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# *Modeling the Mental Health Act:*

*Exploring the use of the Mental  
Health Act across Police  
Detachments in British Columbia*

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ASC: Nov. 18, 2010



# Outline

- **Background**
  - Review of Canada's Mental Health Act
  - Review of Research in Area
- **Exploratory Analysis**
  - Data and Methodology
  - Results
- **Discussion and Future Directions**



# Mental Health Act

- Canadian health care is Provincially mandated
- 1964: BC developed Mental Health Act
  - Specifies guidelines for admittance of voluntary and involuntary patients
  - Identifies provincial mental health facilities
  - Describes safeguards aiming to prevent unnecessary detention

*(BC Ministry of Health, 2005)*



# System Overlap

- The Act recognizes the overlap between the health care systems and criminal justice systems
  - Section 28(1) :
    - A police officer or constable may apprehend and immediately take a person to a physician for examination if satisfied from personal observations, or information received, that the person
      - is acting in a manner likely to endanger that person's own safety or the safety of others, and
      - is apparently a person with a mental disorder  
(*BC Ministry of Health, 2005, 141*)



# Research in the Area

- Crime and the Environment
- Mental Health and the Environment
  - Complex relationship
  - Social and structural neighbourhood decline associated with higher instances of mental health disorders (*Wandersman and Nation, 1998*)
  - Sub-standard housing linked to mental and physical health problems (*Srinivasan et al., 2003; Evans, 2003*)



# Crime, Mental Health and the Environment

- **Schizophrenia and Arrests** (*Australian Institute of Criminology, 2008*)
  - Majority of individuals were arrested *before* being diagnosed with mental disorder
- **Reintegration of NCR-MD:** (*Melnychuk et al., 2009*)
  - Patients return to former home neighbourhoods
  - Homes spatially clustered in two most socially disorganized neighbourhoods in area
  - Patients living in these areas had highest rates of return to custodial care



# Exploratory Research Approach

- Data Sources: RCMP Police Records
  - All RCMP Contacts between 2002 and 2006 within British Columbia, Canada
  - Records relating to Mental Health Act queried for exploration (n = 118, 123)
- Phase I: Mapping event location by detachment
- Phase II: Exploring aggregate trends of Act-related records
- Phase III: Spatial analysis of access to health care





# Populated Areas and Transportation Routes: British Columbia





# Calls for Service Coded as Mental Health Act (MHA) Females versus Males: August 2002 - July 2006

## Female Calls

## Male Calls

### MHA Calls for Service

### Percent of Total Calls

0.00 - 1.65

1.66 - 2.80

2.80 - 3.94

3.95 - 5.71

5.72 - 8.97

Top 10 Detachments (%)

No Data

Kilometers

0 250 500 750 1,000

Projection: UTM 1983 Zone 10N  
Source: RCMP E-Division PIRS Data  
Queries: K. Wuschke and N. Huitson  
Map: K. Wuschke 2009

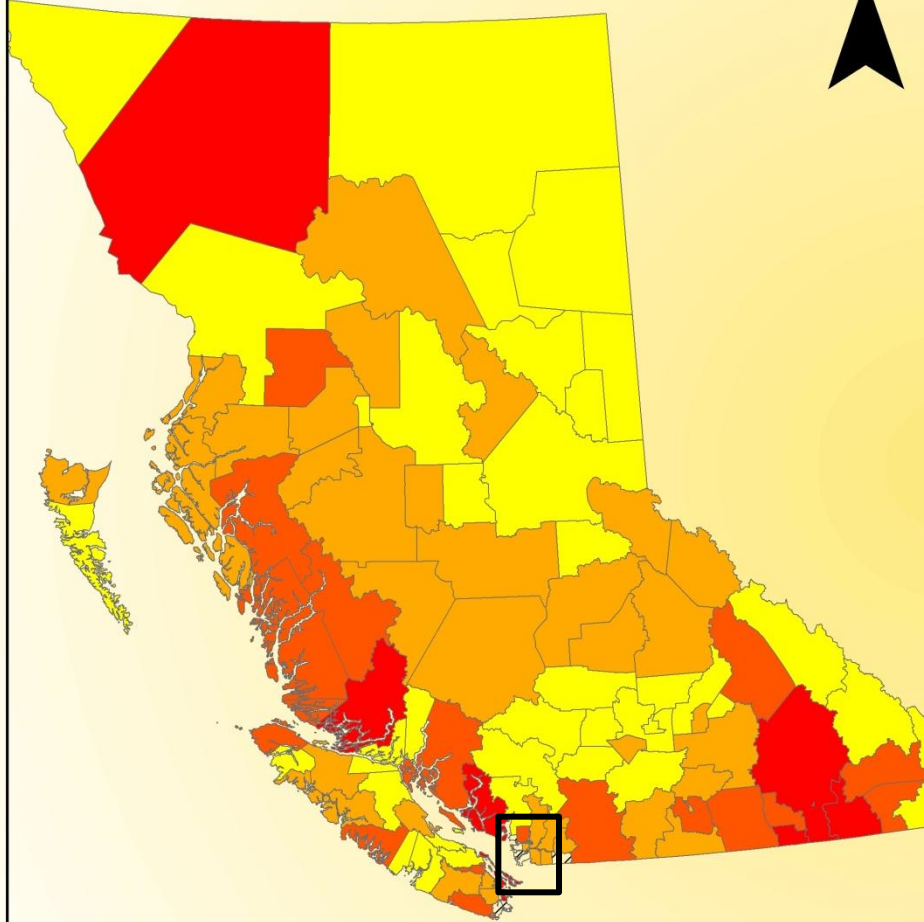
# Cartograms

- *“Cartograms are maps in which the projection of geographic space onto the page is deliberately distorted to give regions...sizes that are proportional to some quantity of interest.”* (Dorling et al., 2006, 758).
  - Can equalize differences in population density
  - Quickly and powerfully present spatial patterns
  - Clearly emphasize hotspots and inequalities



