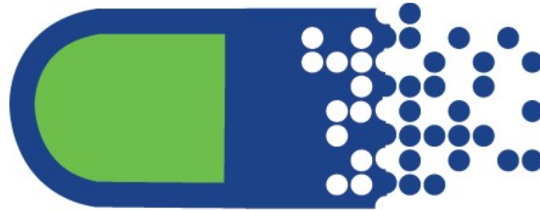
CaDeN
Canadian Deprescribing Network



ReCaD
Réseau canadien pour la déprescription

Improving the Appropriate Use of Medications Across Canada

Translating International Health Policy Evidence to the Canadian Context

2021 CADTH Symposium

Moderator: Dr. Jim Silvius

Presenters: Dr. Cheryl Sadowski
Dr. Mathieu Charbonneau
Dr. Justin Turner
Dr. Cara Tannenbaum

Acknowledgements: Steve Morgan, Camille Gagnon, Jennie Herbie and Maha Rehman

Disclosures

Dr. Cheryl Sadowski

- Member of and completed a sabbatical at CaDeN
- Funding from Pfizer Canada for a project entitled: A Quality Improvement Project to Address lower urinary tract symptoms (LUTS) by pharmacists in the community ($109,000.00)

Dr. Mathieu Charbonneau: No real or perceived conflicts of interest

Dr. Justin Turner: No real or perceived conflicts of interest

Dr. Cara Tannenbaum

- Role of Departmental Science Advisor, Health Canada
- Scientific Director, Institute of Gender and Health, CIHR
- Professor and Endowed Chair in Pharmacy, UdeM
- Past Director, CaDeN
- Pharmacy Chair, Université de Montréal

Dr. Jim Silvius

- Chair, Canadian Drug Expert Committee, CADTH

About
The Canadian Deprescribing Network

- Codirectors:
  - Dr. Jim Silvius
  - Dr. Justin Turner

- Formally established in 2016
- Lack of national coordination of appropriate medication use
- For a national strategy in Canada

CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

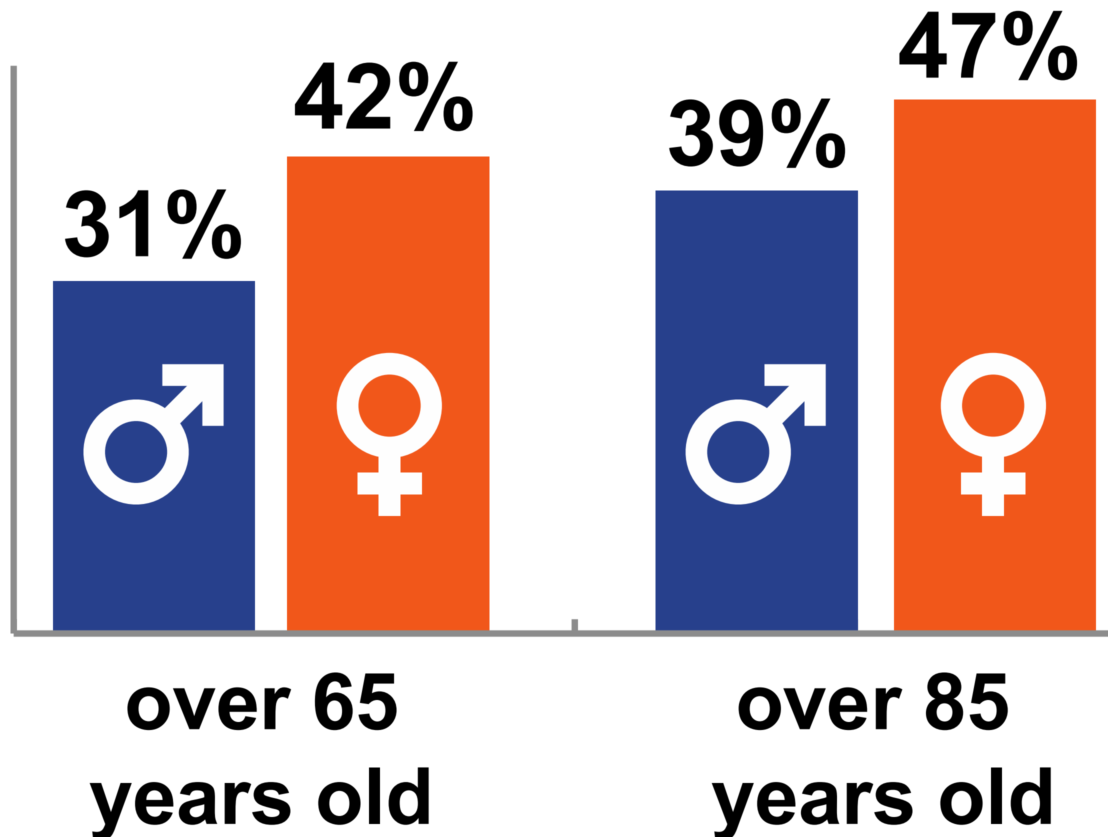
About
The Canadian Deprescribing Network

- Healthcare leaders, clinicians, academic researchers and patient advocates
- Raising awareness and eliminating the use of potentially inappropriate medications for older Canadians
- Ensuring access to safer drug and non-drug therapies

CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

Canadian seniors who take at least one inappropriate medication



(Morgan *et al.* 2016)

CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

Inappropriate medication use in Canada

$419 million

Canadians spend $419M per year on potentially harmful prescription medications. This does not include hospital costs.

$1.4 billion

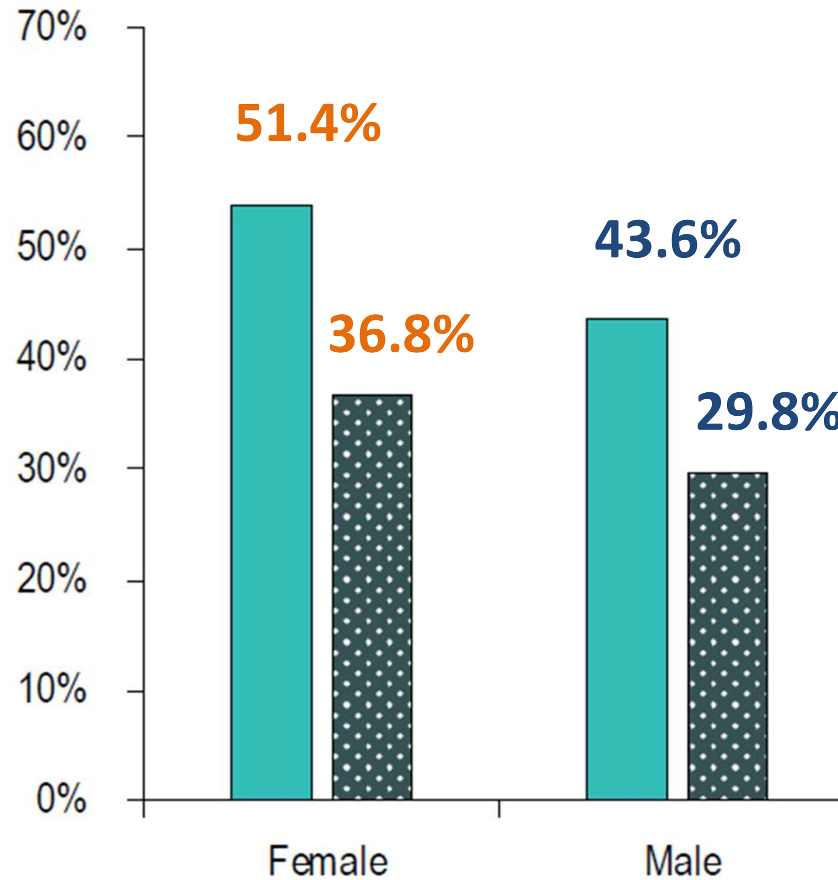
Canadians spend $1.4B per year in health care costs to treat harmful effects from medications, including fainting, falls, fractures and hospitalizations.

