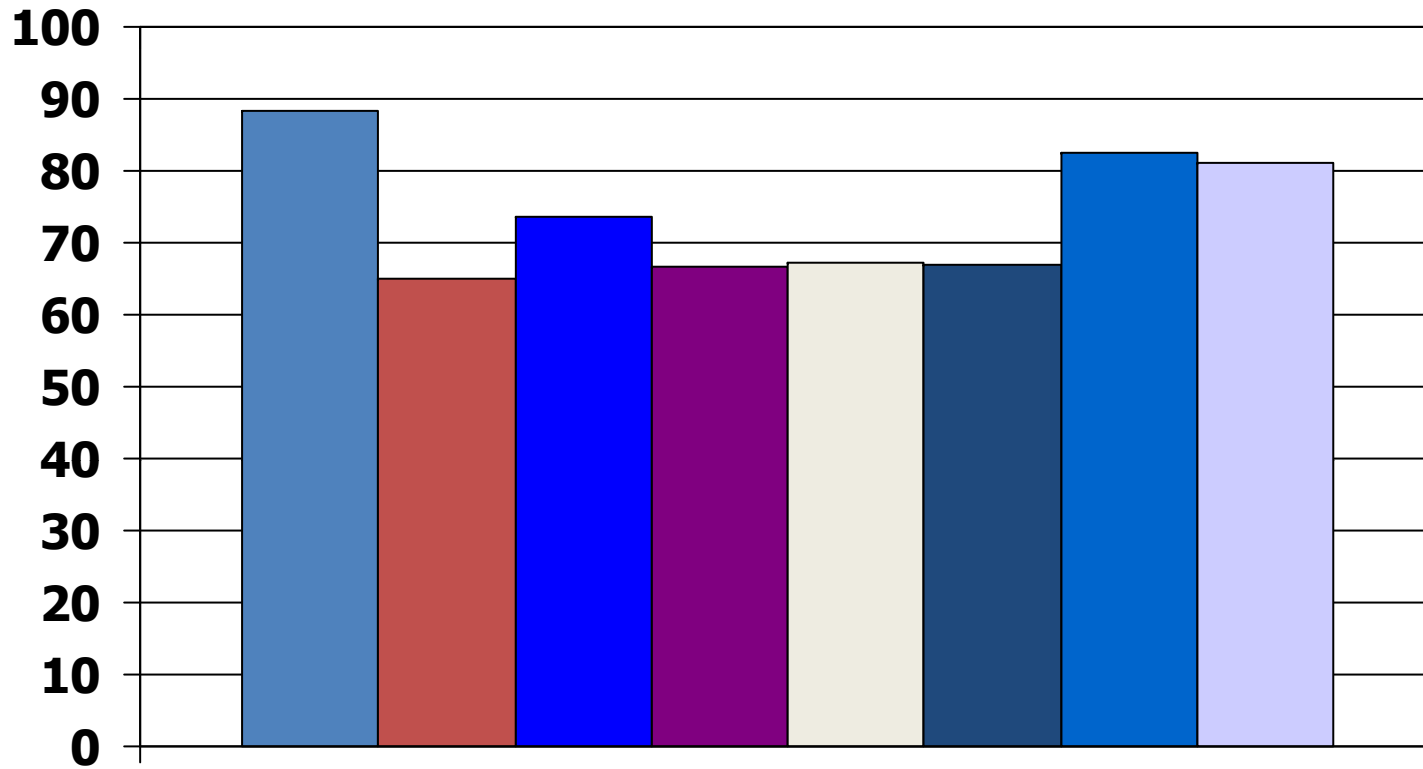
Hospital: 3.7% to 9.4%



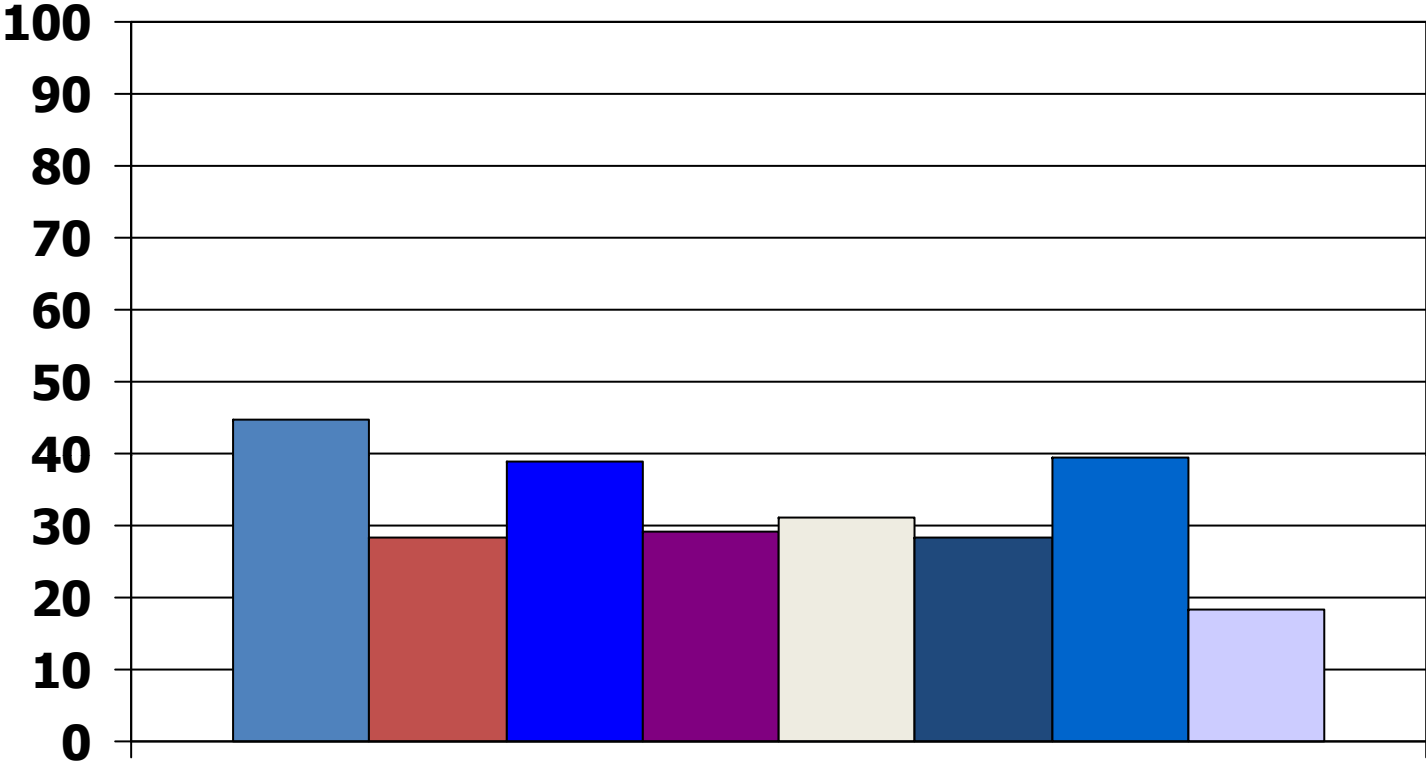
Mammography (Age 35+): 49.9% to 68.7%



PAP Smear Test (Age 18+): 65.1% 88.4%



PSA Blood Test (Age 40+): 18.2% to 44.7%



Risk adjusted odds ratio

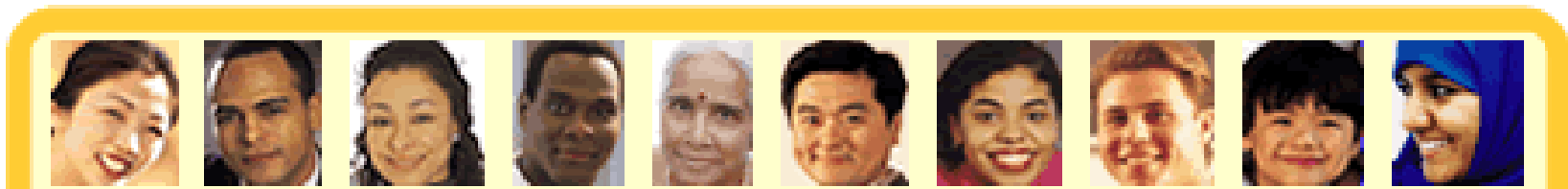
	Visible minority vs. White
General practitioner	1.28 (1.14-1.42)
Specialist physician	1.01 (0.93-1.10)
Hospitalization	0.83 (0.70-0.98)
PSA Blood Test (men age \geq 40 years)	0.64 (0.52-0.79)
Mammogram (women age \geq 35 years)	0.68 (0.59-0.80)
Pap smear test (women age \geq 18 years)	0.47 (0.39-0.56)

Summary

- **Health services utilization and access varies across ethnic populations.**
- **Patient factors are related to variability in health services utilization.**
