

# **Link between students' characteristics, medical program and choice of practice**

**(Preliminary results from the universities of Sherbrooke\* and British Columbia\*\*)**

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# Pilot study objectives

« Nature »  
Admission

- To describe the personal characteristics of medical students associated with their choice of practice (type and location)

« Nurture »  
Training

- To describe the undergraduate medical program components associated with non metropolitan practice.
- To test the feasibility of a prospective study

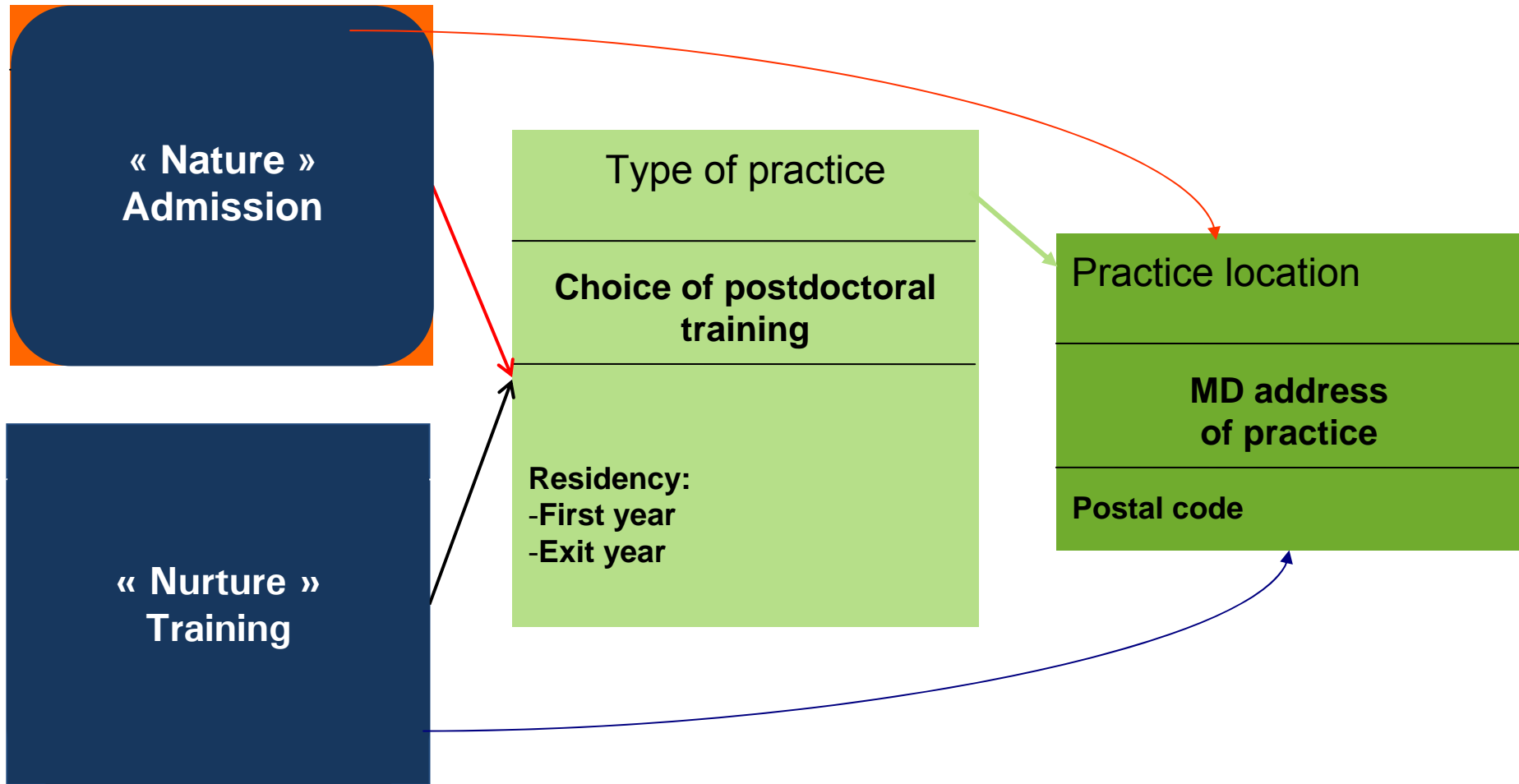
# Literature review & Conceptual framework

UNIVERSITY

« Nature »  
Admission

« Nurture »  
Training

# Conceptual framework



# Methods

- Descriptive study with secondary analysis of administrative data.
- Population studied: UdeS and UBC students
  - admitted between 1995 and 2002
  - graduated between 1999 and 2006.
- Outcomes:
  - Probability for the medical student to choose a residency training program in family medicine.
  - Probability for the graduated student to choose a location of practice in non metropolitan areas.

# Methods

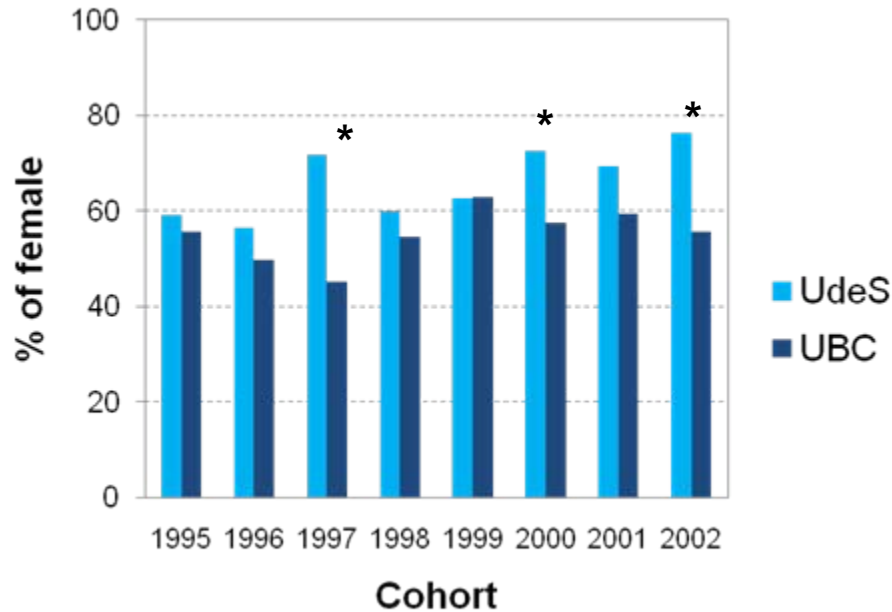
- Independent variables:
  - Age at admission
  - Gender
  - High school/college address
  - Score pre-MD studies (CRG, MCAT)
  - Last diploma before MD program
  - Score at admission
  - Address at admission