(Morgan *et al.* 2016)

CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

Seniors' usage rate of drugs from Beers list, 65 y and older, Canada, 2016



CaDeN Canadian Deprescribing Network ReCaD Réseau canadien pour la déprescription

(From CIHI, 2018)

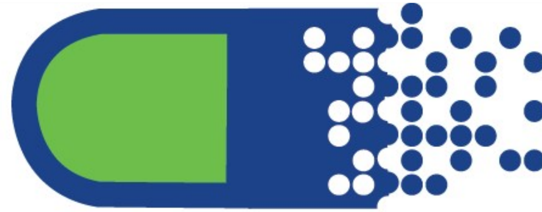
Overview

1. Stories to tell: provincial prescription patterns and policy case studies
2. Policies that promote appropriate medication use in Australia, England and Sweden
3. Discussion: how to implement best practices in Canada

CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

CaDeN
Canadian Deprescribing Network



ReCaD
Réseau canadien pour la déprescription

1. Stories to tell: provincial prescription patterns and policy case studies

Dr. Cheryl A. Sadowski

Professor, Faculty of Pharmacy & Pharmaceutical Sciences

The Question

- Are there differences in high-risk medications based on jurisdiction?
  - What are the policies that have led to those differences?

CaDeN
Canadian Deprescribing Network

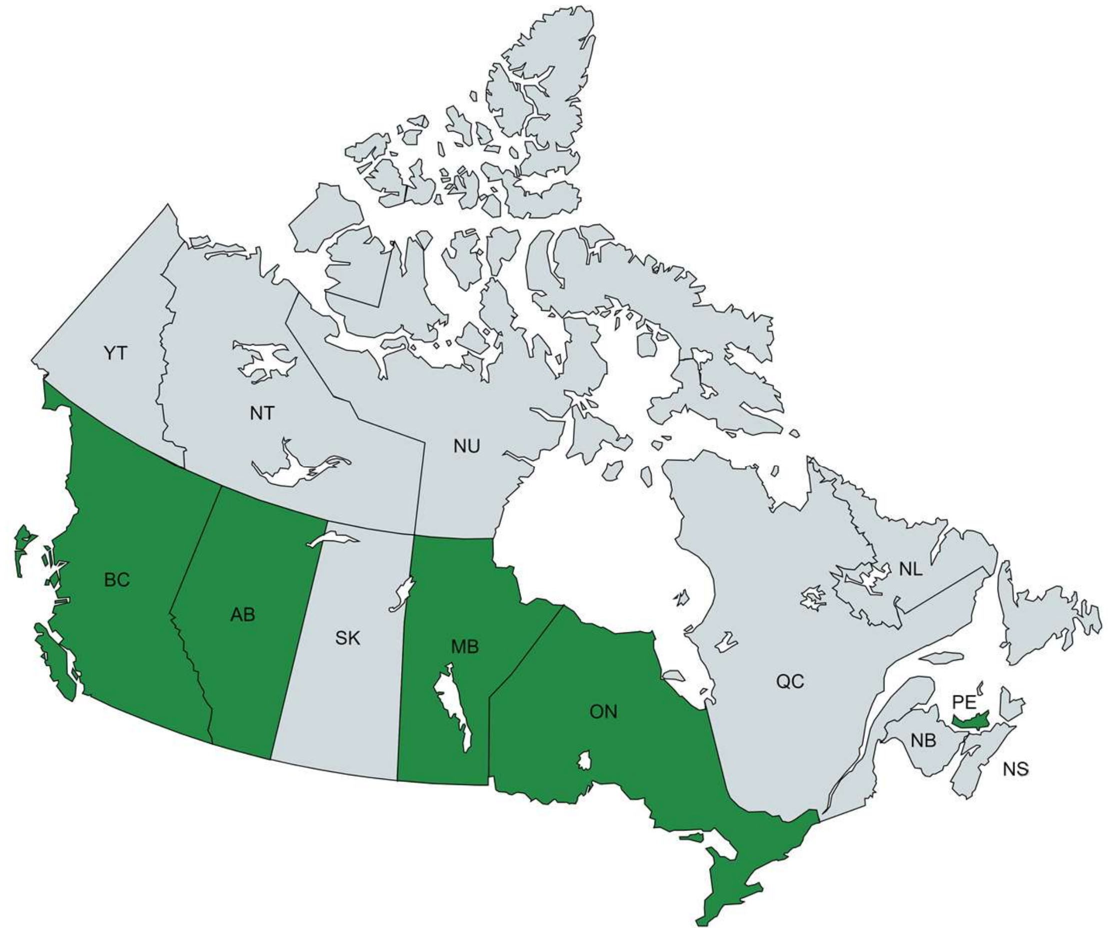
ReCaD
Réseau canadien pour la déprescription

Method

- **Data**: Canadian Institute for Health Information (CIHI)
- **Population**: Individuals age 65y and older
- **Dates**: 2011Q1-2019Q1
- **Medications** (selected based on):
  - Chronic use
  - Safety risks
  - Potential overuse
- **Analysis**: Descriptive
  - analyzed by year/quarter and sex