- **System and clinician factors are playing less important roles in variability and disparity in an equal access healthcare system.**

Ethno-cultural factors influence:

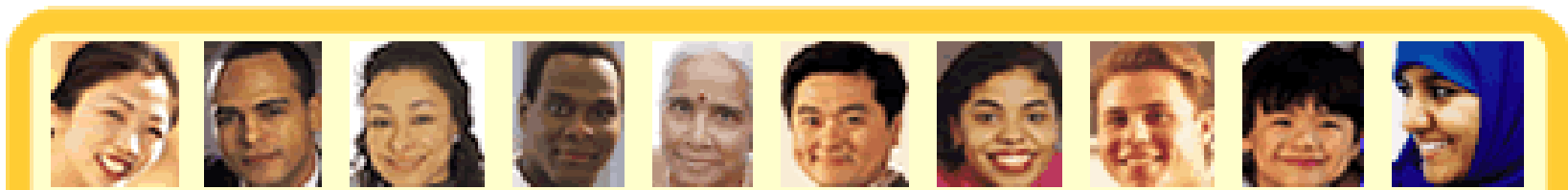
- people's beliefs about health and lifestyle
- capacity to obtain and process new information
- behaviours associated with disease prevention and risk reduction



The influence of ethno-cultural affiliation and gender on modifying cardiovascular disease risk

An investigation of the process that people undergo when faced with making lifestyle changes to manage their cardiovascular disease risk

Funded by: Social Sciences and Humanities Research Council of Canada and Alberta Heritage Foundation for Medical Research