# British Columbia Police Detachments (2002 to 2006): Percent of Total Calls for Service associated with the Mental Health Act

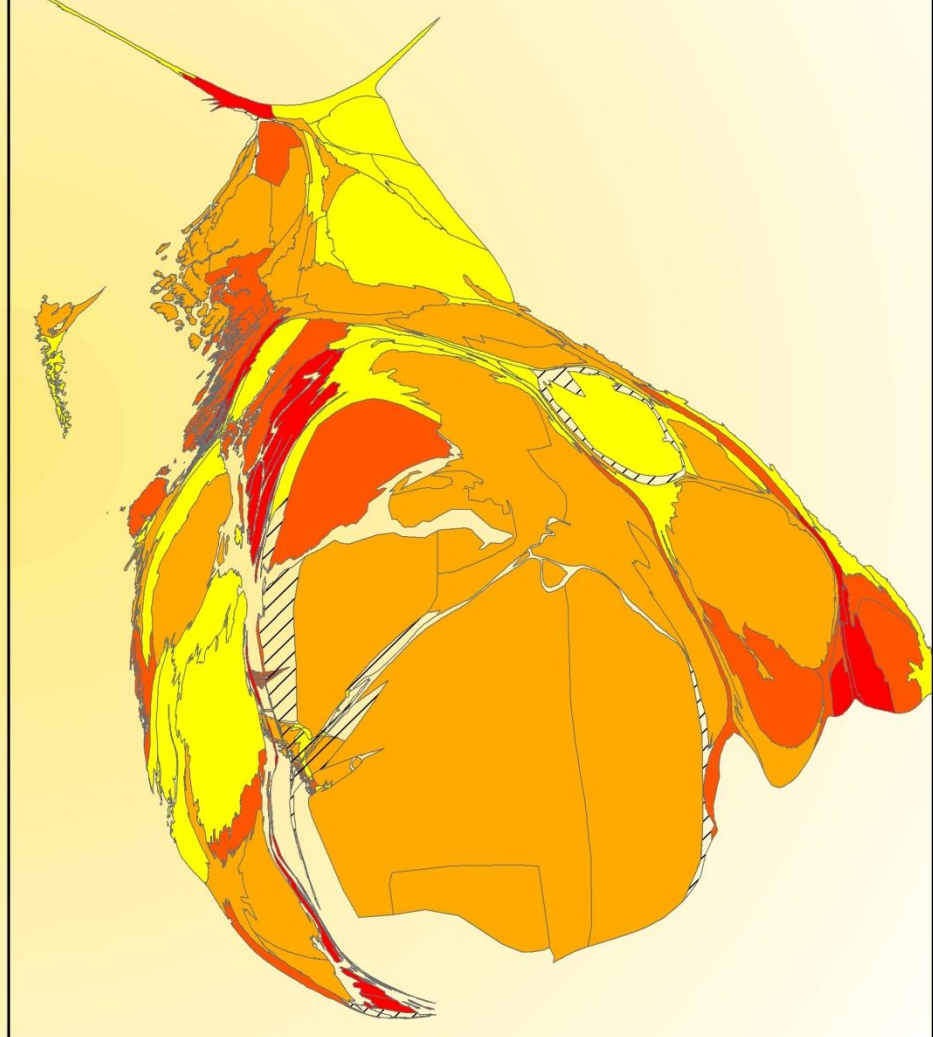
## Standard Choropleth Map



% of Total Calls: MHA	
	0 - 1.93
	1.94 - 2.68
	2.69 - 3.43
	3.44 - 6.69
	No Data



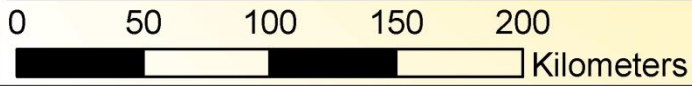
