

# Geographic patterns of clinical telemedicine utilization in Ontario

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## Background

- Many areas of Ontario are medically underserved.
  - Varying health status, disease prevalence, medical care access & use [1-3]
- Telemedicine may help improve access & use of medical services to these areas.
  - Rural & Remote communities
  - Northern Ontario

## Context

- Our previous research examined the location of telemedicine sites as a measure of maximum potential access to medical care.

In this study, we ask...

- **How does clinical telemedicine utilization differ between Northern and Southern Ontario and between rural and urban areas?**

# Ontario Telemedicine Network (OTN)



- Not-for-profit organization funded by the Ontario Ministry of Health and Long Term Care
- Enables access to medical care services by using technology to connect patients to physicians throughout Ontario.
- OTN is the largest telemedicine service provider in Canada and one of the largest in the world [4-6].
- KOTM (Keewaytinook Okimakanak) works in conjunction with OTN to provide telemedicine services to fly-in communities in NW Ontario.

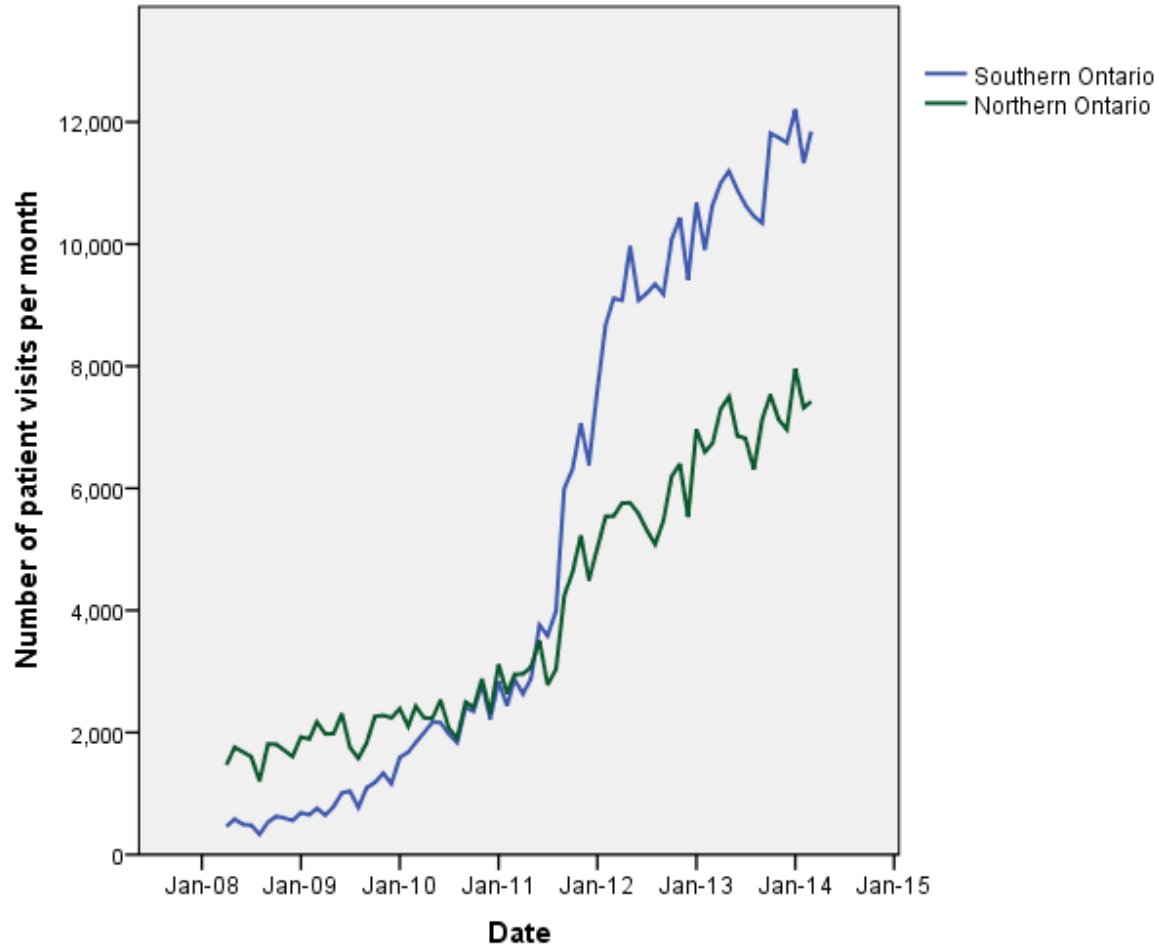
## Methods

- OHIP data with OTN-flags
  - data provided by MOHLTC under a data sharing agreement
- Data included:
  - Patient and Physician location
  - Month & year of visit – FY08/09 to FY13/14
  - Telemedicine premium code (1 per visit)
  - Medical service code (1 or more per visit)

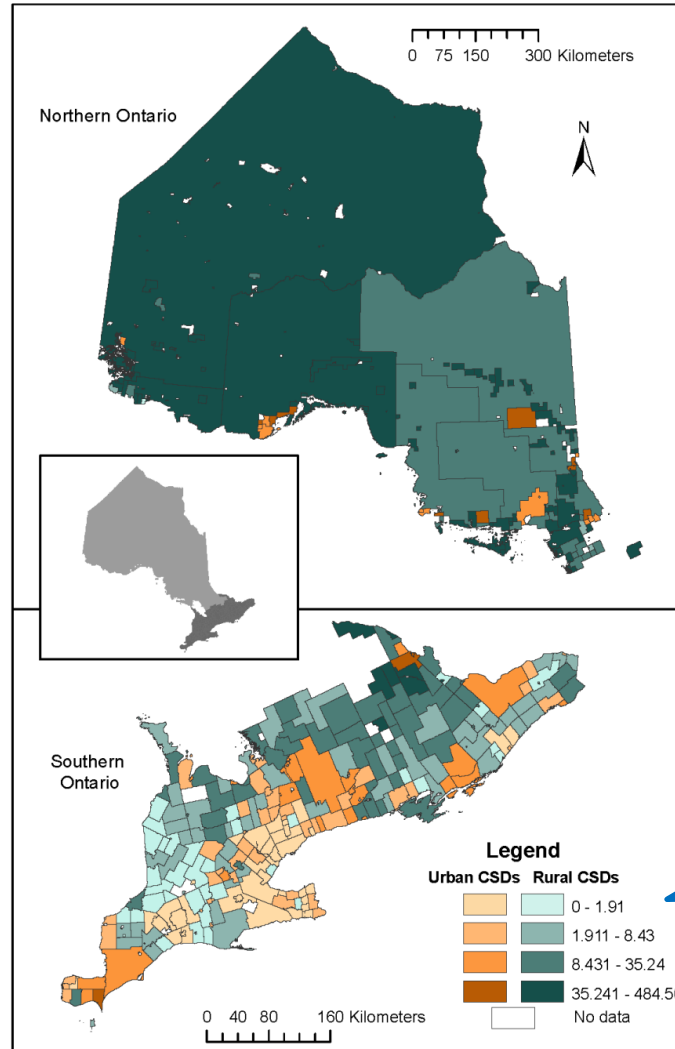
## Methods

- Categorized OHIP billing codes into OTN's therapeutic areas of care.
- Descriptive statistics and maps
  - Absolute and per capita use
  - Region (northern vs southern Ontario)
    - N. Ont. = NE or NW LHINs
  - Population size and density (urban vs. rural): Census subdivisions
    - Urban = Census Metropolitan Areas or Census Agglomerations [7]