# Methods

- Data sources:
  - Administrative data available at UdeS, UBC and AFMC
  - Cartographic data from Statistics Canada
- Data analysis:
  - Descriptive analysis
  - Tree based regression
  - Logistic regression

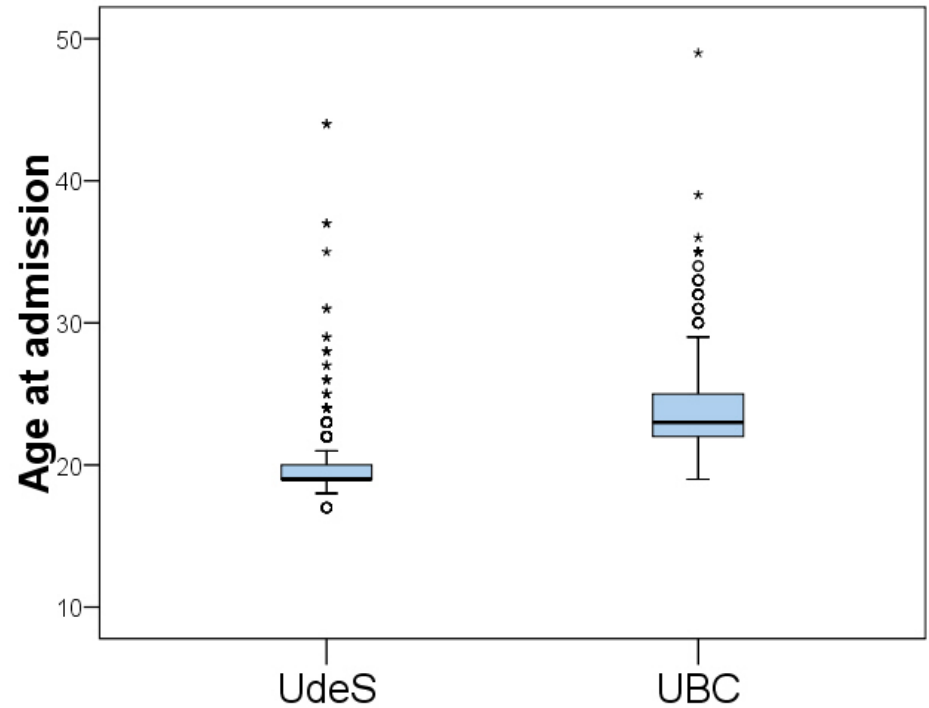
# Students characteristics

## Gender and Age at admission



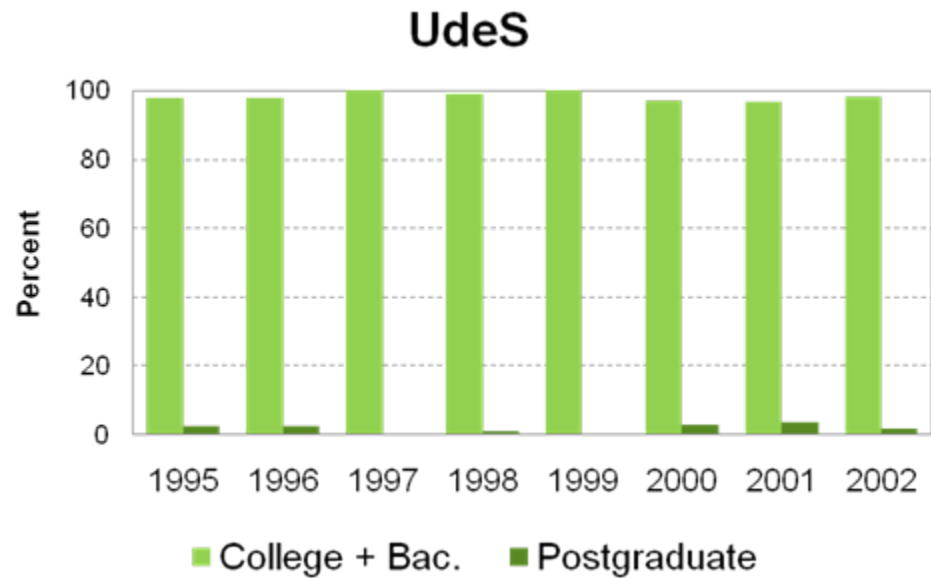
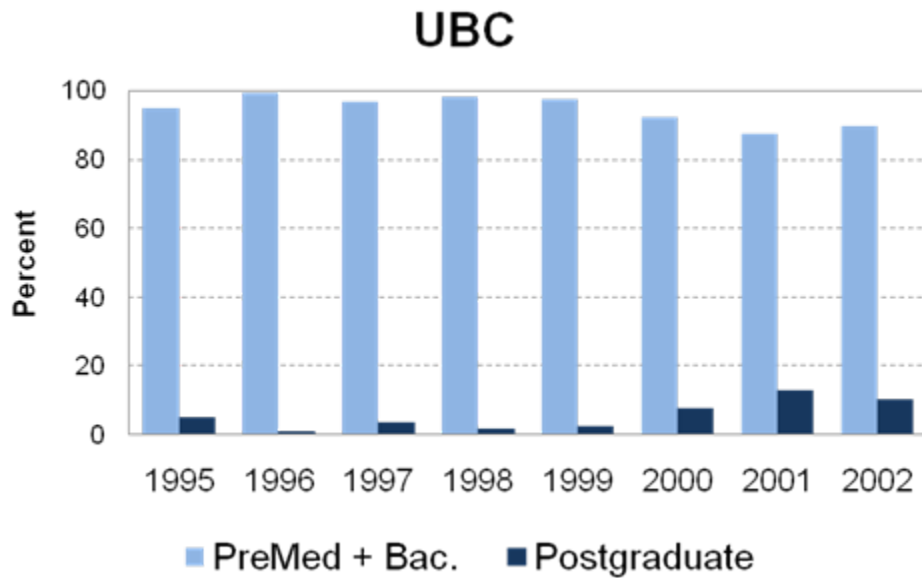
\*  $p < 0.01$

