

# THE PROS AND CONS OF TELEPHARMACY

A Canadian Perspective



▶ Relevant Financial Relationship:

▶ None

▶ Employee of North West Telepharmacy Solutions

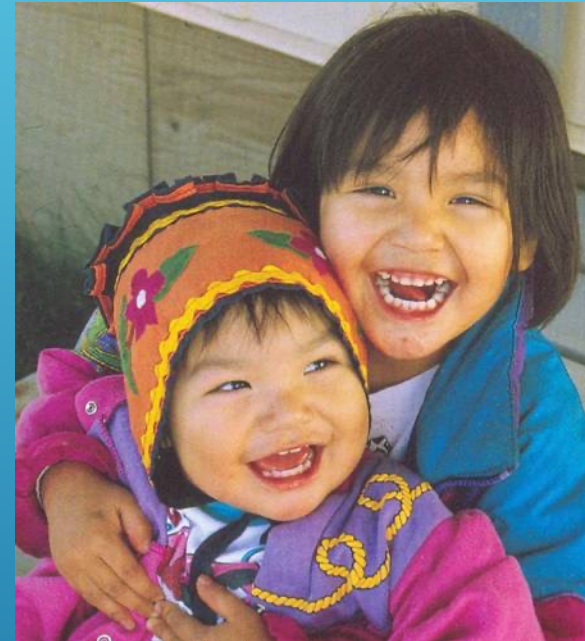
DISCLOSURE



- ▶ Telepharmacy is defined as a pharmacist at a call center ready to take your call.
  - ▶ A. True            B. False
- ▶ Telepharmacy is used only to service Hospitals with order review.
  - ▶ A. True            B. False
- ▶ Canada is a large country by land mass with many sparsely populated areas.
  - ▶ A. True            B. False

## SELF ASSESSMENT QUESTIONS

- ▶ Geography (Canada)
- ▶ Sociology (Canada)
- ▶ Telepharmacy Servicing Hospitals
- ▶ Telepharmacy Supporting Primary Care
- ▶ Cons/Cautions RE: Telepharmacy



# OUTLINE





and nearby places

# Geography - Canada



Arctic Ocean

Greenland Sea

Barents

Baffin Bay

Northwestern Passages

Greenland

Iceland

Norwegian Sea

Canada

Hudson Bay

Labrador Sea

Sweden

Finland

Norway

United Kingdom

Germany

France

Italy

Ireland

Denmark

Poland

Belarus

Ukraine

Romania

Spain

Greece

Turkey

United States

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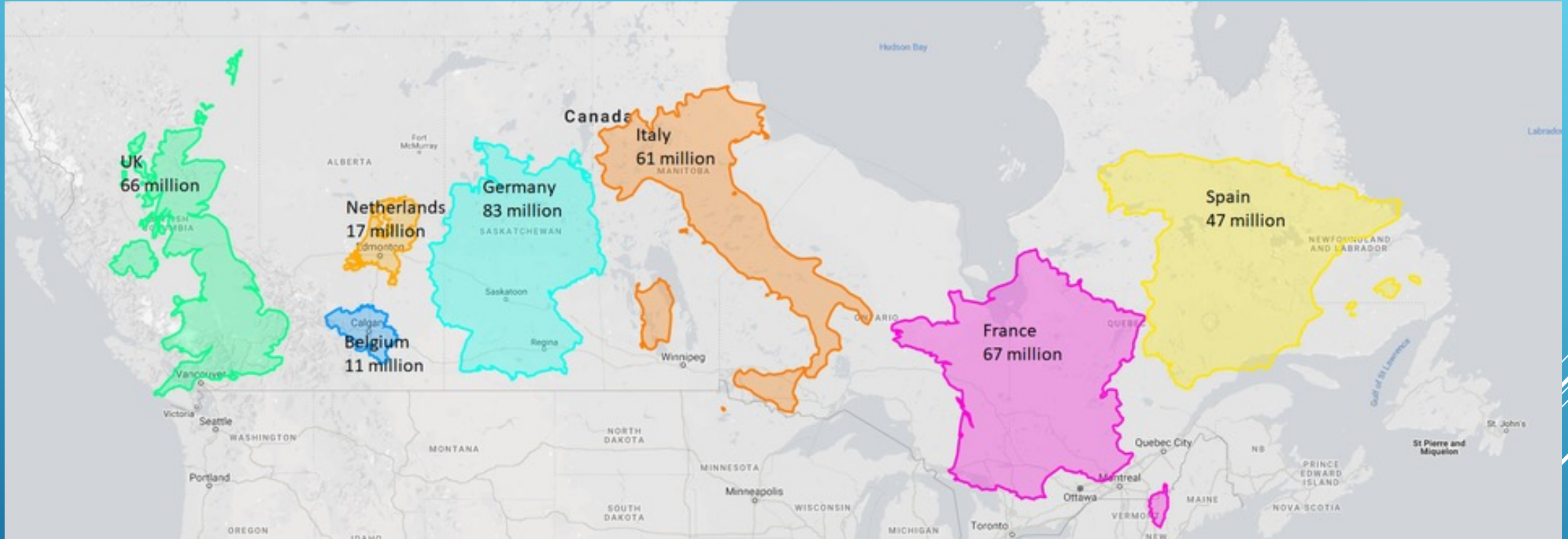
OK