Medications

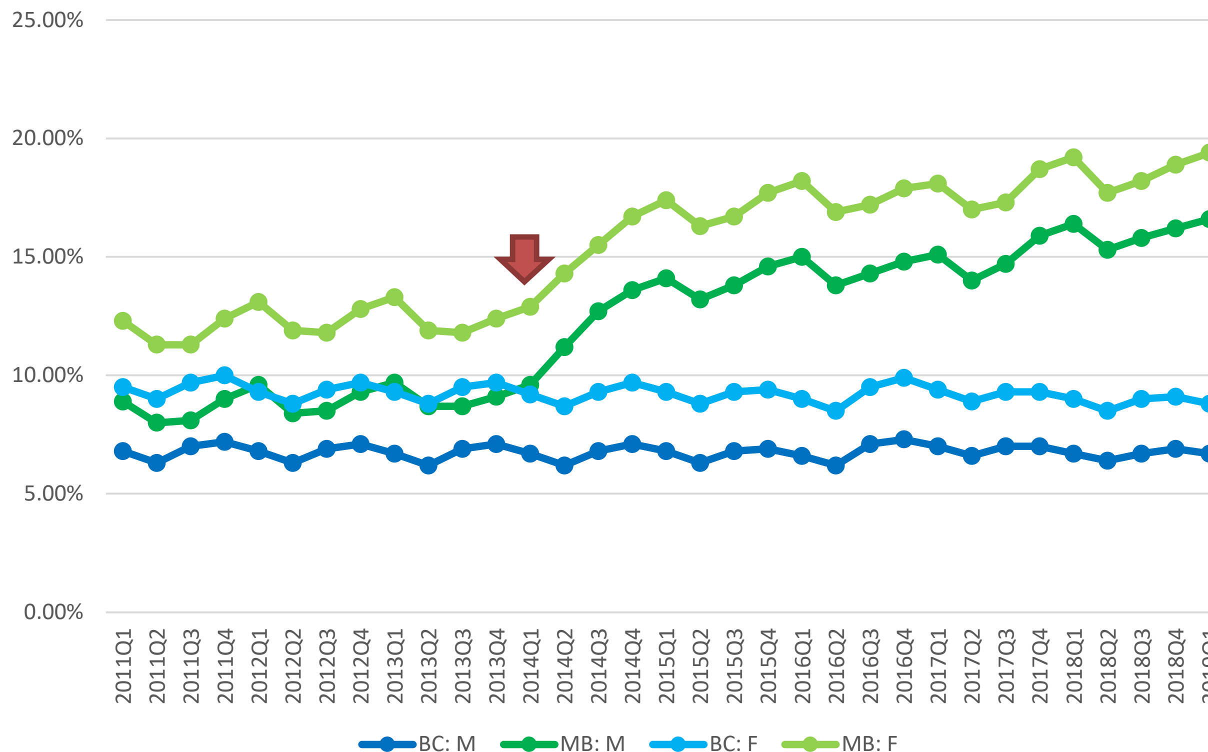
- Proton pump inhibitors
- Gabapentinoids
- Nonsteroidal anti-inflammatory steroids
- Benzodiazepines



CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

Proton Pump Inhibitor use, BC and MB



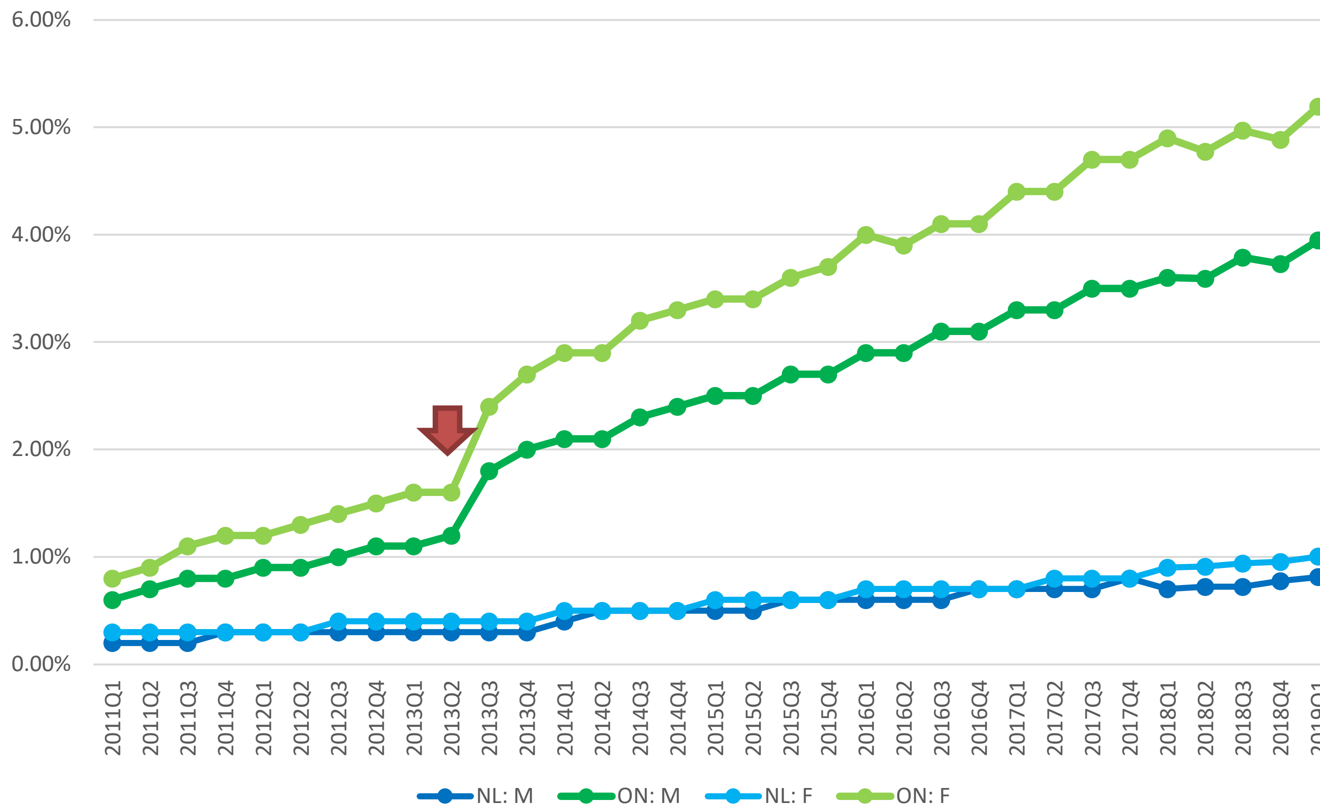
- Note 2014 change in Manitoba Pharmacare Drug Benefits for PPI
- No change in BC for *Limited coverage drug*