Method

Series of grounded theory studies

Participants (n=140, 10-men 10-women/group)

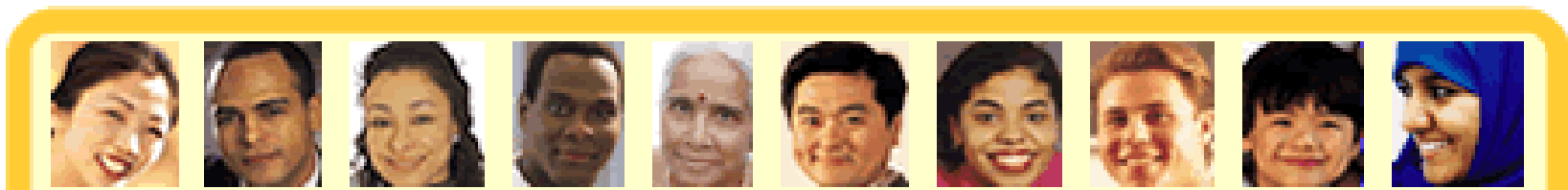
Euro-Celtic (urban/rural)

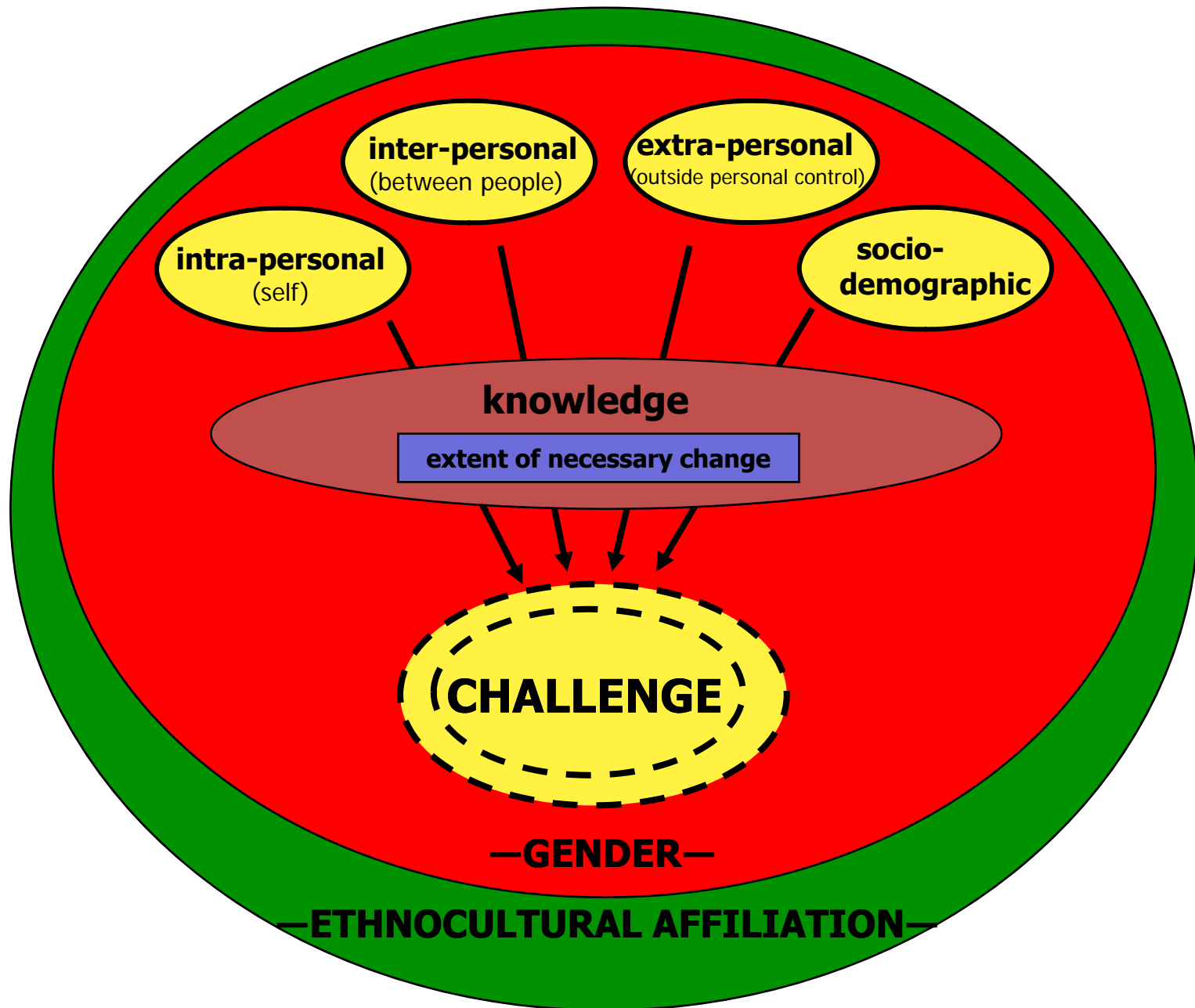
French (urban/rural)

South Asian (Sikh)