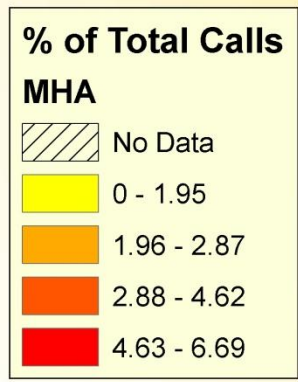
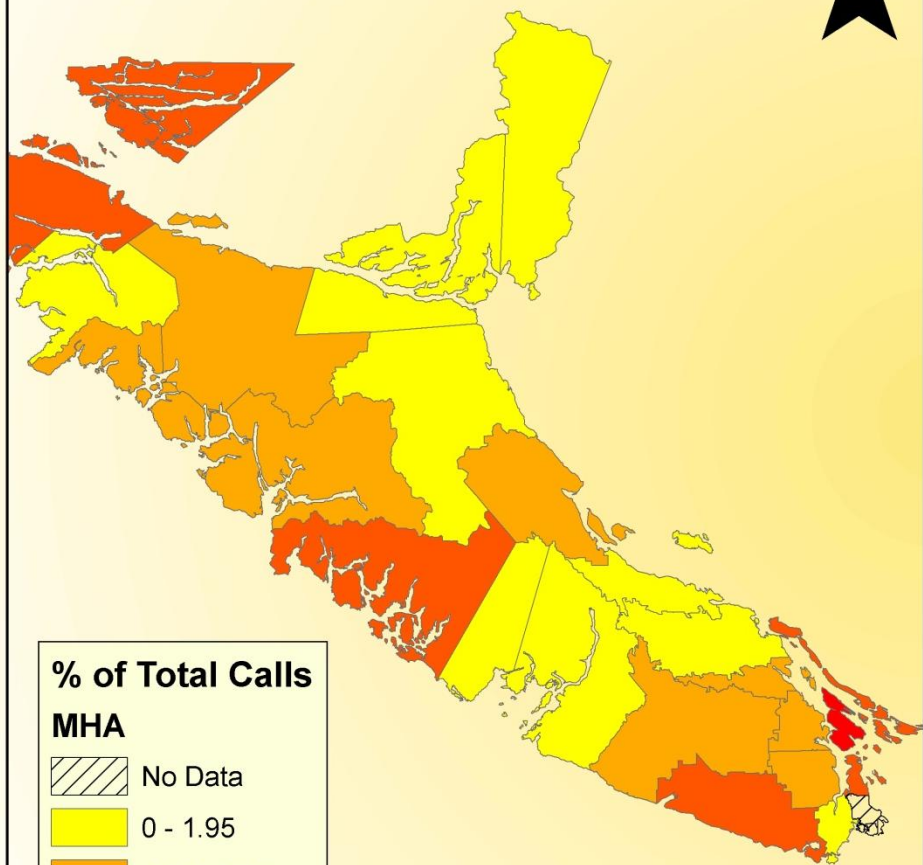
## Cartogram: Sized by Count of Total MHA Calls



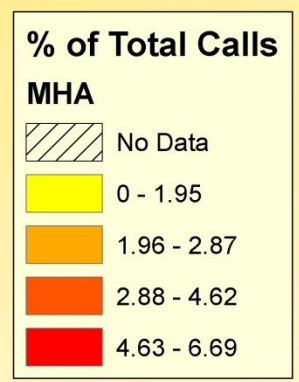
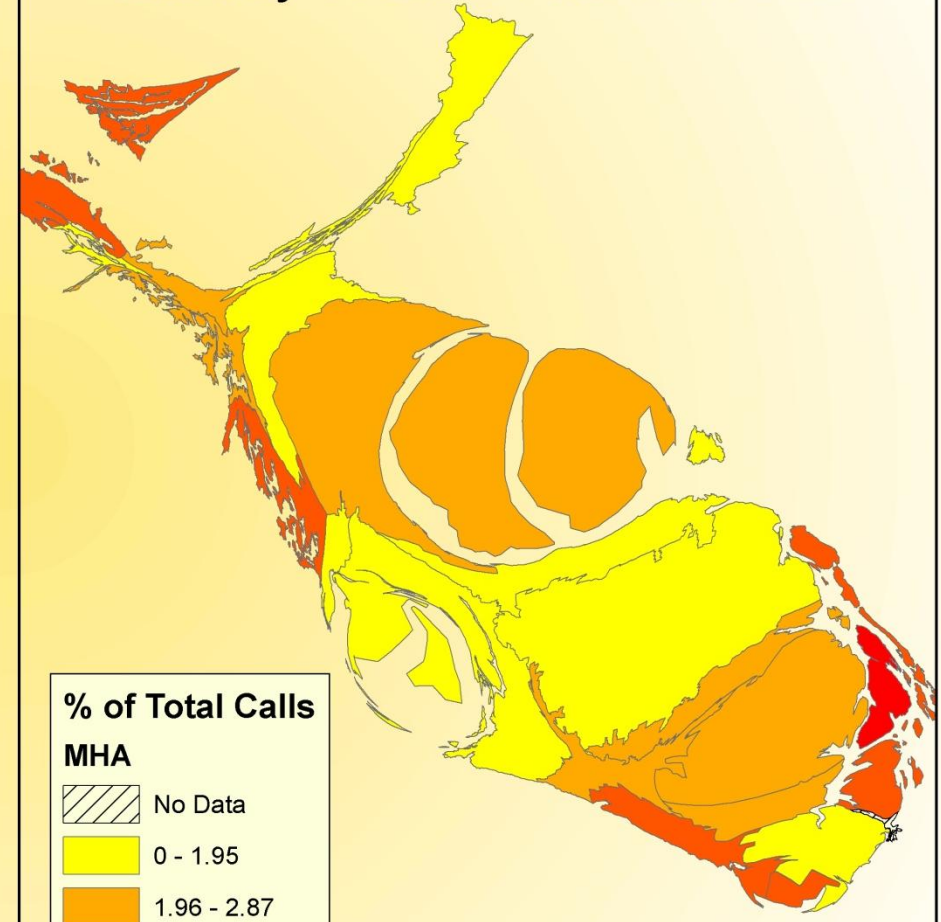
Source: Data and Boundaries: RCMP E-Division  
 Choropleth Projection: NAD 1983 UTM Zone 10N  
 Cartogram Developed using ScapeToad K. Wuschke, 2010