Potentially inappropriate use of Proton pump inhibitors (PPI) without NSAIDs

CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

Gabapentinoids Use, Ontario



2013 - Ontario change from restricted access to general benefit

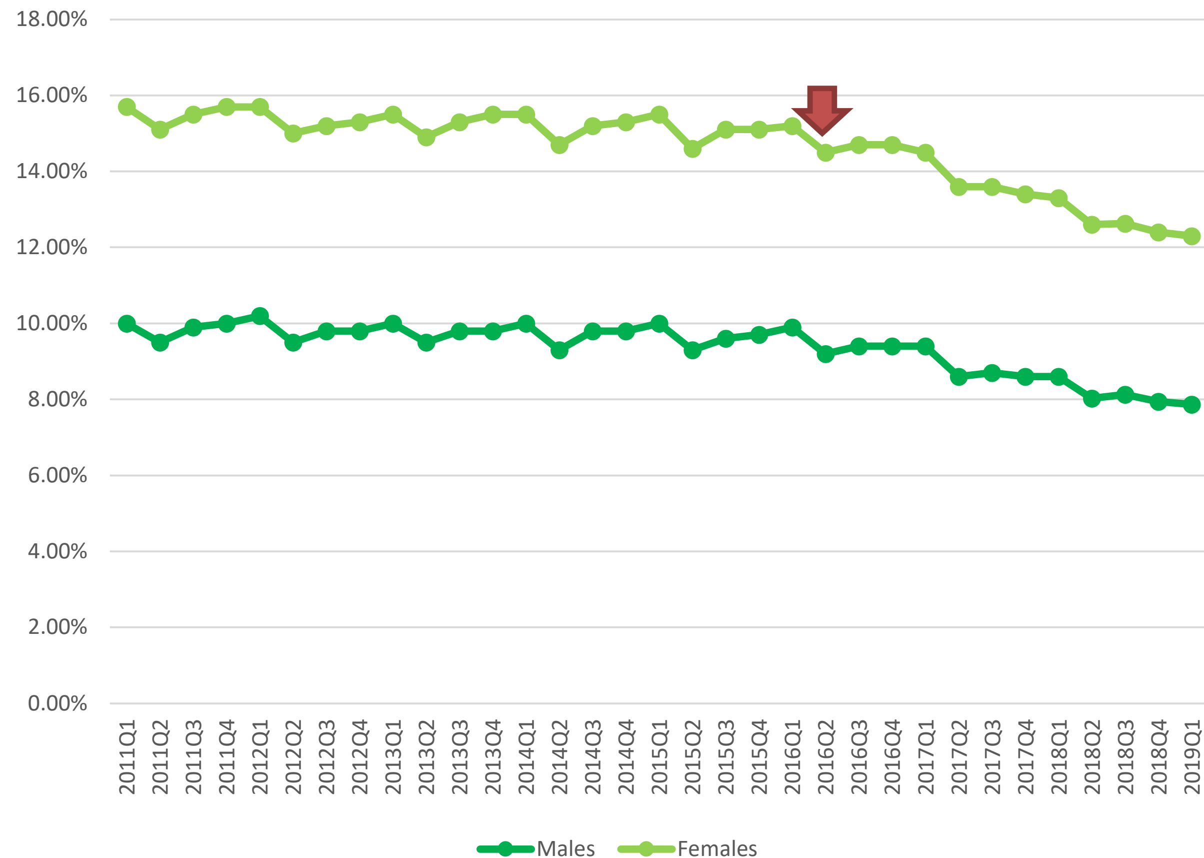
CaDeN Canadian Deprescribing Network

ReCaD Réseau canadien pour la déprescription

Potential inappropriate use of Gabapentin and Pregabalin in Ontario and Newfoundland