NE

KS







Population of Canada: 37 million  
 - (66% live within 100km of US border)

Population of Europe: 743 million

Population Density:  
 Europe: 34 people/km<sup>2</sup>  
 All of Canada: 4 people/km<sup>2</sup>  
 Remote Canada: <1 person/km<sup>2</sup>

- ▶ As a country, originally French and then English colonies
- ▶ Immigration in waves from countries/cultures worldwide
- ▶ Large First Nations Population
  - ▶ Huge upheaval from nomadic to colonization
  - ▶ High rates of diabetes
  - ▶ Reconciliation after many decades of assimilation policies

# SOCIOLOGY



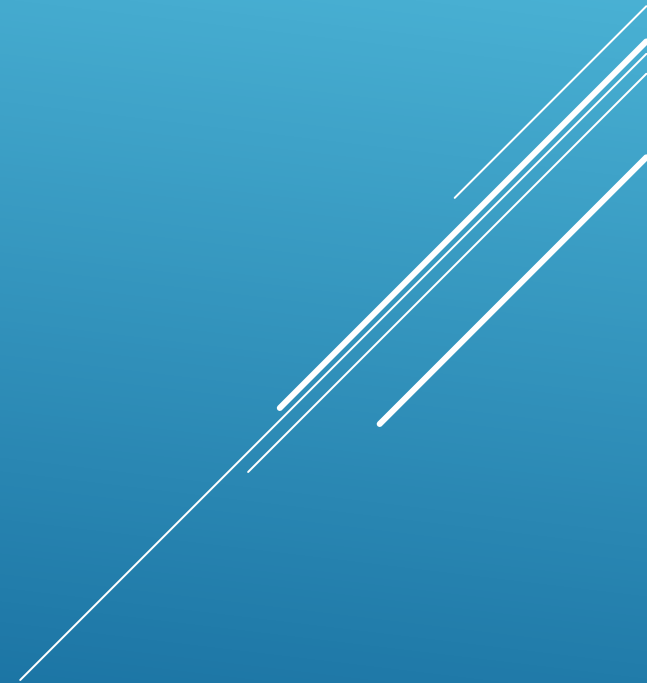




# The Challenge

Health Care/Pharmacy Care

- Effectively getting the care and unique knowledge of pharmacists to people that do not have access



# Telepharmacy

"the use of telecommunications technology to facilitate or enable the delivery of high-quality pharmacy services in situations where the patient or healthcare team **does not have direct (in-person) contact** with pharmacy staff."