# Vancouver Island (2002 to 2006): Percent of Total Calls for Service associated with the Mental Health Act

## Standard Choropleth Map



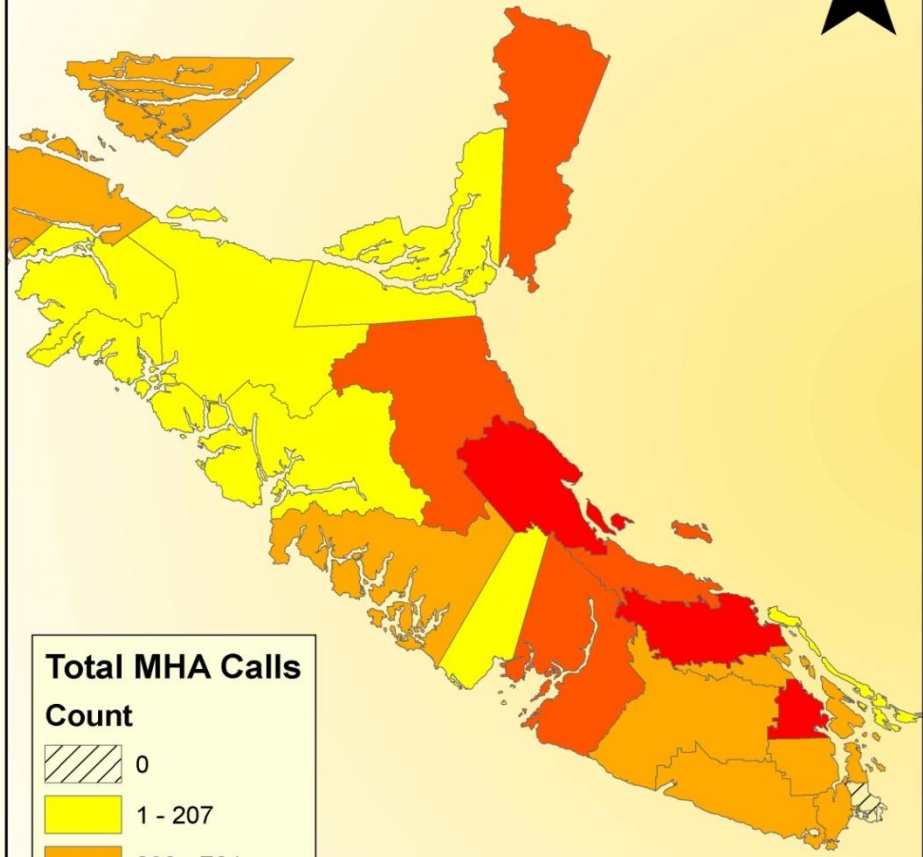
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# Vancouver Island (2002 to 2006): Count of Total Calls for Service associated with the Mental Health Act