Chinese

First Nations

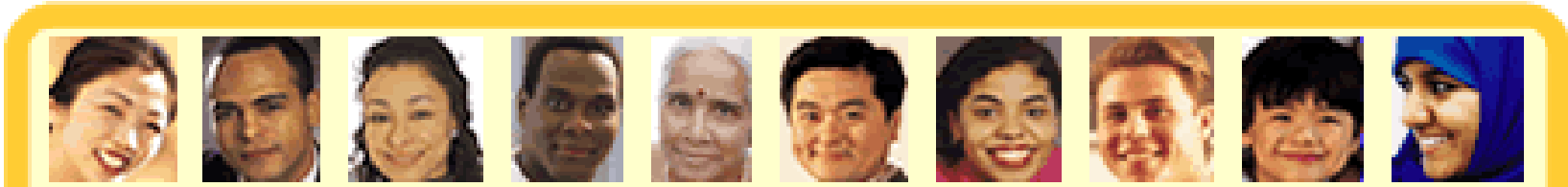




King, K.M., Thomlinson, E., Sanguins, J., LeBlanc, P. (2006). Men and women managing coronary artery disease risk: Urban-rural contrasts. *Soc Sci Med*, 62(5), 1091-1102.

Next Phase...

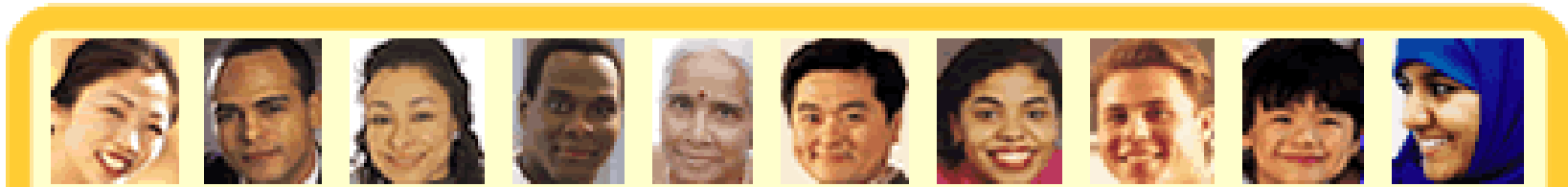
The process described and explained on a group-level, in Phase I, must be studied in much more depth by focusing on the many individual-level, context-based decisions that were being made within that process.



Using decision-tree modeling to examine how ethno-cultural affiliation and gender influence CVD risk management behaviour

Developing and testing decision-models to describe the ethno-cultural- and gender-based factors that influence how (i.e., what motivates or hinders) people in making decisions about managing their CVD risk.

Funded by the Social Sciences and Humanities Research Council of Canada



Method

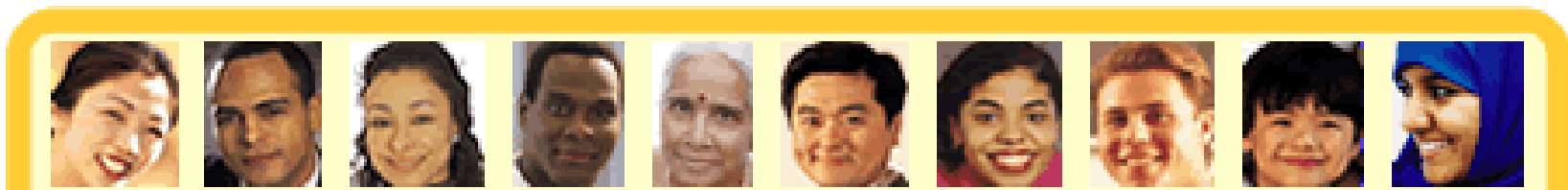
Decision-modeling (development, refinement and testing)

Participants

Euro-Celtic (urban/rural)

South Asian (Sikh)

First Nations

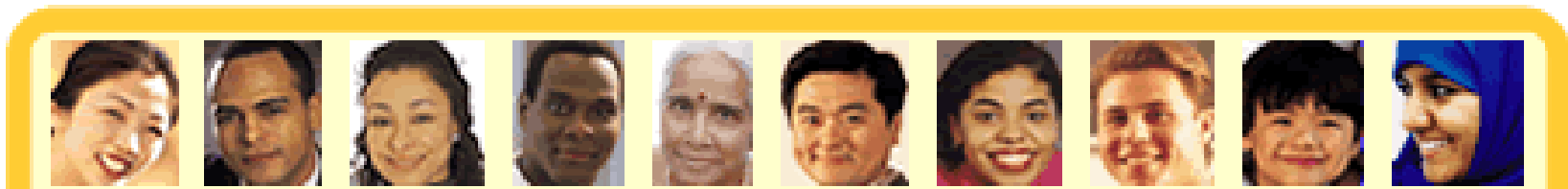


Method (cont'd)

Descriptive decision modeling is oriented toward determining *how* individuals *actually* make choices and arrive at *their own* decisions