## Patient-visits per month



**Mean annual  
 number of  
 patient visits  
 per 1000  
 people by  
 CSD  
 (rural /  
 urban)**



Urban vs Rural

Darker colours  
= higher rates



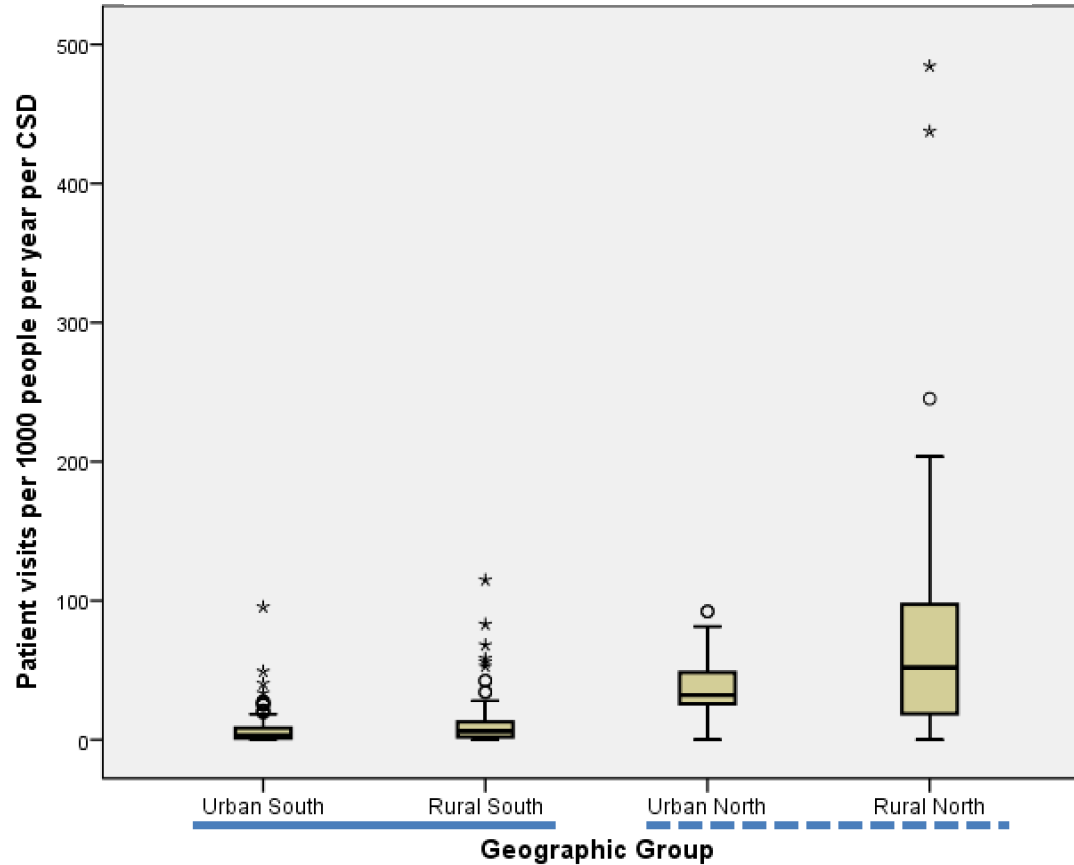
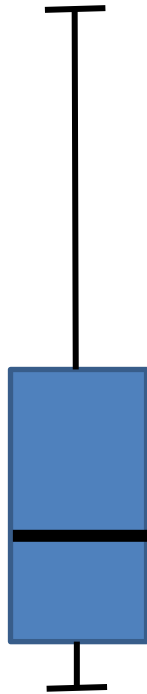
## Mean annual number of patient visits per 1000 people by CSD.