Sedative use, AB – Fake news

Implementation of monitoring and feedback



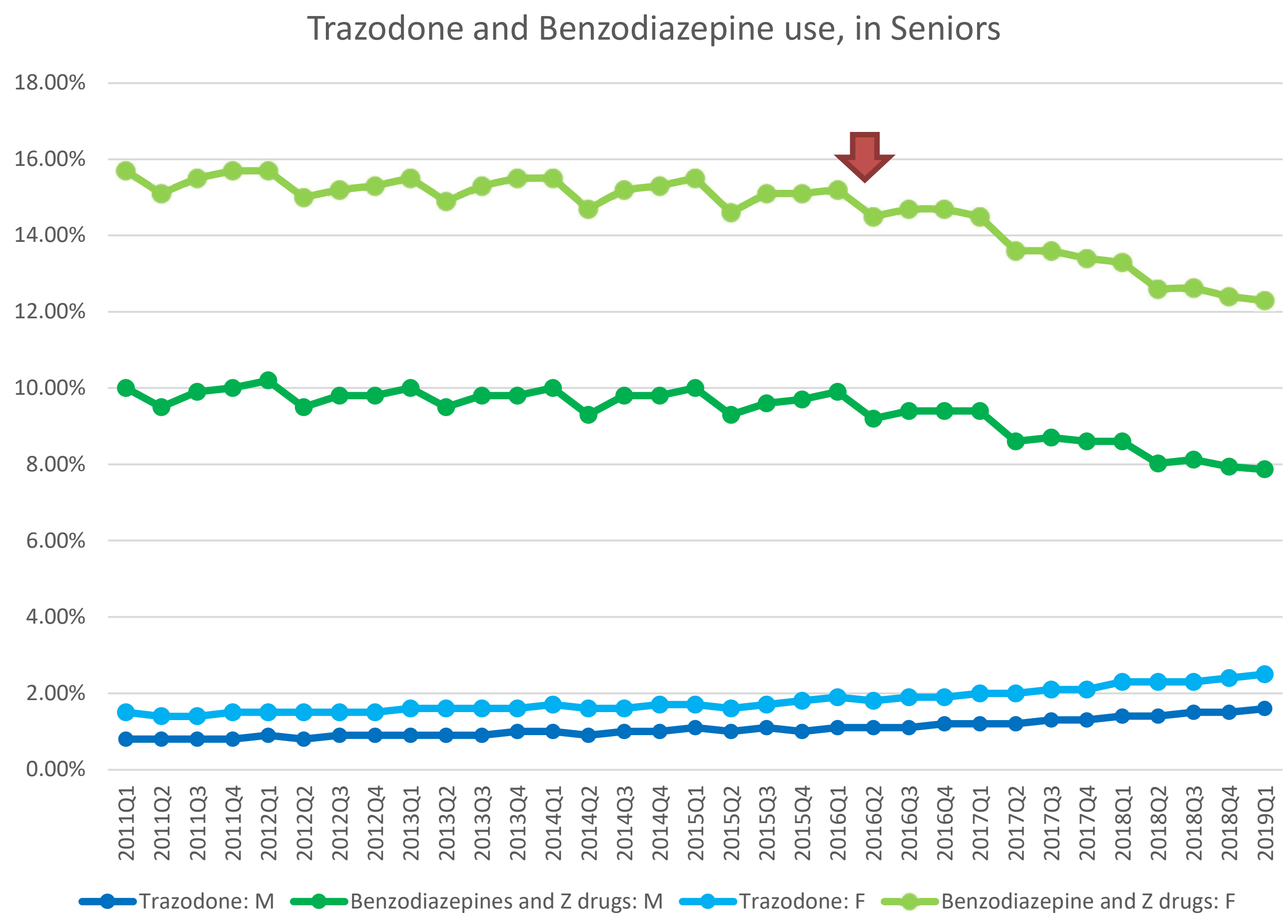
CaDeN Canadian Deprescribing Network

ReCaD Réseau canadien pour la déprescription

Potential inappropriate use of benzodiazepines, Z drugs

Sedative use, AB – The Real Story

- Change in monitoring and feedback



CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

Potential inappropriate use of benzodiazepines Z drugs and Trazodone

MD snapshot sample

MD snapshot

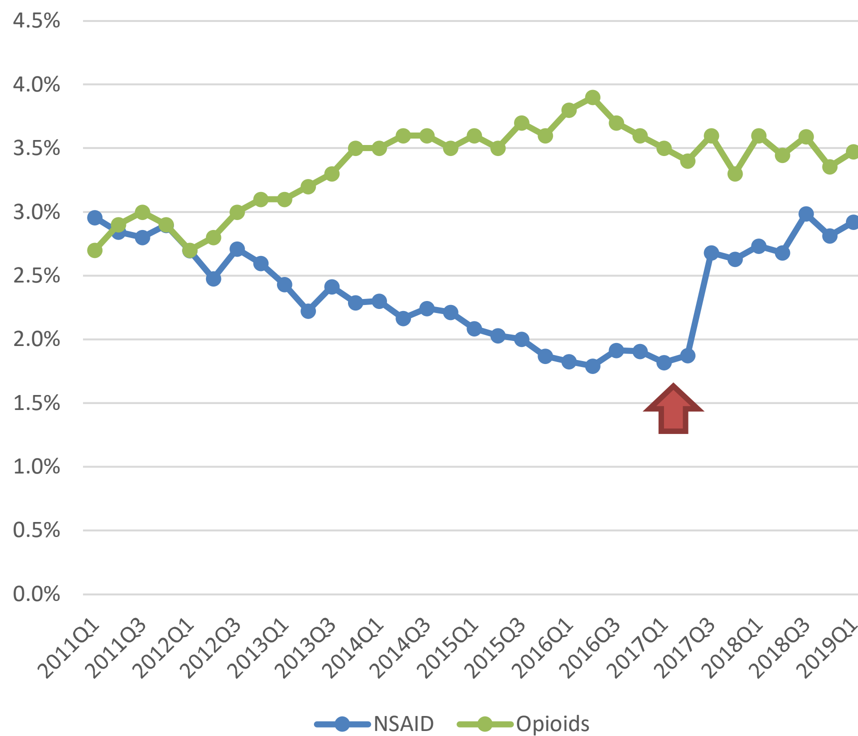
Three Month Prescribing Snapshot: Opioids (1), including codeine

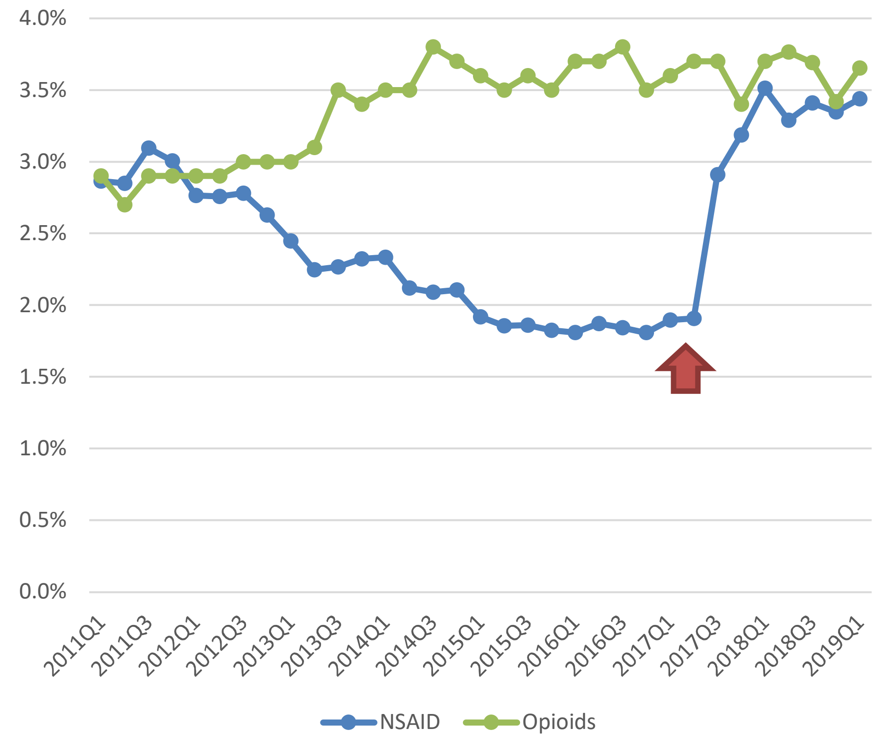
	Your Practice	Comparator Group Median (2)	Your Percentile
Patient(s) receiving opioids prescribed by you	29	25	55.2
Total OME/day (3)	2,474.5	268.8	91.2
OME/day/patient (4)	85.3	11.5	98.6
Patient(s) to whom you prescribed buprenorphine/naloxone (Suboxone) (5)	1		93.6
Patient(s) receiving opioids at an average dose of 90 OME/day or higher (6)	9		
Patient(s) receiving one or more opioid(s) and one or more BDZ/Z prescribed by you (7)	5		
Patient(s) receiving three or more different opioids (6)	0		
Opioid naive patient(s) receiving a long-acting opioid prescribed by you (8)	1		
Patient(s) receiving opioids from three or more prescribers	2		

Example of data provided:

- Number of patients receiving the drug
- Patients receiving both BDZ/Z and opioid by prescriber