- Canadian Society of Hospital Pharmacists

"[...] practice in which a pharmacist utilizes telecommunications technology to oversee aspects of pharmacy operations or provide patient care services"

- American Society of Health-Systems Pharmacists

## ▶ Hospital

### ▶ Remote Order Validation

- ▶ Centralized
- ▶ Pharmacist can cover multiple Hospitals at the same time
- ▶ Pharmacists are available by phone, text, video

### ▶ Medication safety initiatives

- ▶ Pharmacy & Therapeutics
- ▶ Development of order sets
- ▶ Antibiotic Stewardship Programs

### ▶ Therapeutic Drug Monitoring

### ▶ Pharmacokinetics

## ▶ Pharmaceutical Care

### ▶ Conduct Best Possible Medication Histories (BPMH)

### ▶ Medication Reconciliation

▶ Inform patients about medication changes pre discharge

- ▶ Follow up after discharge home

### ▶ Primary Care before any use of inpatient hospitals

24/7 Access to a Pharmacist

# THE RESPONSE: TELEPHARMACY

Available anywhere you have a communication tool (phone/video)



- ▶ Amenable to Computerized Prescriber Order Entry
  - ▶ 24/7
- ▶ Can adapt to scanned orders that are paper based
  - ▶ Still over 50% of hospitals in Canada
- ▶ ADUs or Centralized Fill support

# HOSPITAL TELEPHARMACY



# URBAN CENTRES – EXTENDED HOURS

## An example of the impact of telepharmacy

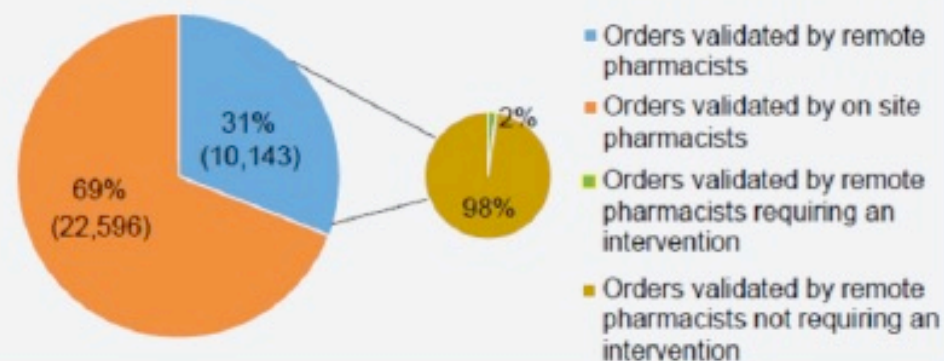
- Before telepharmacy:
  - Hospital pharmacies were open  
**79 hours/week (47%)**
- After telepharmacy:
  - **168 hours / week**
  - **25 hospitals** of 15-389 beds in Ontario
  - A team of 47 telepharmacists
  - 1.3 minutes/order

Newman P et al. Telepharmacist Medication Order Review: A Prospective Observational Study in Ontario Health Systems. CSHP Professional Practice Conference 2019

**And the  
quality?**

# Interventions detected by telepharmacists

Figure 1: Orders validated by pharmacists (n=32,739)



Wong A et al. Identification and Classification of Drug Related Problems by Remote Pharmacists in a Community Hospital. Poster presented at: CSHP Banff Seminar; March 2019; Banff AB.

Figure 3: Causes of drug therapy problems (n=227)

