ARCC
Canadian Centre
for Applied Research
in Cancer Control

CanREValue
Value-based decisions from Real World Evidence

Canadian Real-world Evidence for Value of Cancer Drugs (CanREValue)

Developing a Framework for the Incorporation of Real-World Evidence (RWE) into Cancer Drug Funding Decisions in Canada

BC Cancer Agency
CARE & RESEARCH
An agency of the Provincial Health Services Authority

SFU
SIMON FRASER UNIVERSITY
ENGAGING THE WORLD

a place of mind
UBC

UNIVERSITY OF TORONTO

Cancer Care Ontario
Action Cancer Ontario

Canadian Cancer Society
Société canadienne du cancer

Table of Contents

- Background of real-world evidence (RWE)
- Case examples of RWE evaluations in Canada
- Introduction of Canadian Real-world Evidence for Value of Cancer Drugs (CanREValue) Collaboration

What is RWE?

Real World Data (RWD)

"Real world data are the data relating to patient health status and/or the delivery of health care routinely collected from a variety of sources."

-FDA-

Real World Evidence (RWE)

"Real world evidence is the clinical evidence regarding the usage and potential benefits or risks of a medical product derived from analysis of RWD."

-FDA-

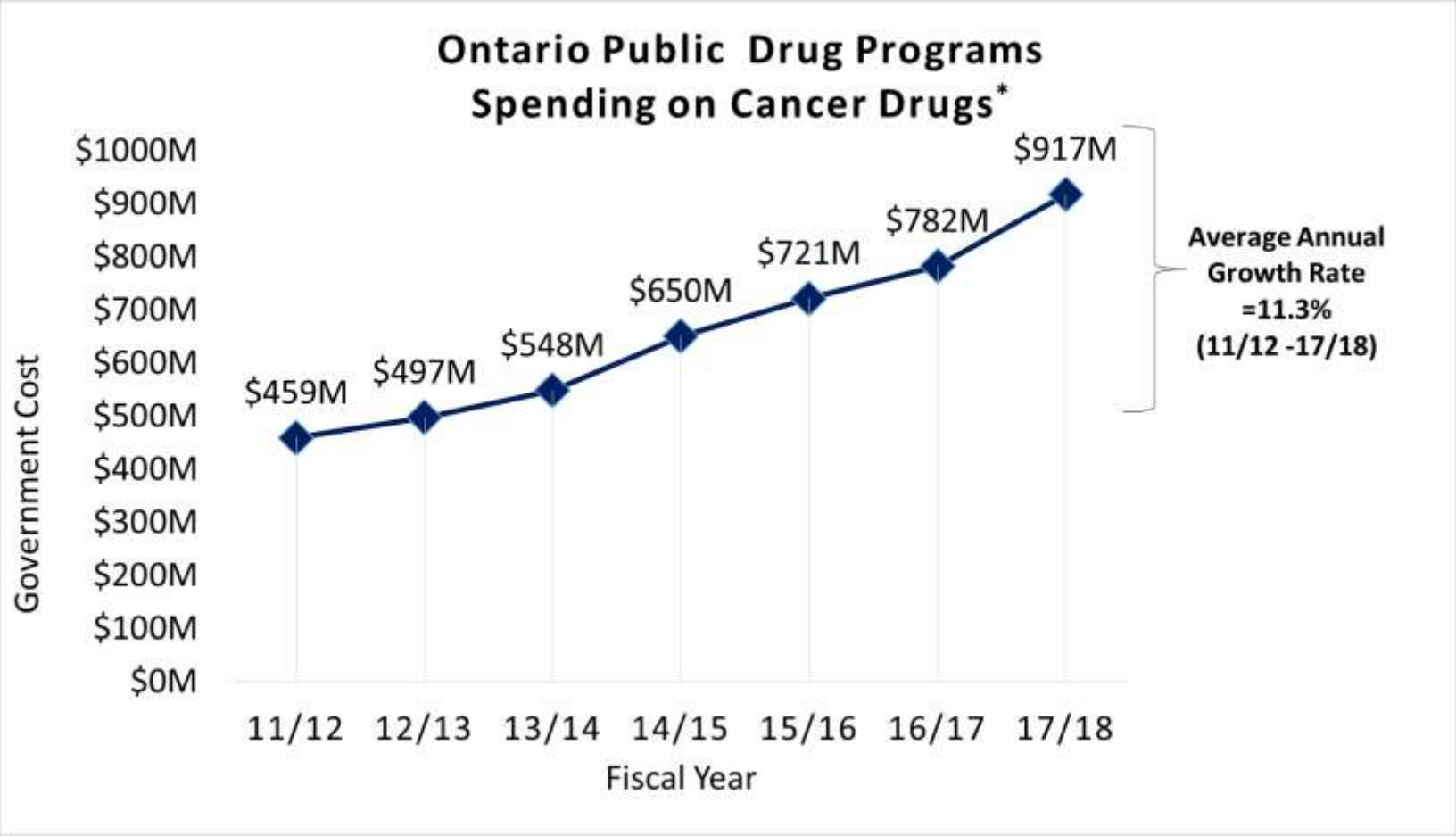
Examples of RWD:

- Cancer registries
- Hospital records
- Insurance claims

Triple Aim: Patient-Centered

- Appropriateness
- Accessibility
- Affordability

The Sustainability Challenge

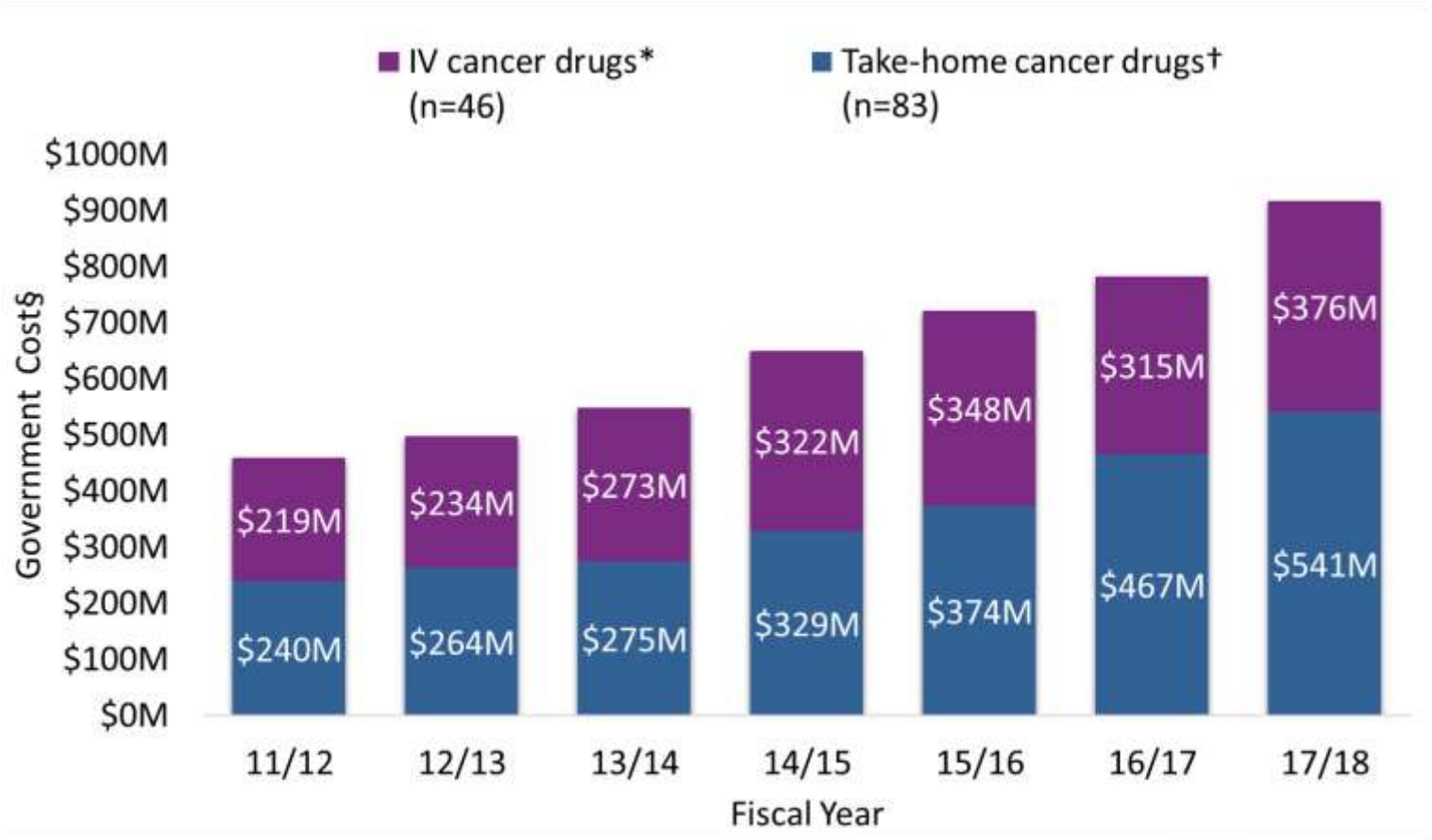


*Annual expenditures are reported for IV cancer drugs (n=46) reimbursed by the New Drug Funding Program (NDFP) and take-home cancer drugs (n=83) reimbursed by the Ontario Drug Benefit Program (ODB) that had at least one approved claim between 11/12 and 17/18 fiscal year.

†Government costs include drug costs and any associated pharmacy fees (for drugs reimbursed by ODB). Costs reported do not reflect manufacturer rebates (if applicable).

Source: ODB costs – ICES data (Sep 2018) ; NDFP costs – CCO data (Oct 2018)

The Sustainability Challenge



*Injectable cancer drugs administered in an outpatient hospital clinics and reimbursed by the New Drug Funding Program (NDFP)
†Cancer drugs, mostly oral, that are administered in the community and reimbursed by the Ontario Drug Benefit Program (ODB)
§Government costs include drug costs and any associated pharmacy fees (for drugs reimbursed by ODB). Costs reported do not reflect manufacturer rebates (if applicable).
Source: ODB costs – ICES data (Sep 2018) ; NDFP costs – CCO data (Oct 2018)

Request from stakeholders - CQCO

CQCO Cancer Quality Council of Ontario

The CQCO monitors and publicly reports on the performance of the cancer system, and provides international comparisons and benchmarking so Ontario can learn from other jurisdictions.

Drug Funding Sustainability

Review of Cancer Care Ontario's Drug Funding Sustainability Program (June 19, 2015)