The decision-tree model is hierarchical, takes the form of a tree

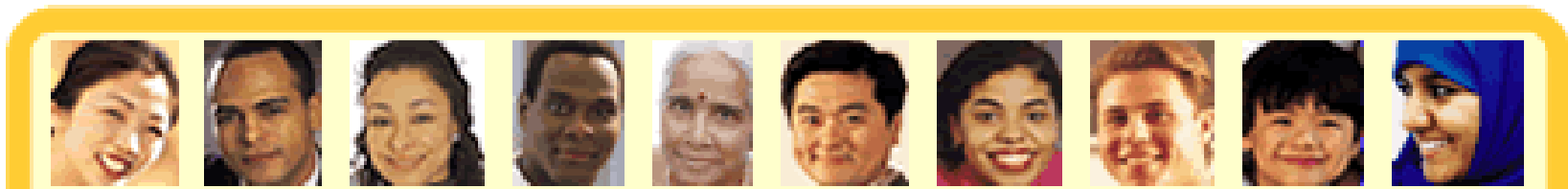
It is characterized by multiple choices—choice alternatives actually considered by the decision-makers, decision criteria (conditions or constraints along the path), and often multiple potential outcomes found at the termination of the tree paths



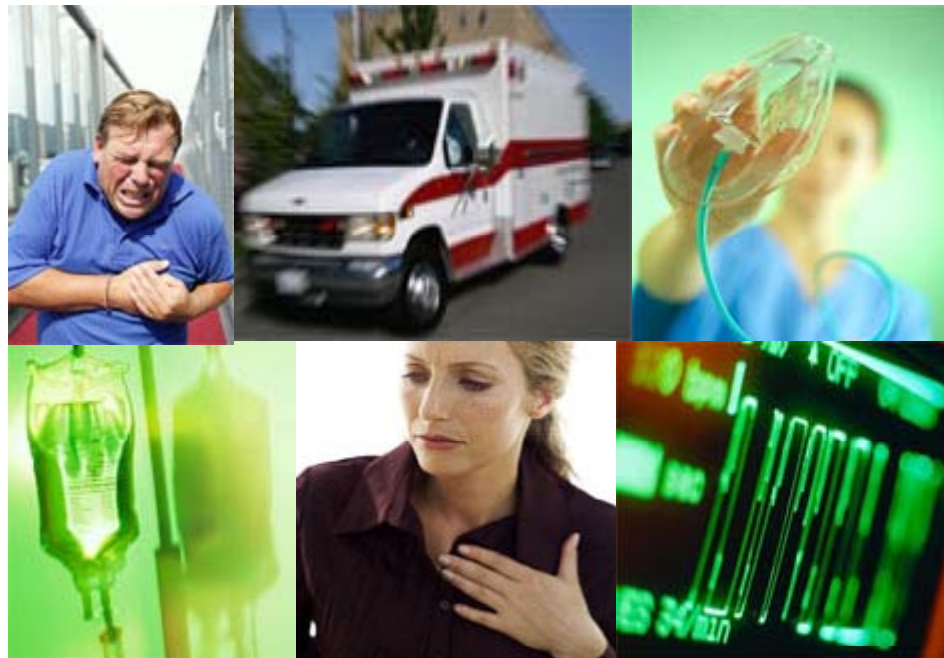
Method (cont'd)

We have developed decision-tree models to represent and predict the ethnocultural- and gender-based decisions and outcomes (behaviours) of people faced with making lifestyle changes related to their CVD risk

Modifiable risk factors of interest: tobacco use, alcohol use, diet, exercise

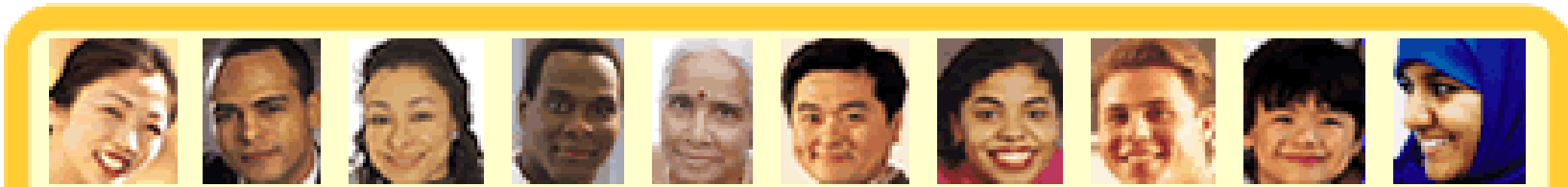


Ethnic Variation in Acute Myocardial Infarction Presentation and Access to Care



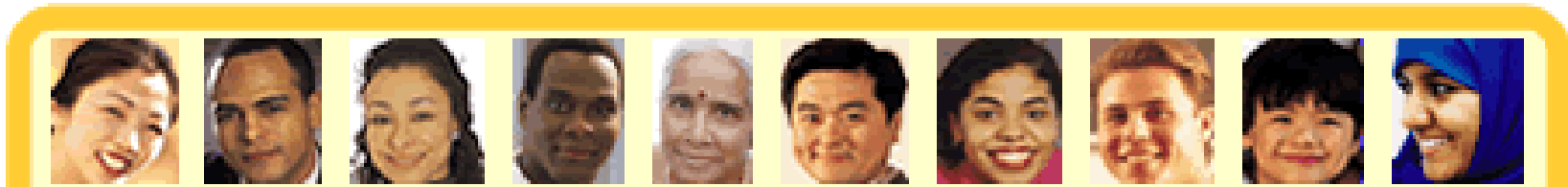
BACKGROUND

- Chinese (from mainland China, Hong Kong, Macau), South Asian (from India, Pakistan, Bangladesh, Sri Lanka), South East Asian (from Philippines, Vietnam, Cambodia, Malaysia, Fiji) and First Nations (North American Indian) ethnic groups are among the largest and fastest growing minority ethnic populations in Canada.
- Given the CHD risk for all of these ethnic groups, identifying variability in symptom presentation and access to care will provide essential information for patients as well as clinicians to enable earlier identification of symptoms/cases, diagnostic evaluation, and timely management.