NSAIDs and Opioids use, PEI



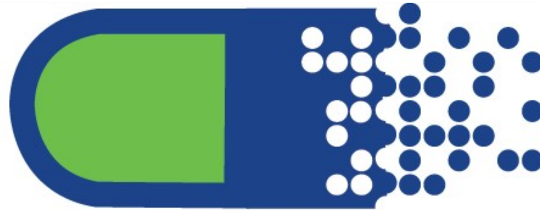


Potential inappropriate use of NSAIDS and opioids

CaDeN Canadian Deprescribing Network

ReCaD Réseau canadien pour la déprescription

CaDeN
Canadian Deprescribing Network

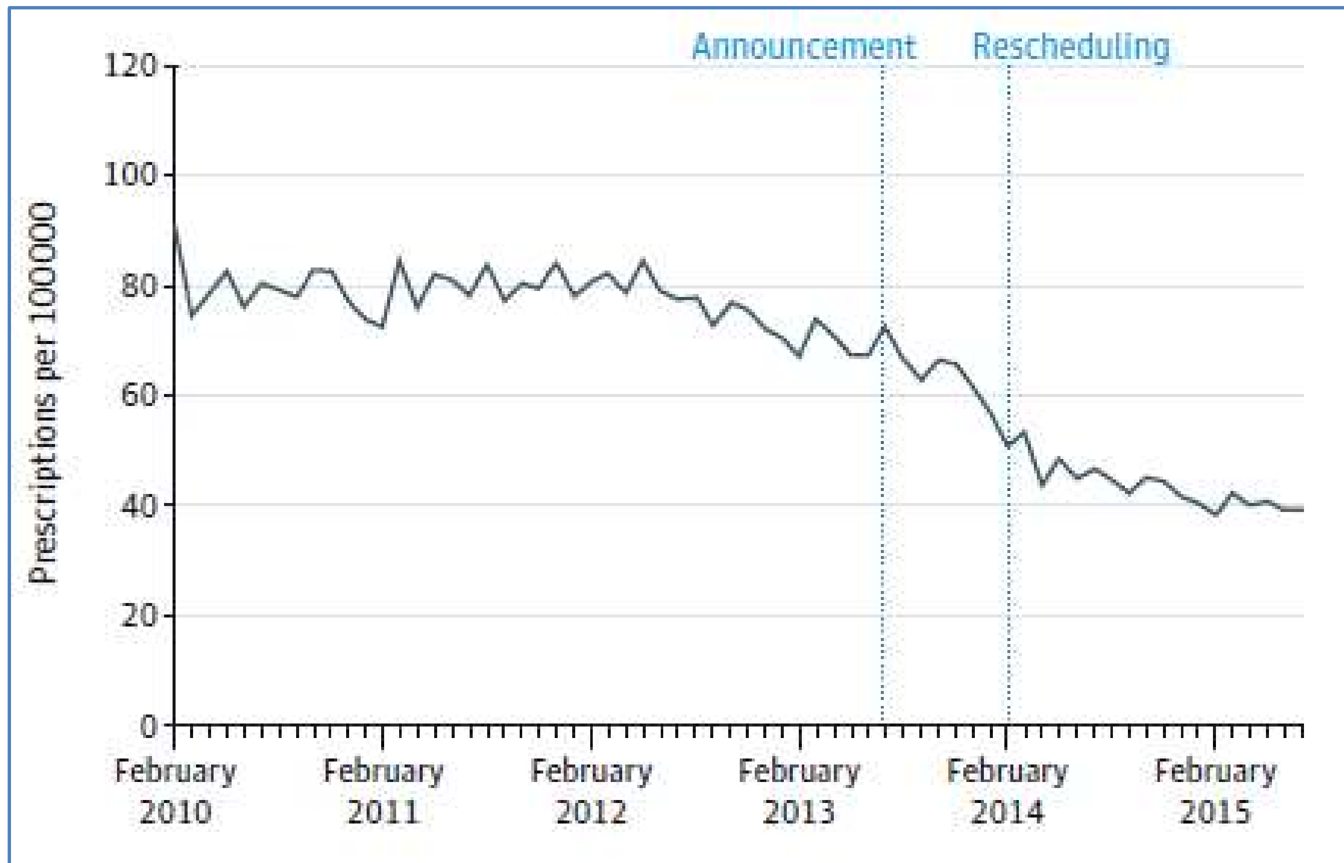


ReCaD
Réseau canadien pour la déprescription

2. Policies that promote appropriate medication use in Australia, England and Sweden

Dr. Mathieu Charbonneau, PhD
Postdoctoral Fellow, CaDeN, Université de Montréal
Dr. Justin Turner, BPharm, MClinPharm, PhD
Professor, Faculty of Pharmacy, Université de Montréal
Affiliated researcher, Monash University, Australia
Co-director of CaDeN

Rescheduling of Alprazolam



↓ **22%**

Schaffer AL et al JAMA Int Med 2016;176(8):1223

CaDeN Canadian Deprescribing Network

ReCaD Réseau canadien pour la déprescription

What else happened?

- ↑ street price
- 216% ↑ benzodiazepines
- 10% ↑ overdose deaths involving 1 or more benzodiazepine (2009 – 2015)

This Photo by Unknown Author is licensed under CC BY-SA

Schaffer AL et al JAMA Int Med 2016;176(8):1223
Lloyd B et al Int J Drug Pol 2017;39:138

CaDeN Canadian Deprescribing Network
ReCaD Réseau canadien pour la déprescription

Can anything else work?

- *What worked, for whom, in what context, and why?*
- Search: [Appropriateness] + [Policy] + [Countries]

Saul *et al. Implementation Science* 2013, **8**:103
http://www.implementationscience.com/content/8/1/103

IMPLEMENTATION SCIENCE

METHODOLOGY **Open Access**

A time-responsive tool for informing policy making: rapid realist review

Jessie E Saul[1,2], Cameron D Willis[1,3,4], Jennifer Bitz[5] and Allan Best[3,6,7*]

CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

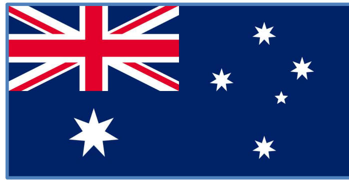
Overview

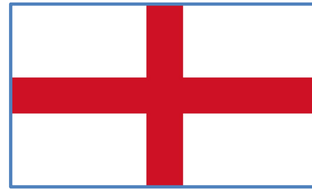
- Context on appropriate use
- Multifaceted education: Australia
- Public awareness: Australia and England
- Financial incentives: Sweden
- Lessons learned

CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

Context on appropriate use

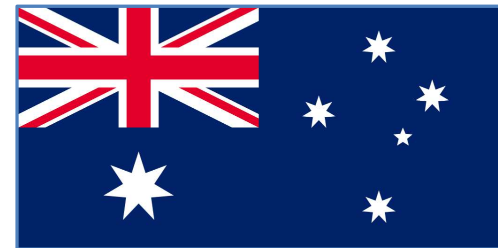




Australia	England	Sweden
National appropriateness strategy	No national appropriateness strategy	National appropriateness strategy
National implementation	Regional implementation	Regional implementation

Multifaceted education

- Can healthcare provider education improve appropriate medication use?



CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

NPS MedicineWise

- Diabetes: 2001, 2005
- Hypertension: 1999, 2001, 2003
- High cholesterol: 2002
- Stroke prevention: 2002, 2003, 2009
- Heart Failure: 2004, 2008

- Multifaceted active and passive education

Multifaceted education: Australia

PHARMACOEPIDEMIOLOGY AND DRUG SAFETY 2011; **20**: 359–365
Published online 28 December 2010 in Wiley Online Library (wileyonlinelibrary.com) **DOI**: 10.1002/pds.2094

ORIGINAL REPORT

Improvement in metformin and insulin utilisation in the Australian veteran population associated with quality use of medicines intervention programs

Svetla Gadzhanova[1]*, Elizabeth E. Roughead[1], Katrina Loukas[2] and Jacqualine Vajda[2]

[1]*Quality Use of Medicines and Pharmacy Research Centre, Sansom Institute, School of Pharmacy and Medical Sciences, University of South Australia, Adelaide, Australia*
[2]*National Prescribing Service, Evaluation, Sydney, New South Wales, Australia*

2011

CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

Multifaceted education in Australia

British Journal of Clinical Pharmacology

DOI:10.1111/j.1365-2125.2007.02853.x

Trends over 5 years in cardiovascular medicine use in Australian veterans with diabetes