The Programmatic Review 2015 brought together international, pan-Canadian, provincial, and local expertise in the areas of drug funding. Participants heard from international speakers from the United Kingdom and Germany, as well as pan-Canadian experts from Ontario and British Columbia and had important insights from provincial cancer agencies (or equivalent), Assistant Deputy Ministers of Health, clinical experts, academics as well as patients and family members.

Request from stakeholders - CQCO

CQCO Cancer Quality Council of Ontario

The CQCO monitors and publicly reports on the performance of the cancer system, and provides international comparisons and benchmarking so Ontario can learn from other jurisdictions.

- A consistent approach to gathering and analyzing real world evidence should be developed. This includes systematically capturing and incorporating patient-reported outcomes (e.g., quality of life, toxicity) into real world data collection
  Accountabilities: CCO, MOHLTC, CAPCA

- Real world evidence (RWE) should be used to inform and monitor the effects of funding decisions (this includes validating assumptions, evaluating the benefits of funded therapies, revisiting funding decisions, informing future funding decisions).
  Accountabilities: CCO, MOHLTC, CAPCA

Request from stakeholders - pCODR

CADTH | pCODR PAN-CANADIAN ONCOLOGY DRUG REVIEW

Conduct evaluations of clinical, economic, and patient evidence on cancer drugs, and use this evaluation to provide reimbursement recommendations and advice to provincial and territorial public drug plans (with the exception of Quebec) and provincial cancer agencies.