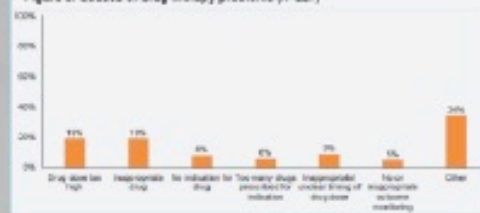
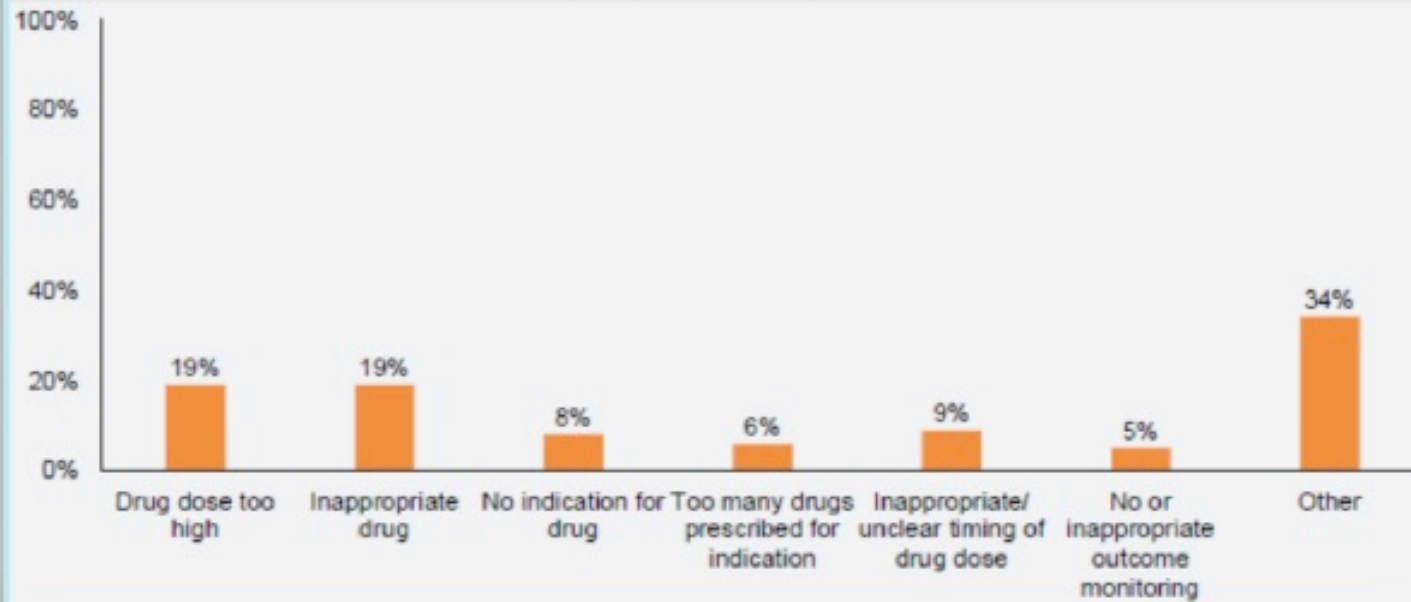




Figure 3: Causes of drug therapy problems (n=227)



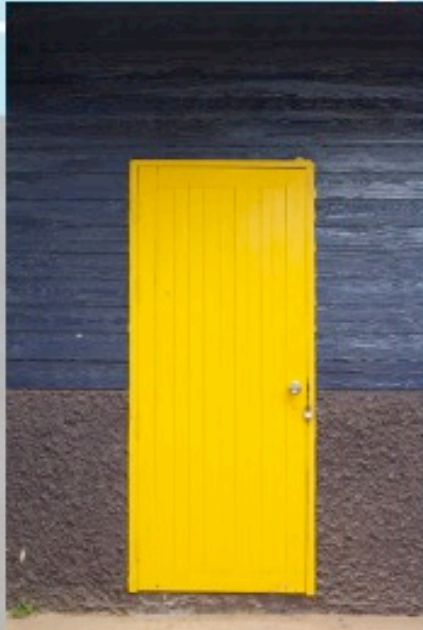
In summary

## In summary

- Dispensing is no longer a limiting factor
- Telepharmacy enables extended coverage
- Interventions are not only possible, but necessary

If an Hospital Pharmacist is essential at 2pm, then they are essential at 2am

# CLINICAL PHARMACY SERVICES



## Beyond the four walls

Clinical pharmacy:

"to optimize **patient outcomes** through collaborative work within **multidisciplinary teams** to achieve the **responsible use of medications** across all settings"

- Canadian Society of Hospital Pharmacists

**The Clinical  
Pharmacist**



# EMR



## The clinical pharmacist

The revolution with Electronic Medical Records

All information is now available at the tip of our fingers

- Allows clinical interventions by the telepharmacist
- Allows consultation of experts in rural areas

Medication  
reconciliation

Antimicrobial  
stewardship

Anticoagulation

Expert  
pharmacists

Or pharmacists  
replaced...?