UdeS n = 780  
UBC n = 936



$p = 0.000$

# Last diploma



UdeS n = 780

UBC n = 936

# Exposure to Non Metro environment

- High school address (UBC) and college address (UdeS)

	n	Metro	Non Metro	Other provinces	Other countries	Missing data
UBC	936	416 (44.4%)	173 (18.5%)	-	9 (1.0%)	338 (36.1%)
UdeS	780	504 (64.6%)	145 (18.6%)	116 (14.9%)	15 (1.9%)	0.0 (0%)

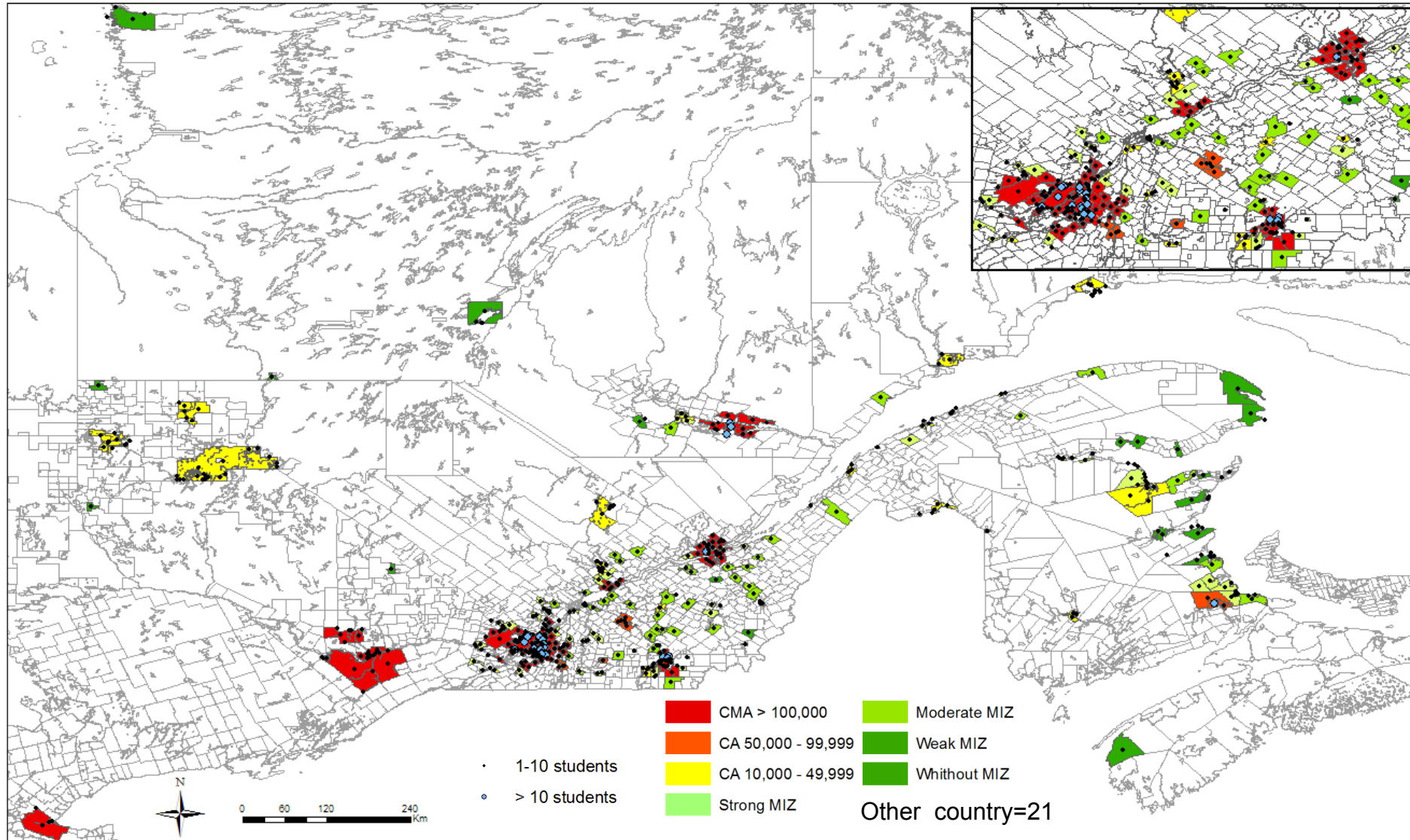
- Address at admission to MD program

	n	Metro	Non Metro	Other countries
UBC	936	840 (89.7%)	91 (9.7%)	5 (0.5%)
UdeS	780	471 (60.4%)	288 (36.9%)	21 (2.7%)