- pCODR 60 reviews (Up to Feb 2016)
  - Total of 21 pCODR reviews requested Real World Evidence
    - 13 pCODR reviews *explicitly* requested Real World Evidence
    - 10 pCODR reviews *potentially* requested Real World Evidence

RWE: Potential Outcomes

- Real-world survival and comparative effectiveness data
- Real-world side effects & toxicities
- Real-world quality of life
- Real-world utilization
- Real-world cost-effectiveness

Who will use RWE? For what?

Stakeholders	Interests/Use
Patients	• **Effectiveness** • **Safety, toxicities and side effects** • **Quality of life** • **Patterns of care** • **Applicable to patients not represented in clinical trial(s)**
Physicians	• Effectiveness and safety
Payer/decision makers	• Safety, effectiveness and cost-effectiveness • Re-evaluate funding decision • Re-negotiate pricing • Amend approved indications
Industry	• What is required for future studies

RWE evaluation examples

- Azacitadine study
- Pancreatic Cancer – ESAS study
- Bevacizumab study

Azacitidine 2010-2016

Study Initiated

Analysis Complete

Ontario Cancer Care Ontario

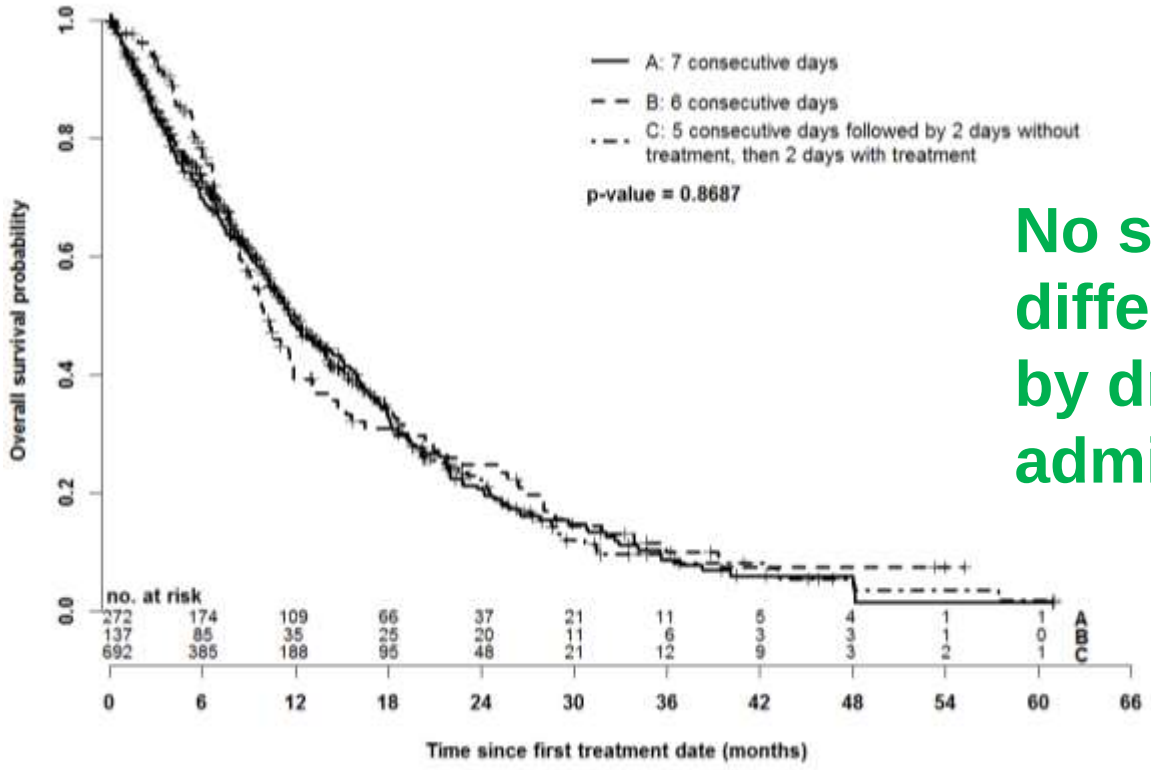
2007 | 2008 | **2010** | 2011 | 2013 | 2014 | 2015 | **2016** | 2017 | 2018