## Standard Choropleth Map



**Total MHA Calls**

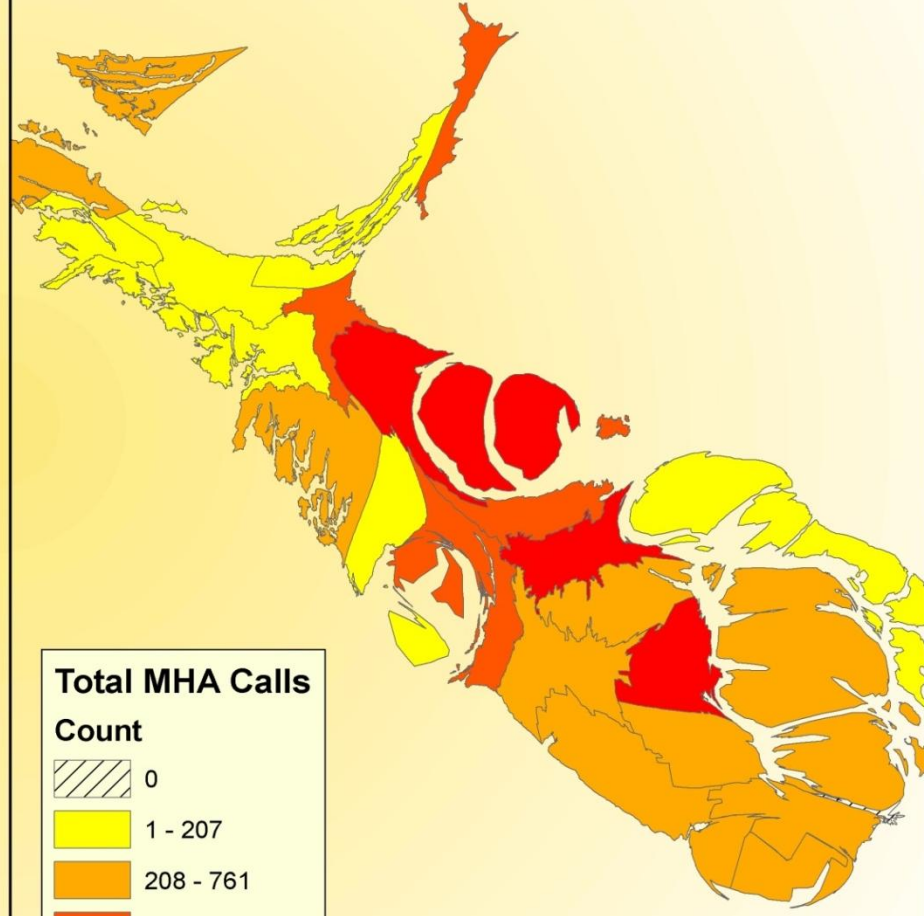
**Count**

	0
	1 - 207
	208 - 761
	762 - 1756
	1757 - 4246



## Cartogram:

### % of Total Calls Associated with MHA



**Total MHA Calls**

**Count**

	0
	1 - 207
	208 - 761
	762 - 1756
	1757 - 4246

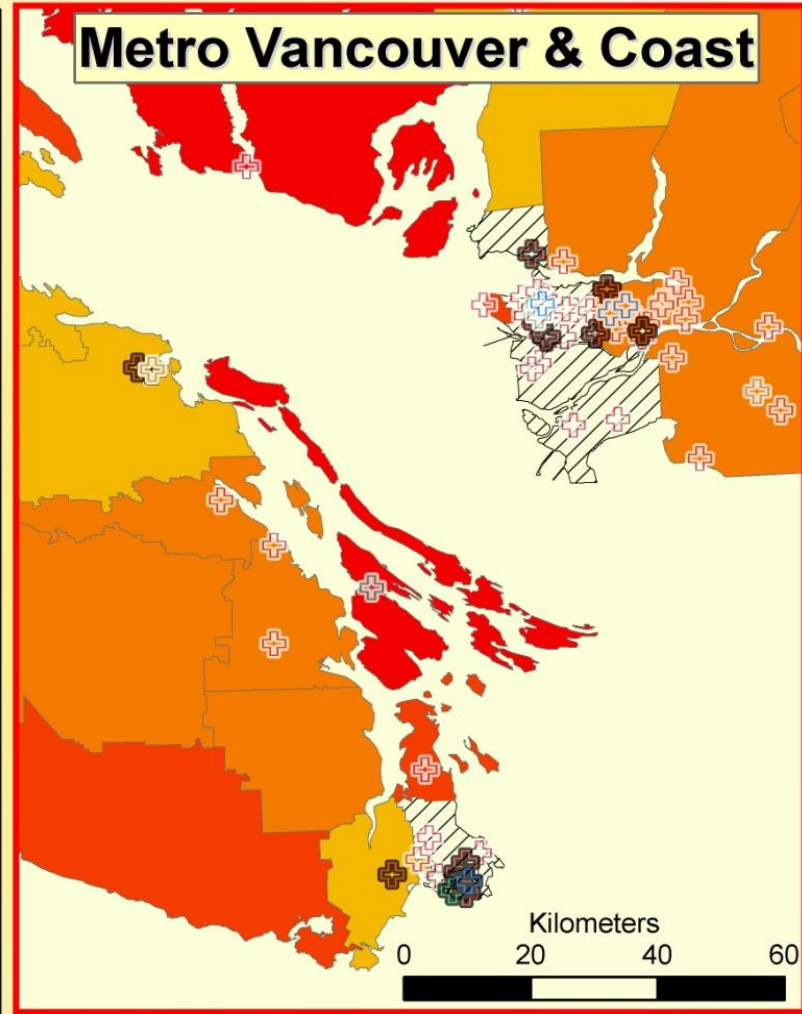
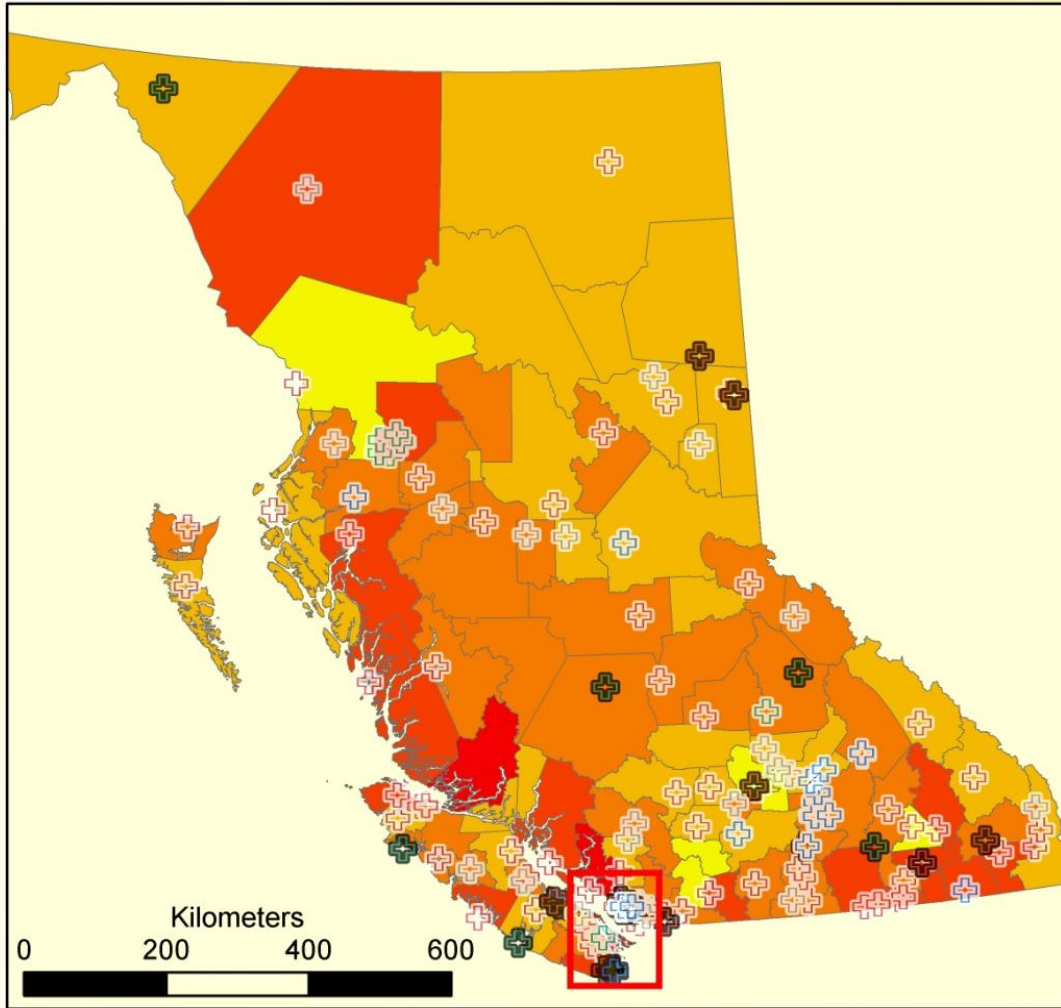
Source: Data and Boundaries: RCMP E-Division  
 Choropleth Projection: NAD 1983 UTM Zone 10N  
 Cartogram Developed using ScapeToad K. Wuschke, 2010