# MEDICATION REVIEW STUDY

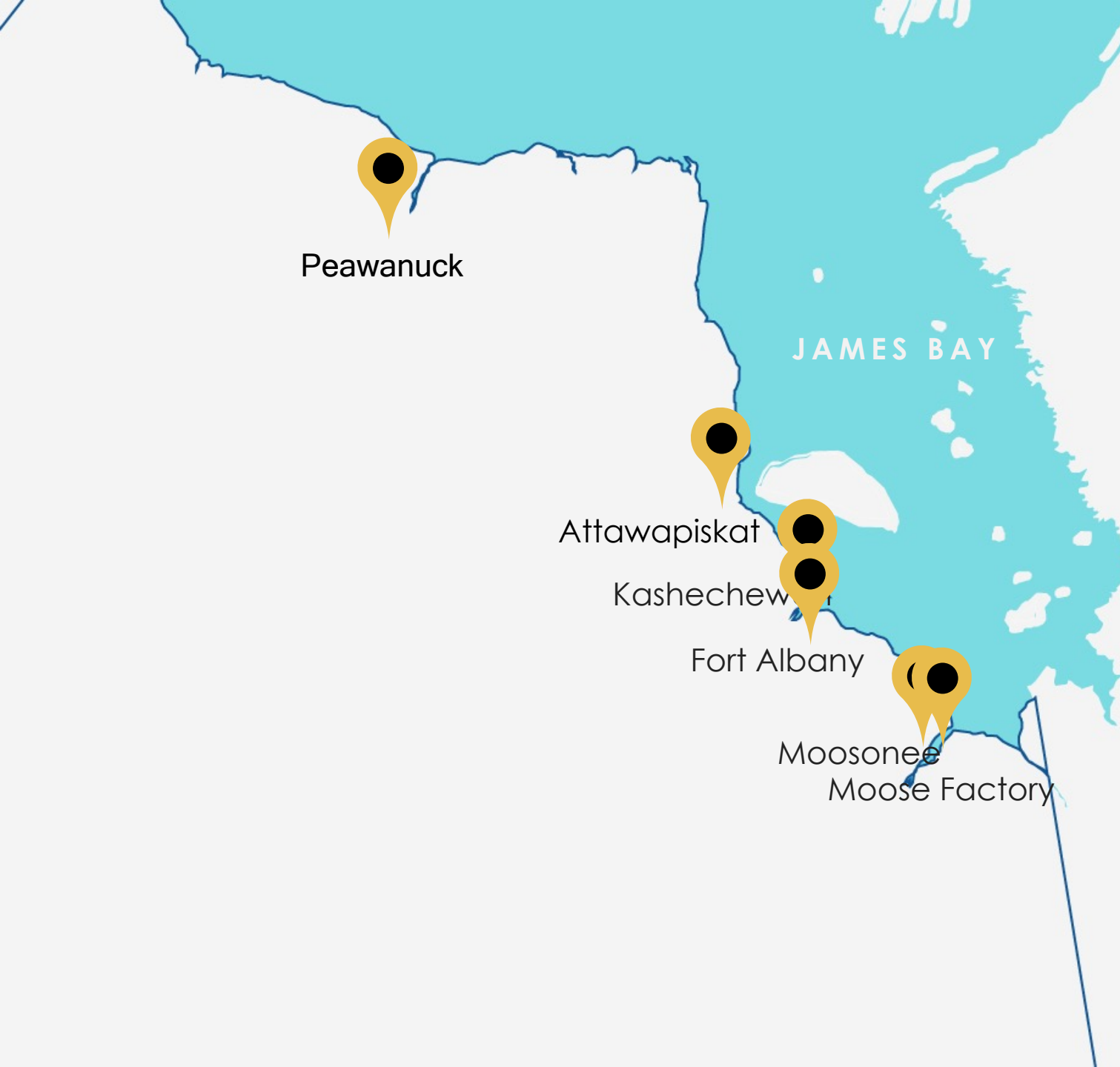
Primary Care Clinical Telepharmacy

- ▶ Communities along the Ontario coast of James Bay
  - ▶ Population (2013) – 11,681 (majority First Nations)
  - ▶ Diabetes – 1,366 (13%)
- ▶ Lifetime probability of developing Diabetes (First Nations): 85%

## JAMES BAY REGION







- ### Transportation
- Commercial/charter aircraft
  - Train to Moosonee (240 mi)
  - Barge (ship) during the summer months
  - Winter road as far as Attawapiskat

- ▶ Picked 2 communities
  
- ▶ Determined Eligible patients:
  1. On 3 or more prescription medications
  2. Diabetic
  
- ▶ Call patients for to explain s/he can have a videoconference medication review with a pharmacist
  
- ▶ Schedule and see how it goes
  - ▶ Determine feasibility (time taken; interventions; acceptability)

## MEDICATION REVIEW VIA VIDEOCONFERENCE

- ▶ 29 patients interviewed (14-20 min/interview)
  - ▶ Approximately 60min with evaluation/planning, interview, documentation
- ▶ 1.8 pharmacotherapy problems per patient
- ▶ 85% of patients required a pharmacist intervention (recommendation)
- ▶ 77% of responses by survey valued the pharmacist via video

## MEDICATION REVIEW VIA TELECONFERENCE






▶ Challenges:

- ▶ Technology – broadband speed into homes slower
- ▶ Reimbursement – pharmacists have no approved fee for service pricing
- ▶ Cultural differences
- ▶ Patients don't show up for appointments

# MEDICATION REVIEW VIA TELECONFERENCE

# OPPORTUNITY: POST HOSPITAL DISCHARGE FOLLOW UP

## An American study

-  Academic hospital with 730 beds
-  Selection of patients with high rates of readmission or with high risk of readmission