Metro: cities  $\geq$  100,000 inhabitants

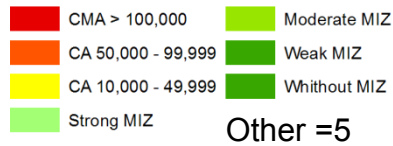
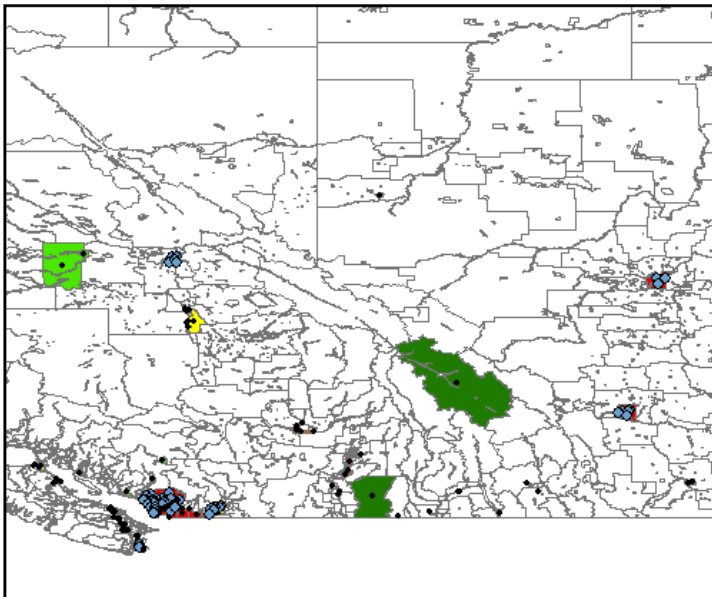
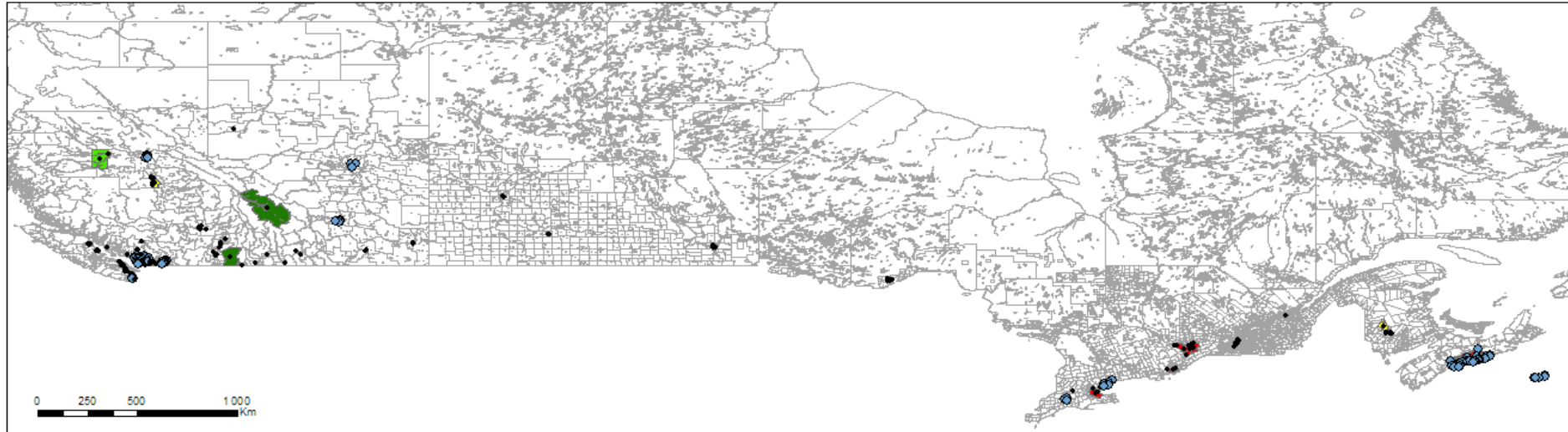
Non Metro: cities  $\leq$  99,999 inhabitants and MIZ

# Address to admission – UdeS (n=759)

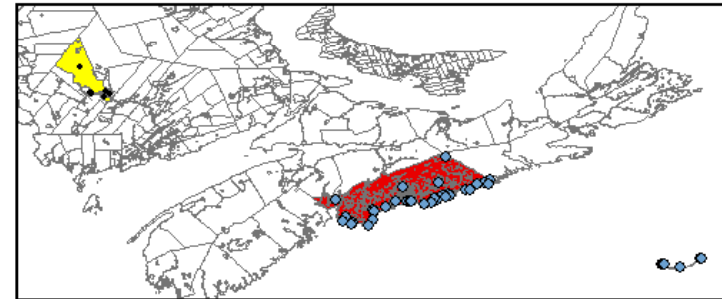


# Address to admission – UBC

(n=931)