Elizabeth E. Roughead, Nicole Pratt[1] & Andrew L. Gilbert

Quality Use of Medicines and Pharmacy Research Centre, Sansom Institute, University of South Australia and [1]Data Management and Analysis Centre, Discipline of Public Health, University of Adelaide, Adelaide, Australia

2007

CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

Multifaceted education in Australia

Improving cardiovascular disease management in Australia: NPS MedicineWise

Svetla V Gadzhanova
PhD, MSc,
Research Fellow[1]

Elizabeth E Roughead
PhD, MAppSc, BPharm,
ARC Future Fellow[1]

Mark J Bartlett
BSc, MPH, GradDipAppEpi,
Senior Epidemiologist[2]

1 University of South Australia, Adelaide, SA.

2 Impact and Outcome Evaluation, NPS MedicineWise, Sydney, NSW.

svetla.gadzhanova@unisa.edu.au

MJA 2013; 199: 192–195
doi:10.5694/mja12.11779

Cardiovascular disease (CVD) is the largest cause of premature death in Australia; it accounted for over a third of all deaths in 2007.[1] Over the past decade, NPS MedicineWise (previously known as the National Prescribing Service) implemented a number of educational programs on cardiovascular management in primary care, including two programs on the use of antithrombotics in atrial fibrillation (AF) and secondary stroke prevention,[2,3] as well as programs for improving management of heart failure.[4-6] NPS MedicineWise used a mix of interventions, both passive (eg, written education materials) and active (eg, one-on-one

Abstract

Objectives: To determine the impact of four NPS MedicineWise programs targeting quality use of medicines in cardiovascular management in primary care.

Design: Interrupted time-series analysis using the Department of Veterans' Affairs (DVA) claims dataset from 1 January 2002 to 31 August 2010. We examined the use of antithrombotics in people with atrial fibrillation and in those who had had a stroke, and the use of echocardiography and spironolactone in the population with heart failure.

Participants: All veterans and their dependants in Australia who had received cardiovascular medicines or health services related to the targeted intervention.

Intervention: NPS MedicineWise national programs to improve cardiovascular management in primary care, which included prescriber feedback, academic detailing, case studies and audits as well as printed educational materials.

Main outcome measures: Changes in medication and health service use before and after the interventions.

Results: All national programs were positively associated with significant improvements in related prescribing or test request practice. The interventions to improve the use of antithrombotics resulted in a 1.27% (95% CI, 1.26%–1.28%) and 0.63% (95% CI, 0.62%–0.64%) relative increase in the use of aspirin or warfarin in

2013

CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

Multifaceted education

- Can healthcare provider education improve appropriate medication use?

CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

Outcomes

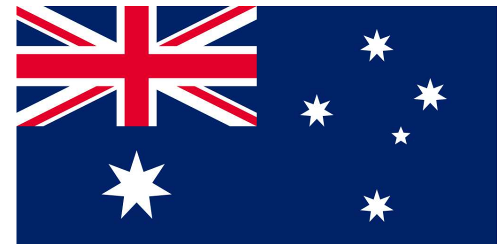
- Diabetes
  - 26% ↑ metformin monotherapy
  - 13% ↑ metformin combination
- Cardiovascular (diabetes)
  - 21% ↑ in BP medications
  - 25% ↑ in cholesterol medications
- Stroke prevention
  - 1.3% ↑ in antithrombotics

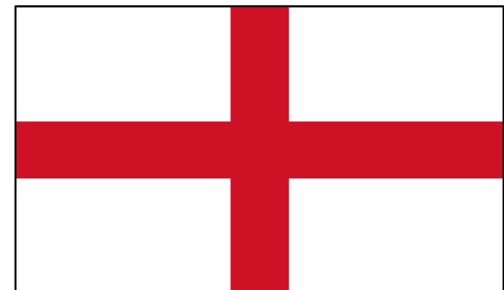
Multifaceted education to providers

- Outcomes:
  - – Increases in appropriate prescribing
  - – Financial savings
- Mechanisms:
  - – Knowledge promotion; peer pressure
- Contextual factors
    - National medicine policy
    - Scale-up of local successes
    - Strategic regional implementation
    - Continuous evaluation and improvement

Public awareness

- Can public awareness improve appropriate medication use?





CaDeN Canadian Deprescribing Network

ReCaD Réseau canadien pour la déprescription

Public awareness in Australia

Journal of Clinical Pharmacy and Therapeutics (2005) **30**, 425–432

ORIGINAL ARTICLE

Achieving a sustained reduction in benzodiazepine use through implementation of an area-wide multi-strategic approach

W. B. Dollman*† MAppSc FSHP, V. T. LeBlanc* BA, L. Stevens*, P. J. O'Connor* MA PhD, E. E. Roughead†‡ MAppSc PhD and A. L. Gilbert†‡ BPharm PhD

**Department of Health, Rundle Mall, SA, †Quality Use of Medicines and Pharmacy Research Centre, University of South Australia, Adelaide, SA and ‡School of Pharmacy and Medical Sciences, Adelaide, SA, Australia*

Program: South Aus. Health Dep., implementation of recommendations on benzodiazepine use, insomnia management, 1999-2000

CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

Public awareness in England

Journal of Antimicrobial Chemotherapy (2007) **59**, 537–543
doi:10.1093/jac/dkl511
Advance Access publication 5 February 2007

JAC

Can mass media campaigns change antimicrobial prescribing? A regional evaluation study

M. F. Lambert[1]*, G. A. Masters[2] and S. L. Brent[2]

Program: North East Primary Care Trust, and Tyne and Wear Health Action Zone (Dep. of Health), Regional antimicrobial prescribing initiative, 2004 & 2005

CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

Public awareness: Australia Vs England

	Australia	England
Outcomes (relative)	-21.7%	-5.8%
Mechanisms	Targets the public and providers	Targets the public
	Providers embedded from the beginning	
Contexts	Multifaceted education	Limited education
	- National strategy as driver - Multi-strategic regional implementation	- No national strategy - Low national-regional consolidation

Financial incentives

- Can financial incentives improve appropriate medication use?

CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

Policy in Sweden: Financial incentives

Received: 24 August 2016 | Revised: 27 March 2017 | Accepted: 15 May 2017
DOI: 10.1002/hec.3535

RESEARCH ARTICLE

WILEY Health Economics

Can pay-for-performance to primary care providers stimulate appropriate use of antibiotics?