1.5 x height of box

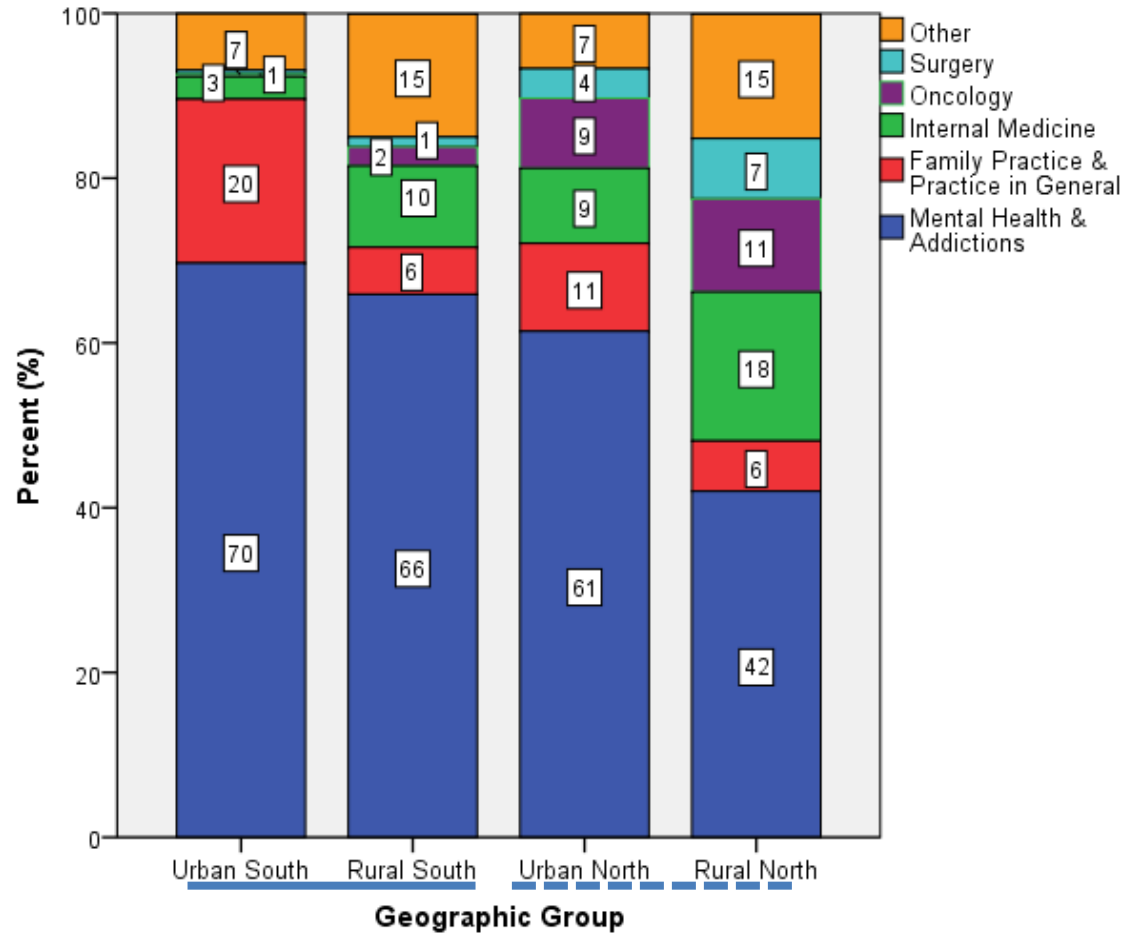
75%

50%

25%



## Therapeutic areas of care



## Summary

- Clear increase in clinical telemedicine use from 08/09 to 13/14
  - Greatest absolute increase in S. Ont.
    - Mental health and addictions makes up the majority of use in S. Ont.
    - Use is a little more diverse in the rural vs urban south
  - Per capita use is highest in N. Ont., particularly in rural areas.
    - Use is more diverse than in S. Ont.

## Limitations

### Administrative data...

- OHIP may not capture all telemedicine use in Ontario, clinical use by Indigenous people or salaried MDs may be missed.
- The 6 therapeutic areas are quite broad.
- Restricted to physician clinical visits.

## Next Steps

- Latest Fiscal Years
- Analyze by sex and age of respondent
  - Sex/gender differences in use, uptake
  - Older adult use of + medicine
- Examine disease-specific services
  - Chronic diseases (e.g., diabetes)

**On Hold**

	North	South
Rural		
Urban		



## Conclusions

- Telemedicine clinical per capita use:
  - rural > urban areas
  - Northern > Southern Ontario.
- Diversity of use is greater in rural and northern areas, suggesting that telemedicine may be providing services not otherwise available.
- However, it not known if telemedicine is replacing or augmenting face-to-face use and so the net impact is unknown.

## Acknowledgements

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- We thank our OTN colleagues for their advice and assistance.
- *The views expressed in this presentation are those of the authors and do not necessarily reflect that of the MOHLTC nor the OTN.*

## References

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# Thank you

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