- Funded in Ontario in 2010
- Treatment for Myelodysplastic syndromes (MDS) acute myeloid leukemia (AML)
- First prospective RWE study began at the same time collecting:
  - Disease/patient characteristics prior to AZA initiation
  - Disease response
  - List of all treatments and doses received

Azacitidine: Objective & Result

Objective: To validate different dosing schedules

- **7 consecutive** vs. **6 consecutive** vs. **5 +2 consecutive days**



No significant difference in survival by drug administration type

Azacitidine: Conclusion

Study findings presented to OSCCD

Ontario Steering Committee fo Cancer Drugs (OSCCD)

Ontario
Cancer Care Ontario

The Ontario Steering Committee for Cancer Drugs (OSCCD) was created in 2013 to enhance and support the administration of Ontario's cancer drug programs. The committee advises the Ministry of Health and Long-Term Care's Ontario Public Drug Programs and Cancer Care Ontario's Provincial Drug Reimbursement Programs.

Committee Objective

The objective is to provide evidence-based clinical, health research and health economic guidance to the Executive Officer (EO) of Ontario Public Drug Programs (OPDP) on: provincial cancer drug funding policies and decisions, program evaluation and drug-specific studies, and enhancements to cancer drug programs or initiatives in Ontario. For more information on cancer drug funding and decision making in Ontario, please see the **Public Drug Funding and Administration** page or visit one of these sites:

- **Ontario Drug Benefit: How drugs are approved**
- **Drug Submissions: Status for Single-Source Submissions**

Azacitidine: Conclusion

Study findings presented to OSCCD

OSCCD discussed and made a recommendation to CCO and MOHLTC

Continued funding the 3 dosing schedules (7-day, 6-day, 5-2-2 regimen)

Pancreatic-ESAS Study

Ontario
Cancer Care Ontario

2007 | 2008 | 2010 | 2011 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018