# Trends in Calls for Service

Measured Feature	Calls for Service Relating to the Mental Health Act (n = 118,123)		Total Calls for Service (N = 5,370,841)	
	Count	Percent	Count	Percent
Female-Related Calls	60567	<b>51.27</b>	2044005	<b>38.06</b>
Male-Related Calls	57547	48.72	3326836	61.94
Status - Charged	43	<b>0.04</b>	261877	<b>4.88</b>
Status - Complainant	42098	35.68	2138395	39.81
Status - Suspect	109	0.09	114894	2.14
Status - Victim	365	<b>0.31</b>	761799	<b>14.18</b>
Status - Violent	192	0.16	6372	0.12
Status - Diverted	2	0.00	6919	0.13
Status - Intoxicated	5374	<b>4.55</b>	210973	<b>3.93</b>
Status - Chargeable	392	<b>0.33</b>	311063	<b>5.79</b>
Status - Subject of Complaint	39975	<b>33.84</b>	717660	<b>13.36</b>
Status - Charges Recommended	1	0.00	18862	0.35
No Fixed Address Recorded	797	0.67	22600	0.42



# Percent of Mental Health Act (MHA) Coded Calls for Service and Locations of Health Services: BC, 2002-2006



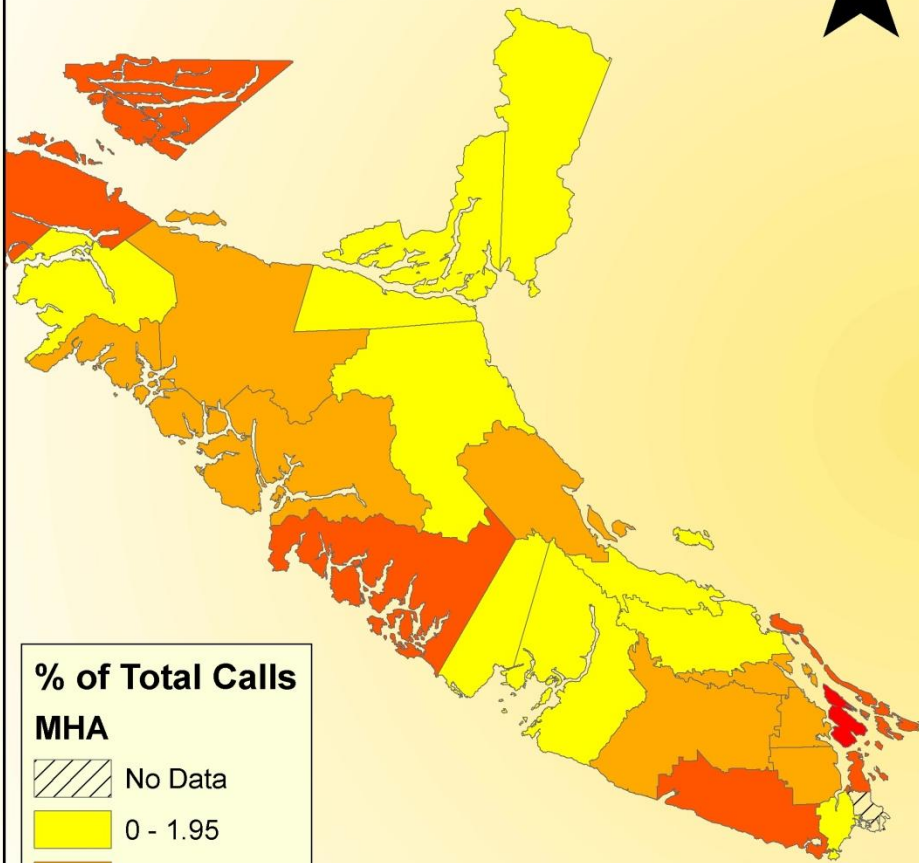
Projection: UTM 1983 Zone 10N  
Source: RCMP E-Division PIRS Data  
Queries: K. Wuschke and N. Huitson  
Map: K. Wuschke 2009