-  6th year Pharm D students made a phone call
  - 131 patients
  - Between 14-60 days (median of 17.78 days)

Plakogiannis et al. Impact of Pharmacy Student-Driven Postdischarge Telephone Calls on Heart Failure Hospital Readmission Rates: A Pilot Program. Hospital Pharmacy 2018;1-5.

## Results

- Readmissions within 30 days  
24.43% vs 11.45% p 0.01%
- Readmissions within 90 days  
38.17% vs 22.9% p 0.01%



- ▶ Connectivity
  - ▶ Poor broadband coverage in remote parts of Canada
  - ▶ Loss of connection requires alternate arrangements
    - ▶ Usually substandard of care with catch-up later
- ▶ Less presence (no face to face)
  - ▶ Patients are there in the hospital
  - ▶ Nurses are there in hospital
  - ▶ MDs are there in person some of the time
  - ▶ Shouldn't pharmacists be there?
- ▶ Specialization – pediatrics, oncology, Critical Care
  - ▶ Are those trained pharmacists available at the right time?



# CAUTIONS – CONS OF TELEPHARMACY

- ▶ If EMRs and access and information are the tickets to enable telepharmacy, are algorithms and Artificial Intelligence (AI) the means to fully replace the human pharmacist?
  - ▶ Antidote: Make the human interaction meaningful

## CAUTIONS – CONS OF TELEPHARMACY





- ▶ Pharmacists CAN deliver clinical services outside the four walls of the Hospital utilizing telepharmacy.
- ▶ Telepharmacy is the enabler for pharmacist services across the large country of Canada to all its population.
- ▶ Telepharmacy efficiently uses pharmacists to provide services to hospitals in off peak hours.
- ▶ Despite telepharmacists not being present onsite, the human aspect of the pharmacist is still essential for effective care and communication.

## TAKE HOME MESSAGES