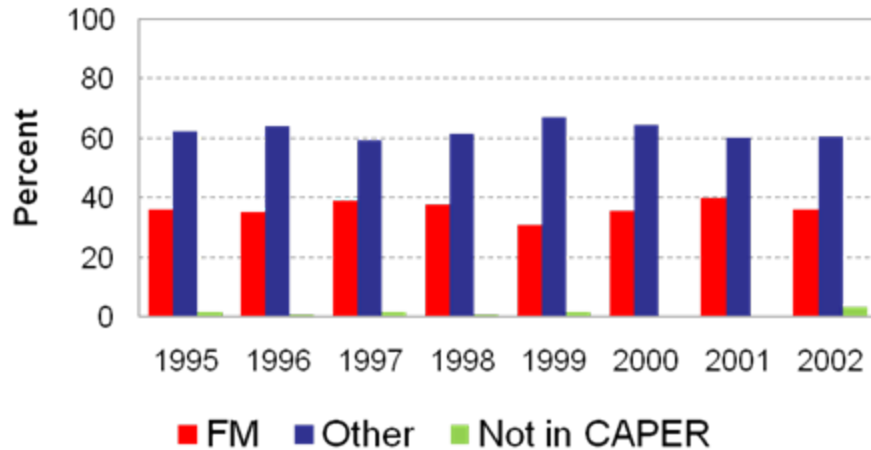
- < 10 students
- > 10 students



# Type of practice (R1)

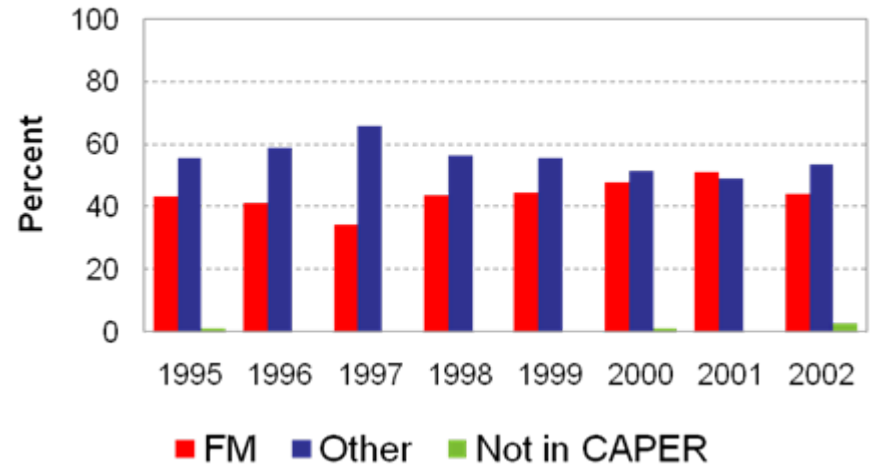
- Choice of first postgraduate training year
  - Family medicine field of training (codes 10600 - 10699)
  - Other field of training

UBC



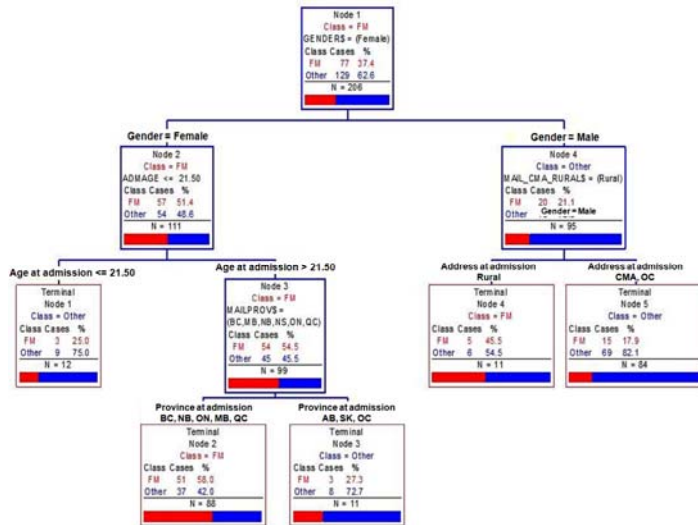
n=936

UdeS

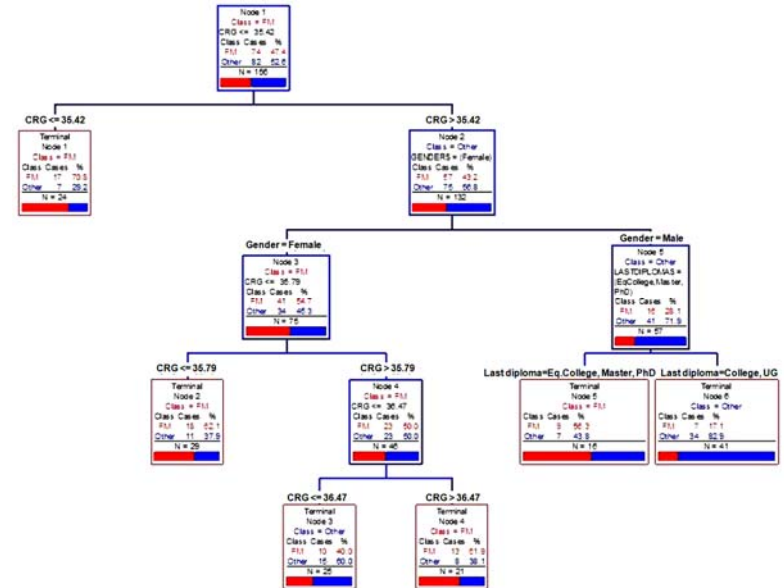


n=780

# Type of practice = FM (most important variables)



- UBC (n=206):
  - Gender
  - Age at admission
  - Address at admission
  - Province at admission



- UdeS (n=156)
  - CRG (score college + UG)
  - Last diploma
  - Gender

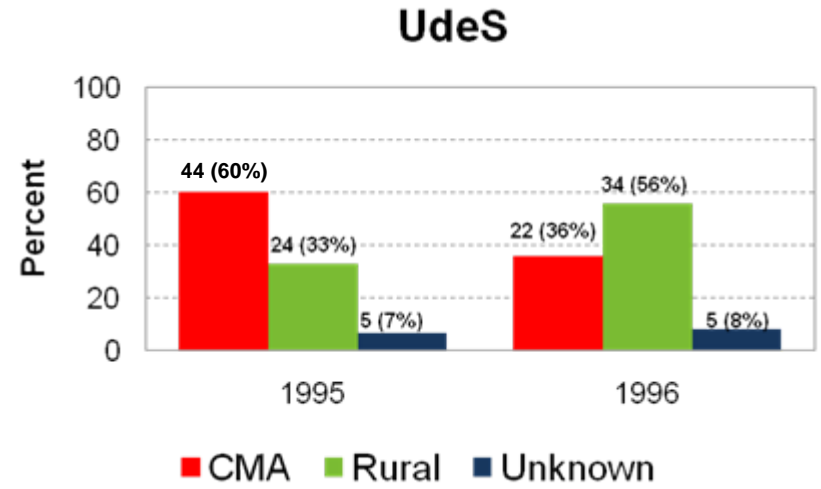
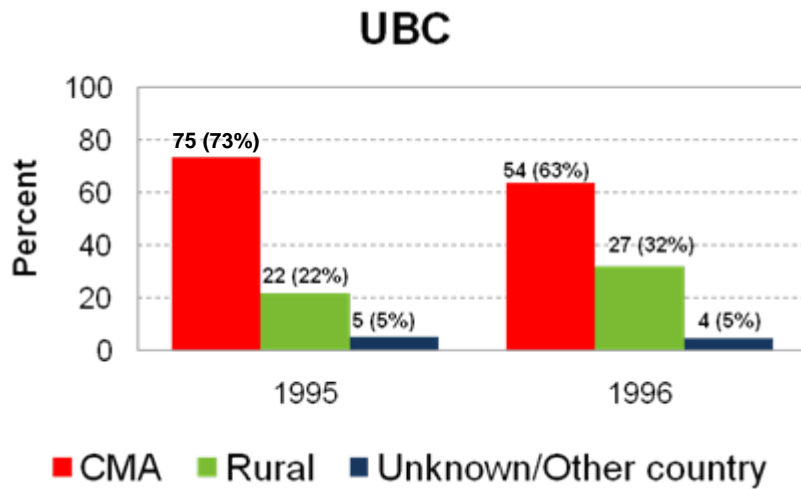
# Type of practice = FM