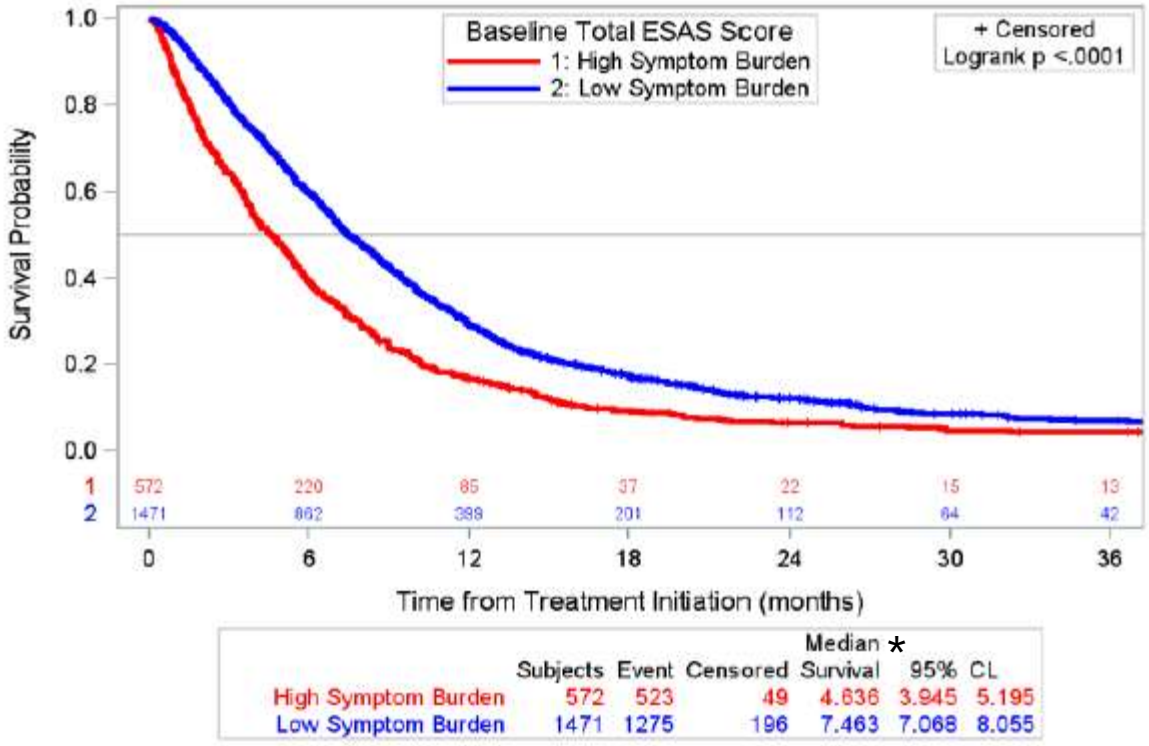
"Your Symptoms Matter" (ISAAC) launched

Pancreatic Cancer ESAS Study

- Retrospective evaluation in advanced pancreatic cancer using patient-reported outcomes (PRO)

ESAS: Objective & Result

Objective: To examine the association between baseline symptom burden and survival



	Subjects	Event	Censored	Median * Survival	95% CL	
High Symptom Burden	572	523	49	4.636	3.945	5.195
Low Symptom Burden	1471	1275	196	7.463	7.068	8.055

*Median survival in months

Advance pancreatic patients who reported higher symptom burden at baseline were observed to have worse overall survival

Pancreatic-ESAS Study: Lessons learned

- Increase in collection of PROs over time
- Impact of baseline symptom burden on survival
- Future work to evaluate change in symptoms over time
- Potential benefit from collection of additional PROs

Bevacizumab 2016-2018

CANADIAN PARTNERSHIP AGAINST CANCER
PARTENARIAT CANADIEN CONTRE LE CANCER

2007 | 2008 | 2010 | 2011 | 2013 | 2014 | 2015 | **2016** | 2017 | **2018**

Study Initiated

Study Completed

- 3 Province Collaboration (BC, SK, ON)
- Retrospective evaluation of bevacizumab for metastatic colorectal cancer
- Evaluation of:
  - Budget Impact
  - Safety
  - Effectiveness
  - Cost Effectiveness

Bevacizumab: Lessons learned

CANADIAN PARTNERSHIP AGAINST CANCER
PARTENARIAT CANADIEN CONTRE LE CANCER

- Successful multi-province analysis
- Evidence of clinical benefit and no strong safety concerns
- Consistent results across provinces
- Different analysis methods to assess robustness of findings and differences in data sources and funding