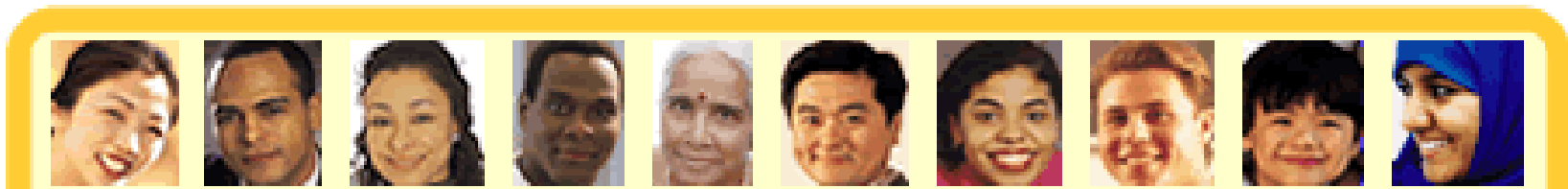
PURPOSE

- To examine ethnic variation in AMI symptom presentation and care pathways among European (Caucasian), Chinese, South Asian, South East Asian, and First Nations patients presenting to the emergency department (ED) with acute myocardial infarction (AMI) in Calgary, Alberta Canada.



METHODS

- We identified AMI diagnosis (using ICD-10 coding) from administrative data then examined the health records of AMI patients.
- The ethnicity was initially categorized using surname methodology, then was verified when examining the health record
- Demographic, symptom profile, and access to care variables were compared across ethnic groups.



Characteristics of Study Sample

Demographic and Clinical Characteristics	European* (117)	Chinese (92)	South Asian (101)	South East Asian (57)	First Nations (39)	p
Age (years; mean (SD))	63.9 (14.35)	71.58 (13.90)	66.84 (11.47)	65.51 (16.85)	55.56 (12.73)	<0.001
BMI (kg/m ² ; mean (SD))	27.95 (5.51)	24.73 (4.25)	25.60 (3.86)	25.06 (4.44)	28.94 (4.41)	<0.001
Male (% (n))	77.8% (91)	63.0% (58)	66.3% (67)	73.7% (42)	79.5% (31)	0.088
Fluent in English Language	99.1% (116)	33.7% (31)	45.5% (46)	50.9% (29)	92.3% (36)	<0.001
Comorbid Conditions						
Previous MI	26.5% (31)	19.6% (18)	14.9% (15)	17.5% (10)	35.9% (14)	0.043
CHF	2.6% (3)	5.4% (5)	2.0% (2)	0.0% (0)	2.6% (1)	0.355
PVD	1.7% (2)	2.2% (2)	2.0% (2)	0.0% (0)	12.8% (5)	0.002
COPD	0.9% (1)	2.2% (2)	1.0% (10)	3.5% (2)	7.7% (3)	0.110
Diabetes	24.8% (29)	30.4% (28)	37.6% (38)	26.3% (15)	38.5% (15)	0.214
Renal Disease	6.0% (7)	10.9% (10)	8.9% (9)	3.5% (2)	15.4% (6)	0.206
Any Malignancy	5.1% (6)	4.3% (4)	0.0% (0)	0.0% (0)	0.0% (0)	0.044