UBC (n = 204)			
Covariates	OR	Wald $\chi^2$	<i>p-value</i>
Age at admission	1.086	2.09	0.1479
Gender : Female	2.619	9.98	0.0016
Cohort : 1995	0.938	0.04	0.8321
High school			
Non Metro	Ref		
Metro	1.104	0.63	0.4264
Other	0.662	2.19	0.1387
Address/admission			
Metro	0.323	5.31	0.0212

2 observations with missing data for covariates

UdeS (n = 156)			
Covariates	OR	Wald $\chi^2$	<i>p-value</i>
Age at admission	1.279	3.79	0.0514
Gender : Female	3.234	10.79	0.0010
Cohort : 1995	0.961	0.0134	0.9077
College			
Non Metro	Ref		
Metro	0.552	1.52	0.2170
Other	0.881	0.11	0.7435
Address/admission			
Non Metro	Ref		
Metro	1.241	0.02	0.8757
Other country	1.952	0.18	0.6747

# MD Practice location



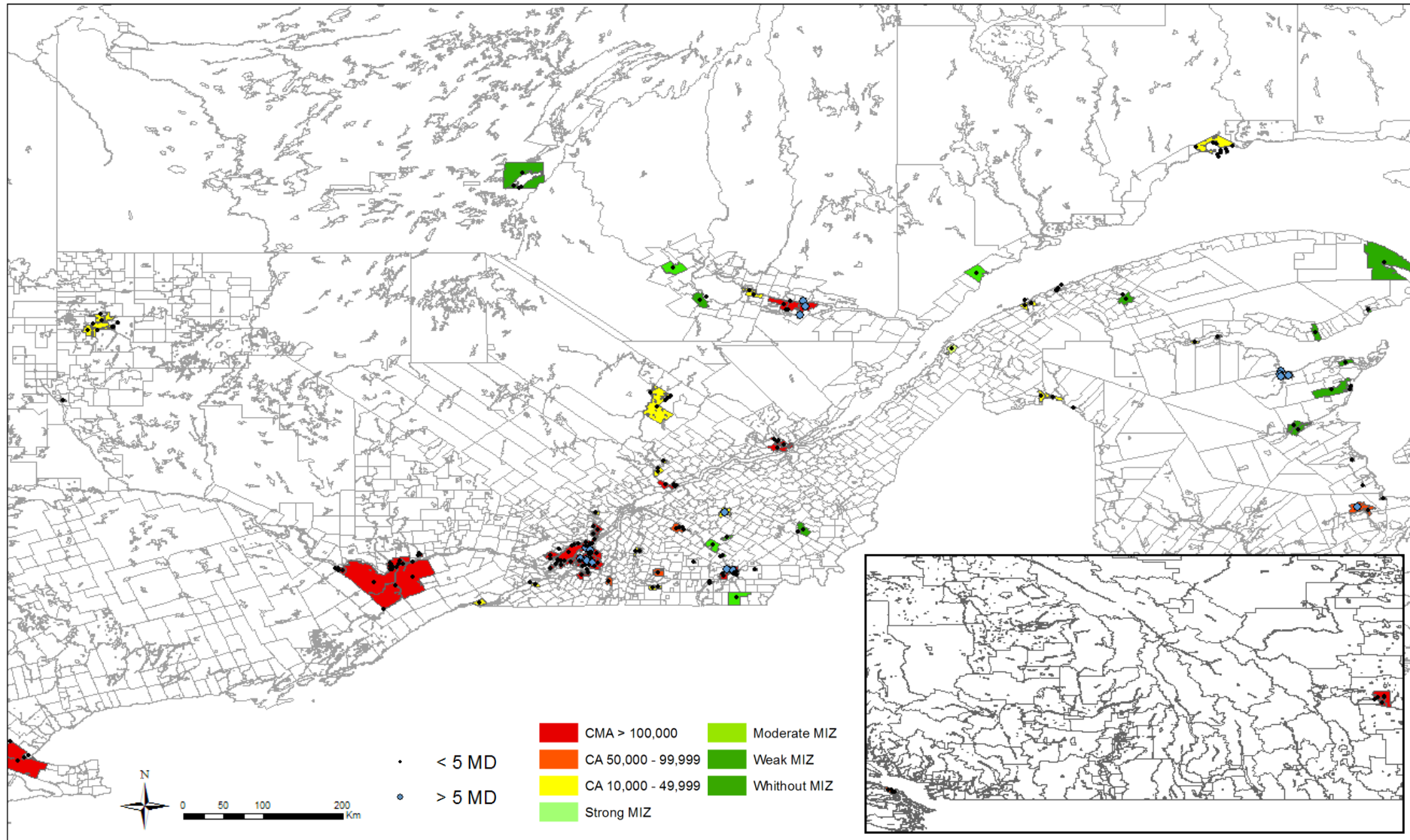
Fisher exact test two sided  $p$ -value = 0.0004