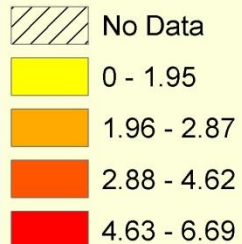


# Vancouver Island (2002 to 2006): Percent of Total Calls for Service associated with the Mental Health Act

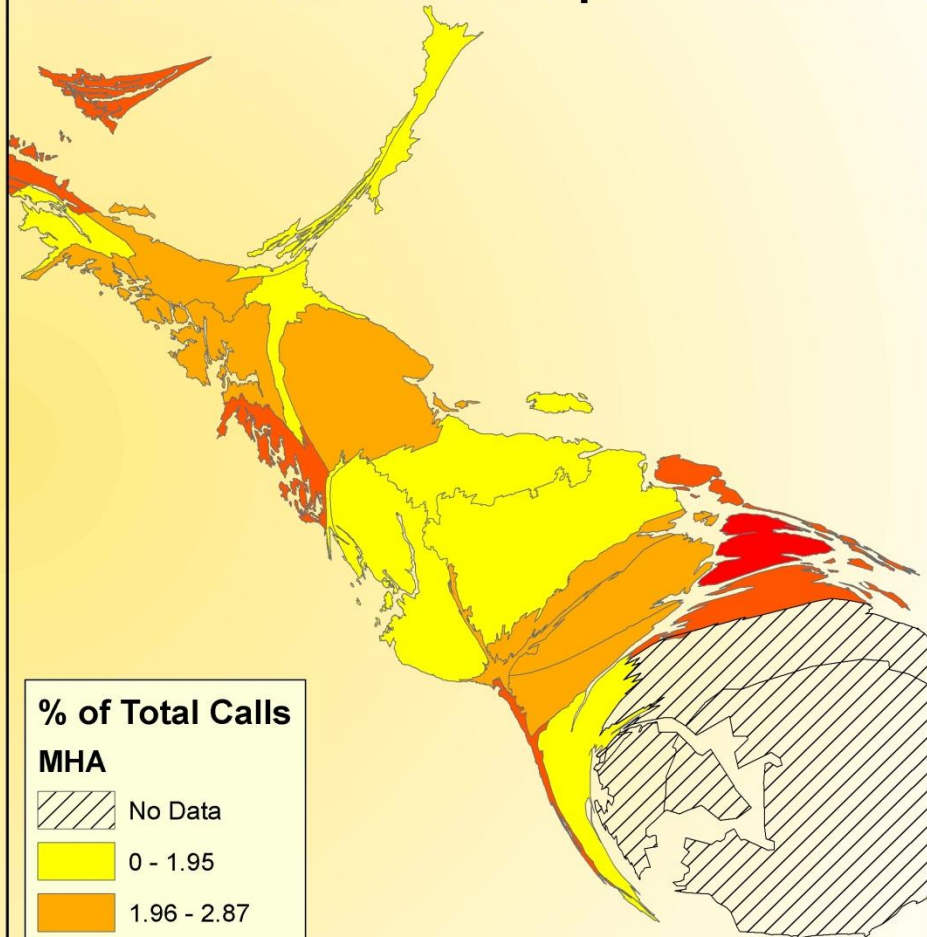
## Standard Choropleth Map



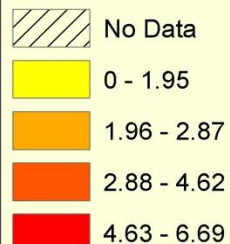
**% of Total Calls  
MHA**



## Cartogram: Count of Health Facilities per Detachment

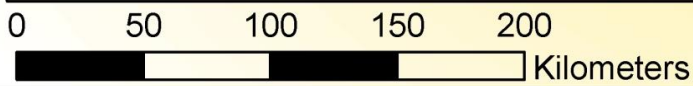
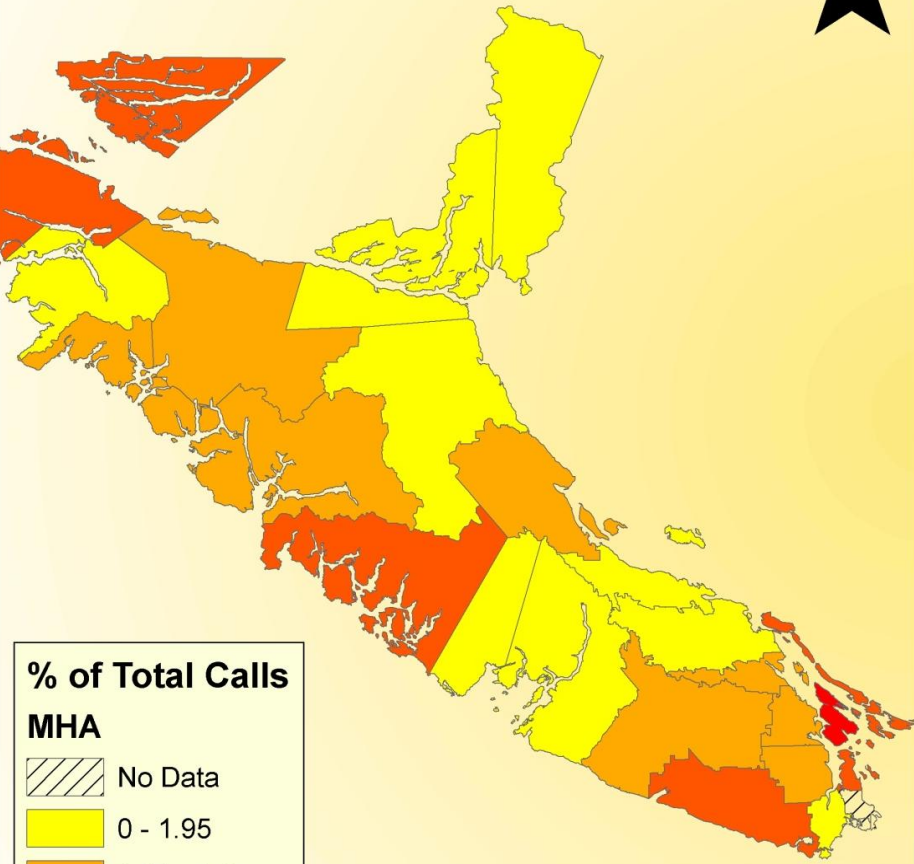