Lina Maria Ellegård[1] | Jens Dietrichson[2] | Anders Anell[3]

Program: Eight Swedish counties, regional incentives to practices for antimicrobial stewardship, 2006 to 2013

CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

Policies promoting appropriateness: Financial incentives in Sweden

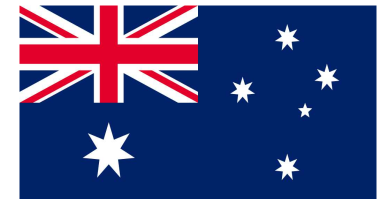
	Sweden
Outcomes (relative)	Intervention regions: +20.7% Control regions: +16.5%
Mechanisms	Social pressure (practice level)
Contexts	Ongoing national strategy/program National-regional coordination
	Balancing local needs and national strategy (guidelines and feedback)

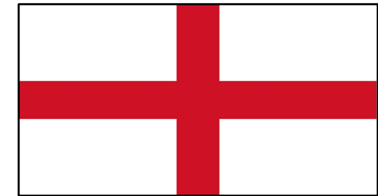
CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription

Policy evolutions

- External review (Sansom, 2019)
  - Building on successes
  - Improved analysis
- 2021 report, Chief Pharm. Officer
  - Lack of “comprehensive and coordinated” strategy
  - Overprescribing and carbon emissions
- 2011 national strategy
  - Centre for Rational Use of Medicines (Medical Products Agency)





CaDeN Canadian Deprescribing Network

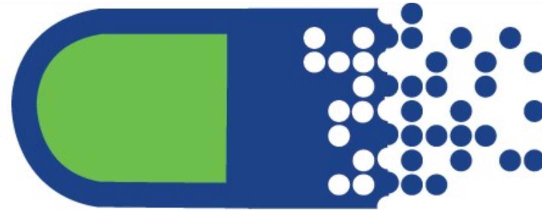
ReCaD Réseau canadien pour la déprescription

Lessons learned

- Scale up regional successes
- Coordinate national vs. sub-national
- Engage stakeholders: healthcare providers and patients
- Pay-for-performance has limited impact
- Evaluation is important
- Improved financial and health outcomes
- Context matters!

CaDeN
Canadian Deprescribing Network

ReCaD
Réseau canadien pour la déprescription



3. Discussion: how to implement best practices in Canada

Dr. Cara Tannenbaum, M.D., M.Sc.

Faculties of Pharmacy and Medicine

Université de Montréal

Michel Saucier Endowed Chair in Pharmacy, Health & Aging

Dr. Jim Silvius, MD

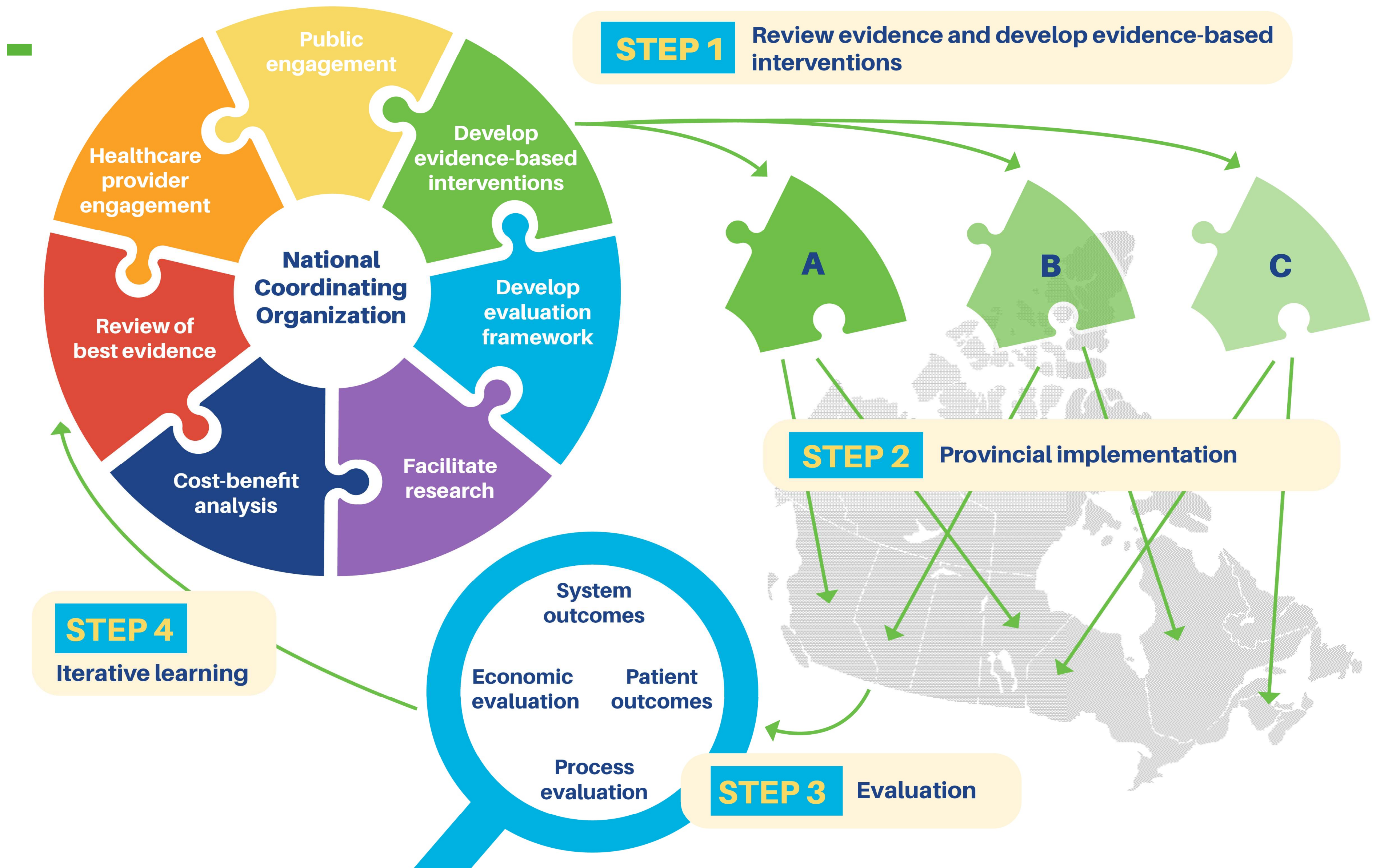
James L. Silvius BA(Oxon) MD FRCPC

Clinical Professor, Cumming School of Medicine, University of Calgary

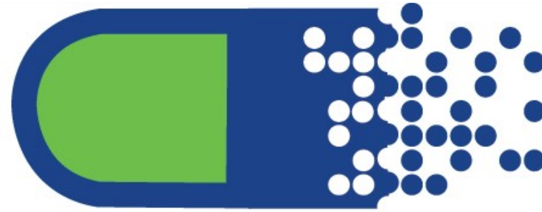
Senior Medical Director, Provincial Seniors Health and Continuing Care

MAID Lead, Alberta Health Services

A 4-step strategy



CaDeN
Canadian Deprescribing Network



ReCaD
Réseau canadien pour la déprescription

Improving the Appropriate Use of Medications Across Canada

Translating International Health Policy Evidence to the Canadian Context

2021 CADTH Symposium

Moderator: Dr. Jim Silvius

Presenters: Dr. Cheryl Sadowski
Dr. Mathieu Charbonneau
Dr. Justin Turner
Dr. Cara Tannenbaum