n=187

n=134

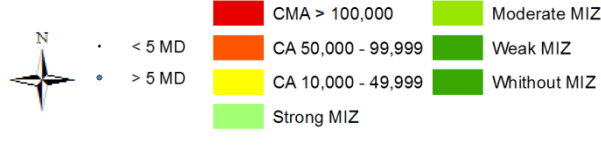
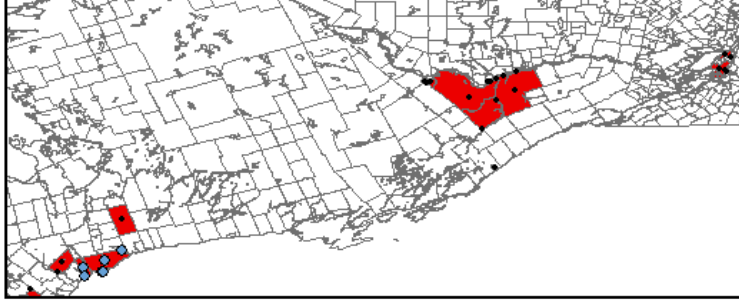
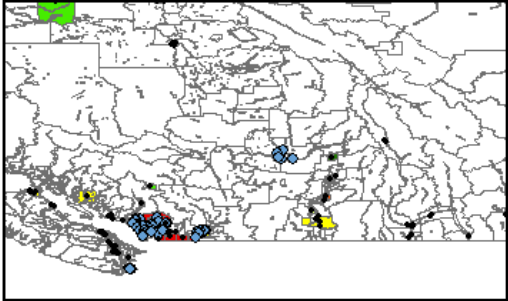
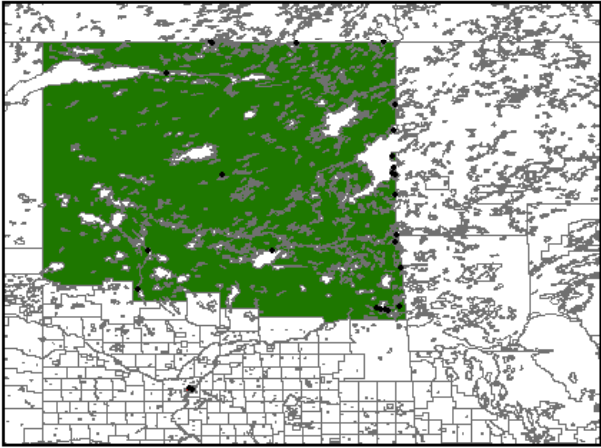
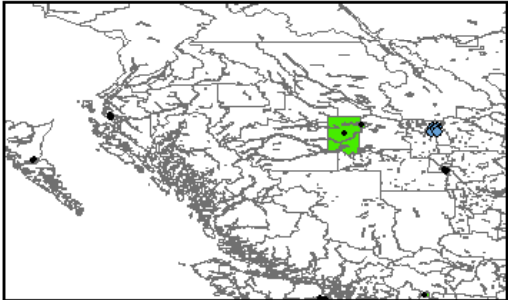
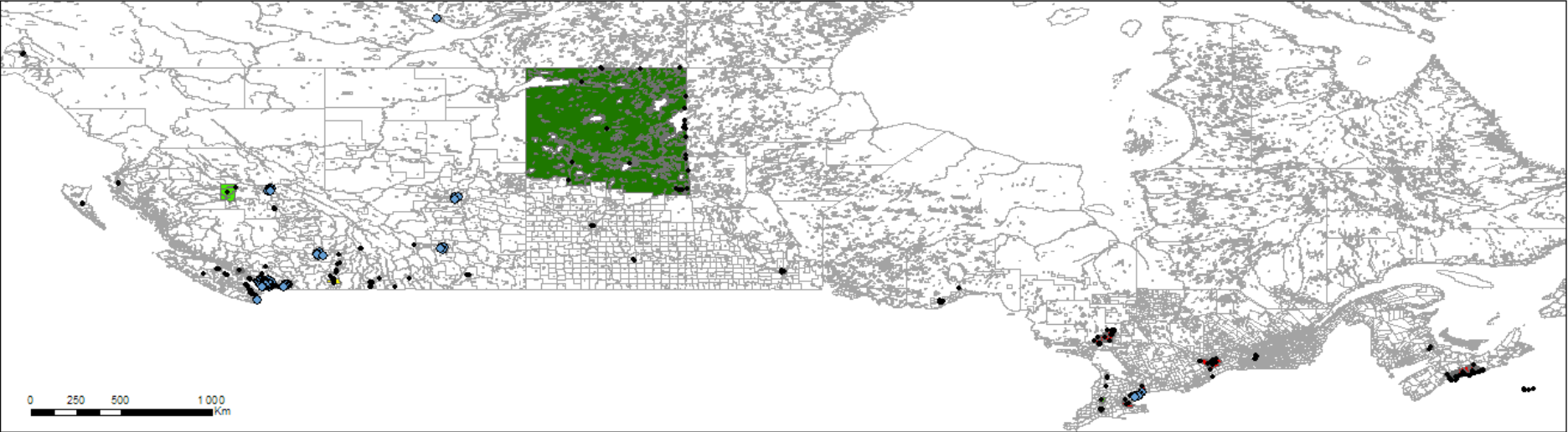
# MD practice location – UdeS

(n=121)