**% of Total Calls  
MHA**

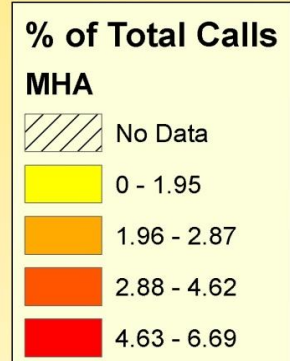
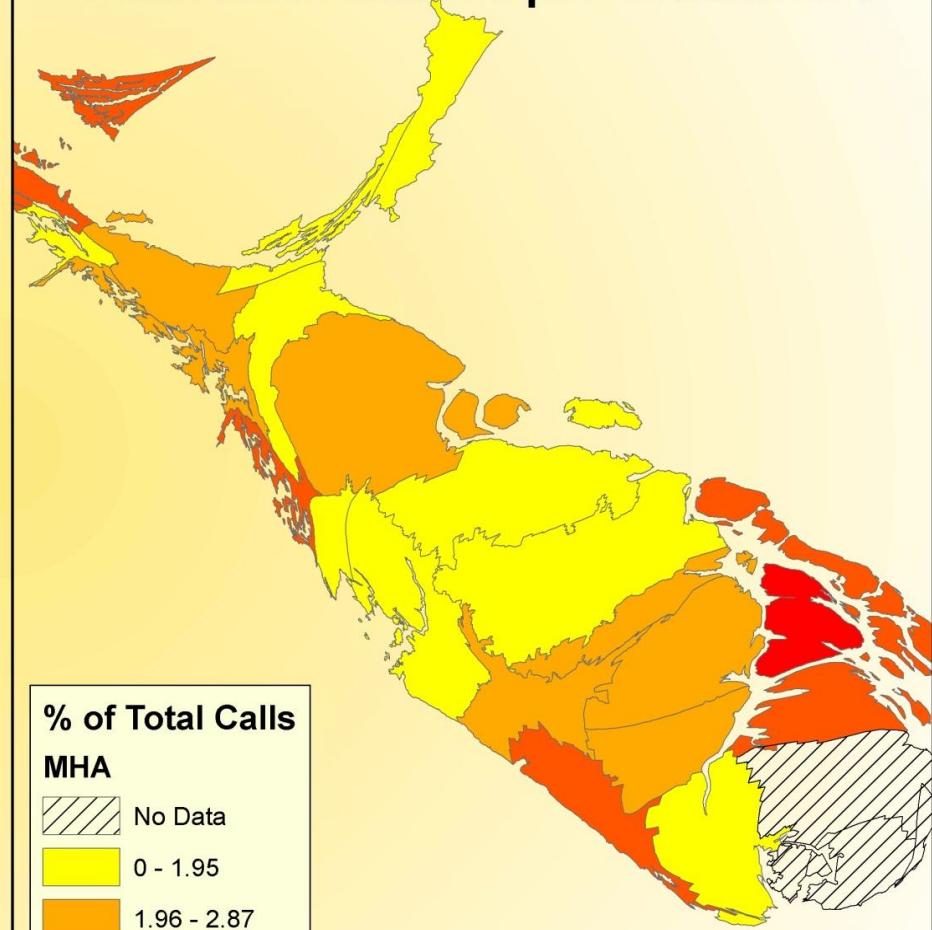


# Vancouver Island (2002 to 2006): Percent of Total Calls for Service associated with the Mental Health Act

## Standard Choropleth Map



## Cartogram: Total Road Distance per Detachment



Source: Data and Boundaries: RCMP E-Division  
 Choropleth Projection: NAD 1983 UTM Zone 10N  
 Cartogram Developed using ScapeToad K. Wuschke, 2010

# Discussion and Future Directions

- Females associated with more Mental Health Act-related calls for service
  - Differences due to prevalence in mental disorders?
  - Differences due to policing practices?
- Fewer charged, chargeable & victims
- Accessibility to Health Services
  - Unclear and complex relationships
  - Future research will incorporate Complex Systems



# Thank You!

- *Many thanks to the Institute for Canadian Urban Research Studies*
- *Thanks to Simon Verdun-Jones for direction and input*
- *Thanks to the Modeling Complex Social Systems group for supporting future directions*
- *This research has been supported by SSHRC*