*Caucasian

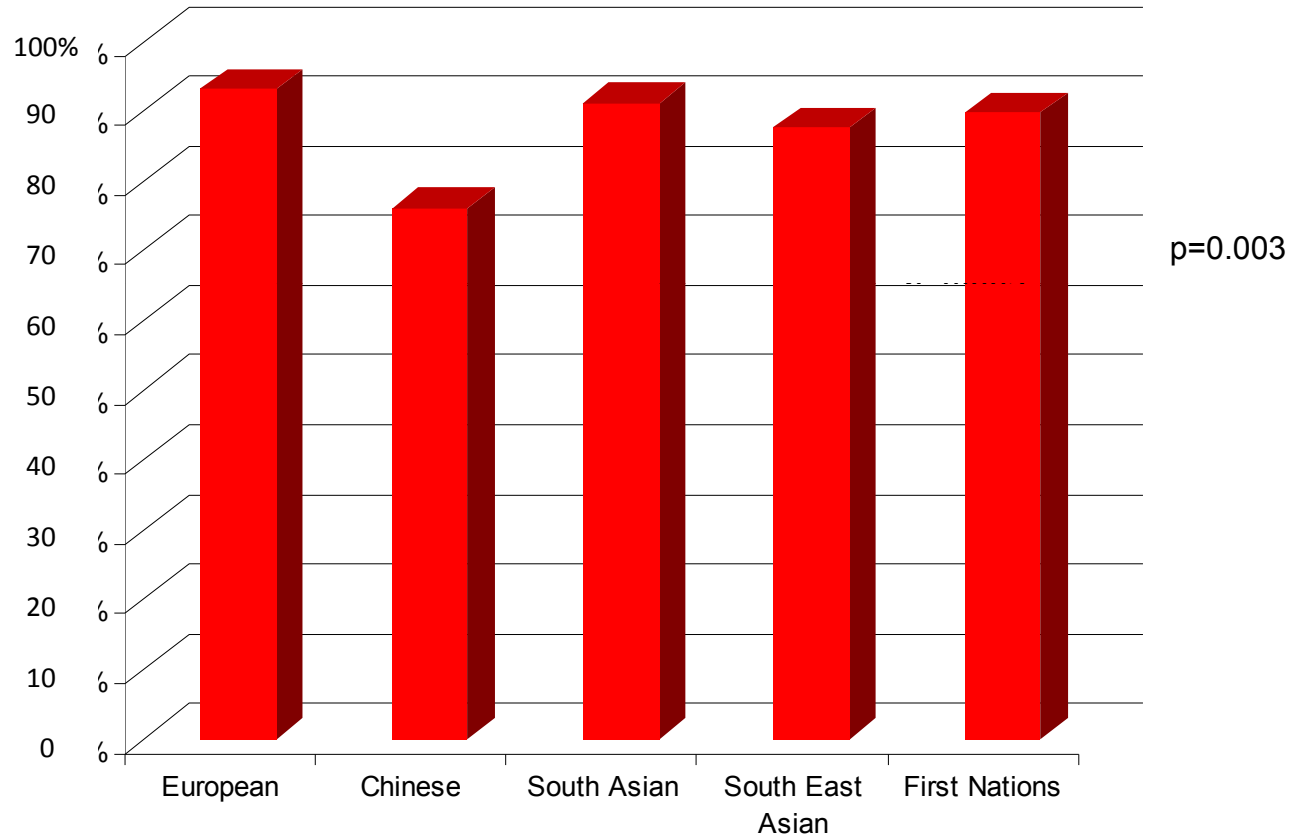
Characteristics of Study Sample

Demographic and Clinical Characteristics	European* (117)	Chinese (92)	South Asian (101)	South East Asian (57)	First Nations (39)	p
Documented Cardiac Risk Factors						
Current Smoker	40.2% (47)	20.7% (19)	7.9% (8)	22.8% (13)	61.5% (24)	<0.001
Ever Smoker	33.3% (39)	25.0% (23)	11.9% (12)	24.6% (14)	17.9% (7)	0.005
Hyperlipidemia	44.4% (52)	38.0% (35)	47.5% (48)	50.9% (29)	48.7% (19)	0.544
Hypertension	47.0% (55)	69.6% (64)	70.3% (71)	63.2% (36)	51.3% (20)	0.001
Excessive Alcohol Use	12.0% (14)	0.0% (0)	5.0% (5)	1.8% (1)	10.3% (4)	0.002
Obesity	10.3% (12)	3.3% (3)	10.9% (11)	1.8% (1)	7.7% (3)	0.086
Abdominal Obesity	2.6% (3)	0.0% (0)	1.0% (1)	0.0% (0)	2.6% (1)	0.382
Non-ST Elevation MI	46.0% (52)	59.8% (52)	54.0% (54)	65.5% (36)	56.4% (22)	0.137