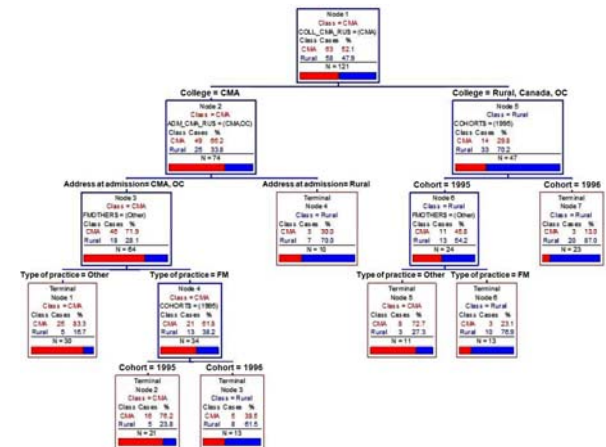
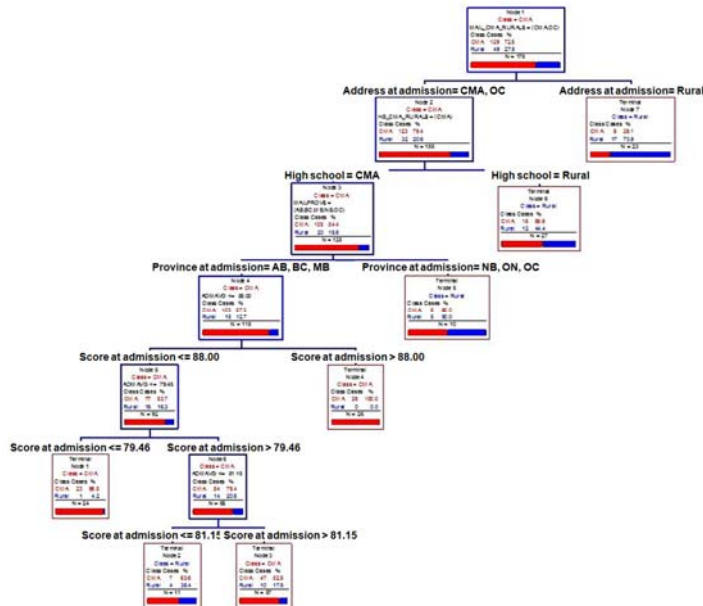


# MD practice location – UBC

(n=178)



# MD practice location (most important variables)



- UBC (n=178)
  - Address at admission
  - Place of high school
  - Province at admission
  - Score at admission

- UdeS (n=121):
  - Place of college
  - Address at admission
  - Cohort
  - Type of practice

# MD practice location = Non Metro

UBC (n = 177)			
Covariates	OR	Wald $\chi^2$	<i>p</i> -value
Age at admission	1.038	0.302	0.5826
Gender : Female	0.600	1.604	0.2053
Cohort : 1995	0.635	1.362	0.2432
High school			
Non Metro	Ref		
Metro	0.545	0.028	0.8675
Other	0.346	3.798	0.0513
Address at admission			
Metro	0.127	13.241	0.0003
Type of practice : FM	2.884	6.684	0.0097

1 observation with missing data for covariates

UdeS (n = 121)			
Covariates	OR	Wald $\chi^2$	<i>p</i> -value
Age at admission	0.867	1.676	0.1955
Gender : Female	0.639	0.899	0.3432
Cohort : 1995	0.380	4.869	0.0273
College			
Non Metro	Ref		
Metro	0.342	0.598	0.4391
Other	0.461	0.024	0.8772
Address at admission			
Non Metro	Ref		
Metro	0.411	4.539	0.0331
Other country	1.747	2.091	0.1482
Type of practice : FM	3.717	7.905	0.0049

# Summary of results

- Student populations
  - UdeS more female and younger than UBC
  - UBC students from all the Canadian province
- Type of practice
  - UdeS slightly more FM than UBC
  - Women are more prone to choose FM in both universities
- Type of practice location
  - Physicians from UBC more prone to practice in Metro
  - Exposure to Metro/Non Metro environments before MD program influences future practice location

# Discussion

- Intensive labour data works
  - “Scouting” ~30-40 person-days
  - Gathering 2-3 mos. to locate/retrieve (220 variables)
  - Screening ~40-60 person-days
  - Coding ~10 person-days
- Poor data quality
  - Missing data
  - Non standardized
- Low comparability of variables from both universities
  - Education system (College/PreMed)
  - Programs

# Next steps and challenges

- Explore other criteria for urban/rural exposure characteristics
- Integrate medical program components into the pilot study
- Database development

# Conclusions

- Baseline for prospective study
- Feasibility of prospective study
- Potential addition of collaborators and sites  
(preconference workshop)

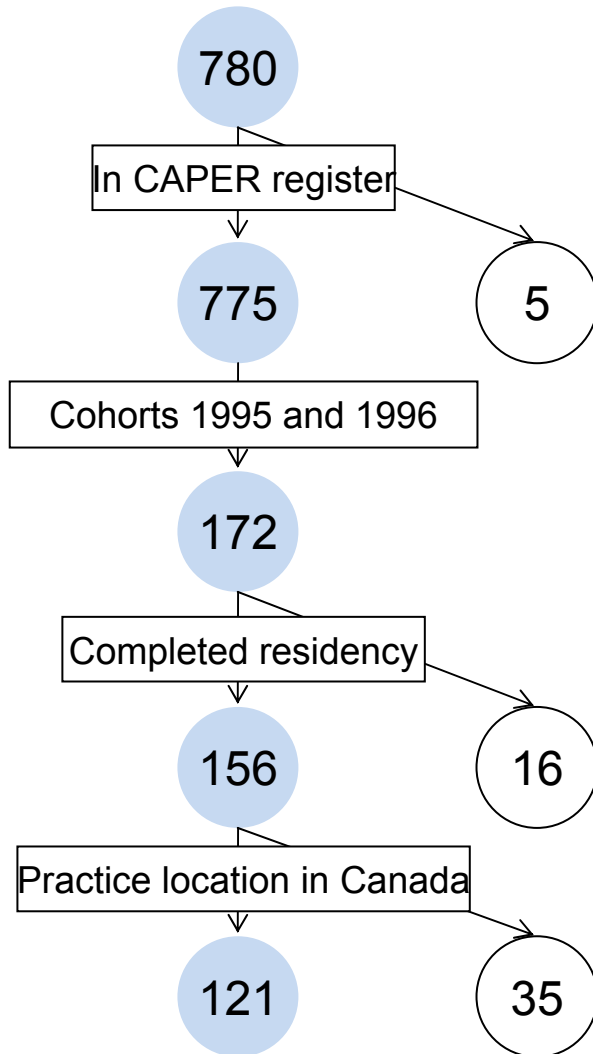
Questions?

# Practice location

## UdeS and UBC populations

UdeS

UBC



Not in CAPER register

Not completed residency yet

Practice location unknown, in other country or not yet in CMA file