*Caucasian

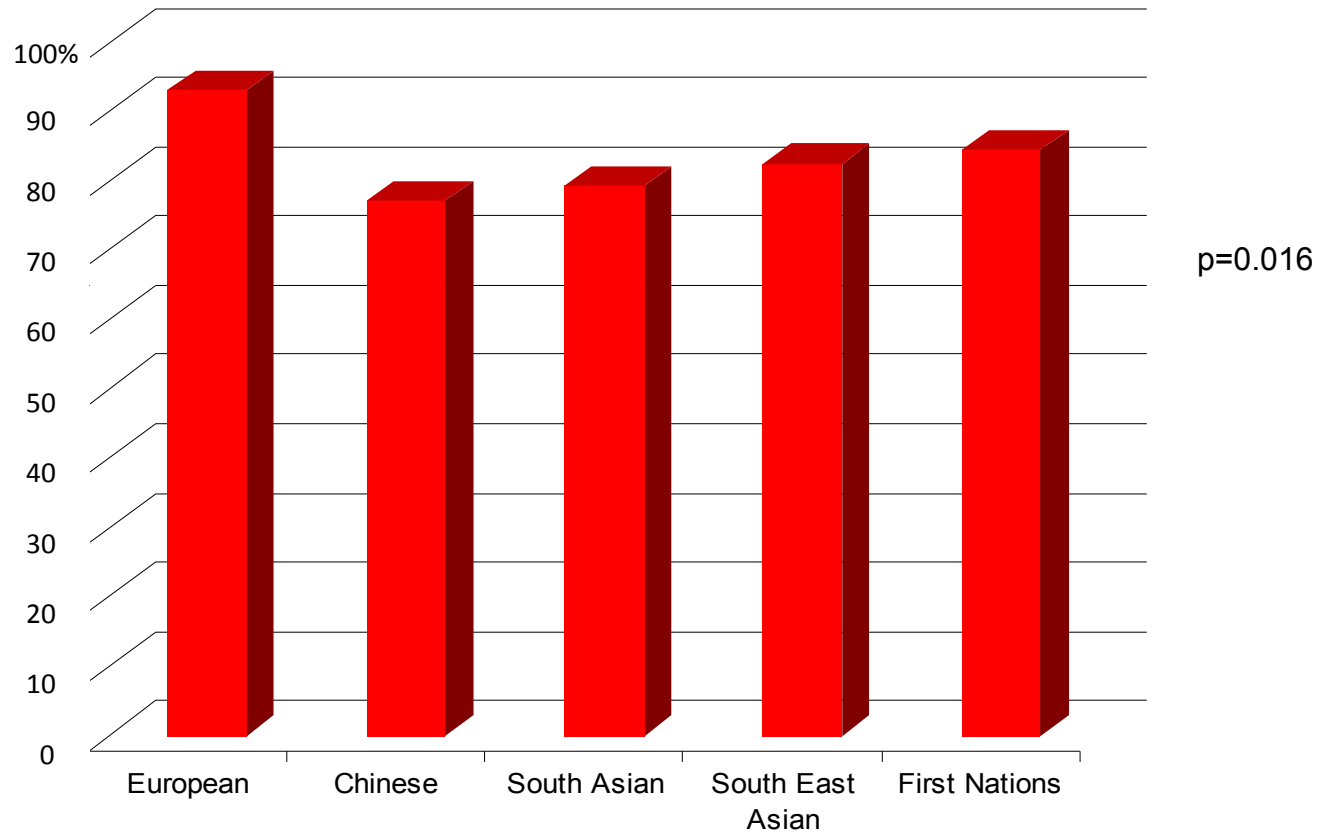
Symptoms Presentation

Reported Distinct Time of Symptoms Onset



Symptoms Presentation

Reported Classic* Symptom Profile



**Classic Symptom Profile=[(mid-sternal pain and/or mid-sternal pressure) +/- throat/neck pain +/- shoulder pain +/- arm pain]

Symptoms Presentation

Reported Symptoms	European* (117)	Chinese (92)	South Asian (101)	South East Asian (57)	First Nations (39)	p
If distinct onset of pain, time to ED presentation						0.015
< 1 hr	20.1% (22)	21.4% (8)	8.7% (8)	20.0% (10)	22.9% (8)	
1-2 hrs	24.8% (27)	14.3% (10)	13.0% (12)	18.0% (9)	25.7% (9)	
3-6 hrs	26.6% (29)	15.7% (11)	23.9% (22)	16.0% (8)	11.4% (4)	
7-12 hrs	1.8% (2)	5.7% (4)	7.6% (7)	8.0% (4)	5.7% (2)	
13-24 hrs	26.6% (29)	52.8% (37)	46.7% (43)	38.9% (19)	34.3% (12)	
Saw healthcare provider ≤72 hrs of ED presentation	12.0% (14)	29.3% (27)	36.6% (37)	17.5% (10)	20.5% (8)	0.002
Method of Transport to ED Ambulance	64.1% (75)	58.7% (54)	54.5% (55)	45.6% (26)	56.4% (22)	<0.001

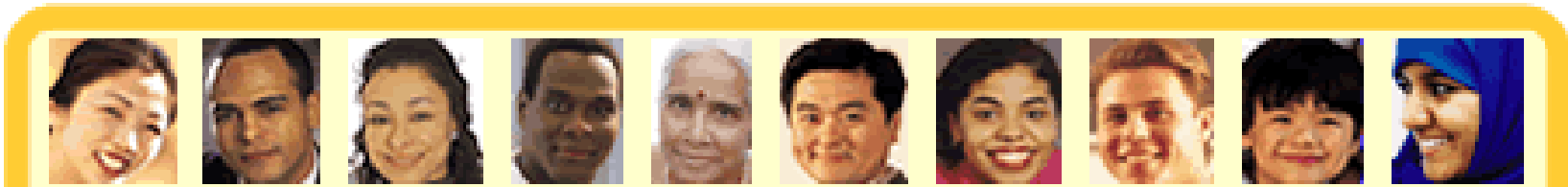
* Caucasian

FINDINGS

- Patients < 65 years of age were more likely than those \geq 65 years of age to present with reported 'classic' symptoms.
- Chinese, South Asian, and South East Asian patients were less likely and First Nations patients tended to be less likely than Caucasian patients to have reported 'classic' symptoms.
- Even in patients who had reported 'classic' symptoms, South Asians were significantly less likely than Caucasians to report to the ED within 3 hours of symptom onset.

SUMMARY

- We observed variability in symptom presentation and access to care associated with ethnicity.
- Caucasians were most likely to have a 'classic' symptom profile reported, present to the ED in a timely fashion, and receive early angiography, relative to their ethnic counterparts.
- Explanatory variables associated with these observations require further exploration to ultimately develop effective strategies aimed at enhancing timely presentation and care access.



QUESTIONS?



Questions for Discussion

Does 'ethnicity' matter in health care?

What are we measuring when we measure 'ethnicity'?

Where are the 'pressing' clinical and research gaps?

Who must attend to these gaps?

How to attend to these gaps?