Next Step = Collaborations

CanREValue

Value-based decisions from Real World Evidence

The CanREValue Collaboration

CanREValue

Value-based decisions from Real World Evidence

CIHR IRSC

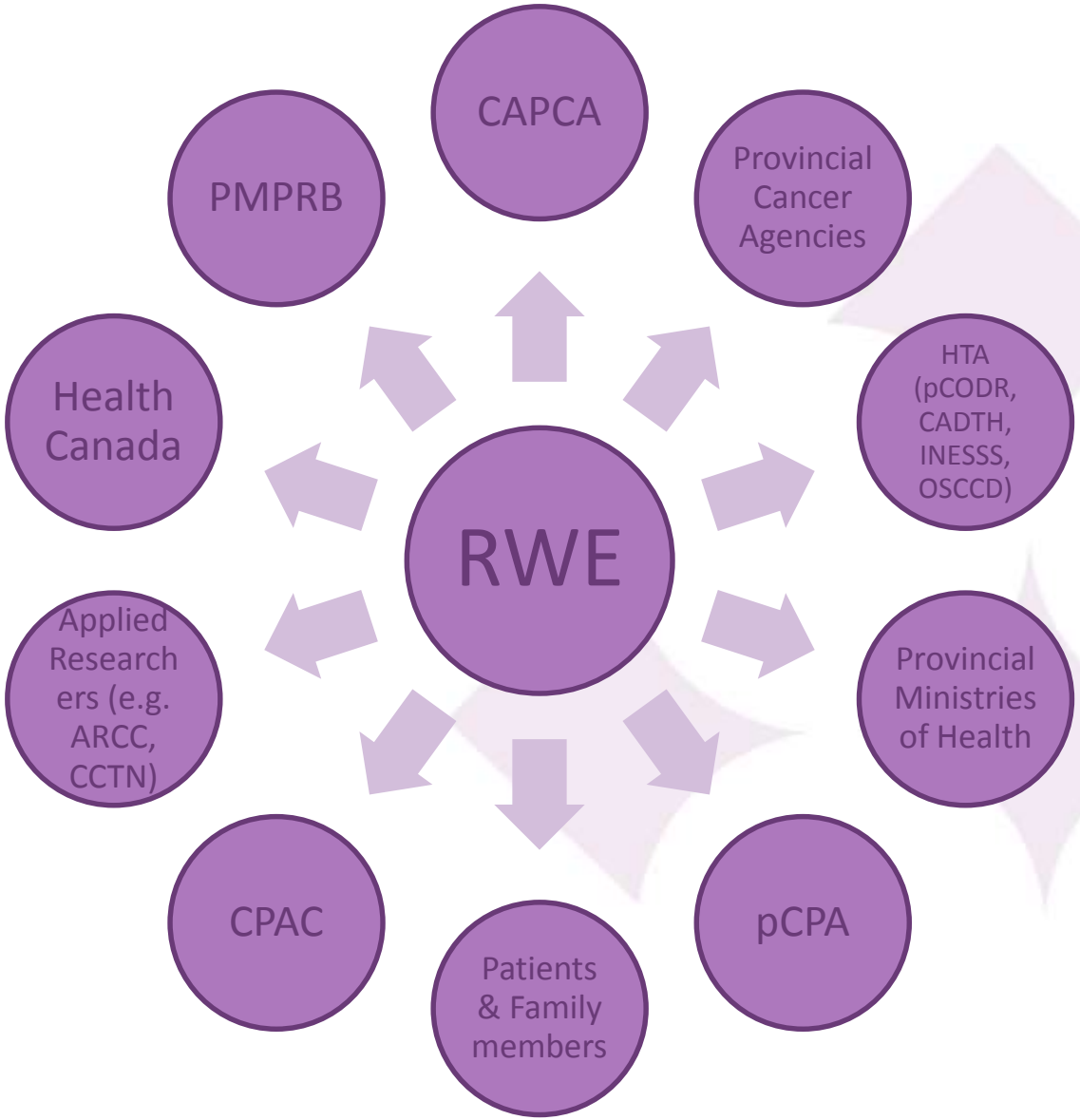
Canadian Institutes of Health Research | Instituts de recherche en santé du Canada

Overall Purpose

To develop a framework for Canadian provinces to generate and use RWE in a consistent and integrated manner

- Reassessment of cancer drugs by recommendation-makers
- Refinement of cancer funding decisions or renegotiations by decision-makers/payers across Canada

CanREValue Team



Project Timeline

Year 1: 2017-18

- Environmental scan
- Qualitative interviews
- Develop Working Groups

Year 2: 2018-19

- Framework development
- RWE evaluation 1

Year 3: 2019-20

- Qualitative interviews
- Framework revision
- RWE evaluation 2

Year 4: 2020-21

- Qualitative interviews
- Framework revision
- Knowledge translation

Activities to date

Environmental Scan

"Current State of RWE and Healthcare Decision Making"

- International Scope
- Cancer and non-cancer RWE studies
- Observational and non-observational studies
- 2007-2017
  - 1761 articles identified
  - 108 reviewed in-depth

Key Messages

Multiple data sources for RWD and study designs for RWE

Various stakeholders can benefit from the application of RWE/RWD along the drug life cycle

ARCC
Canadian Centre
for Applied Research
in Cancer Control

How could real world evidence be incorporated into cancer drug funding decisions in Canada?

A Qualitative Study of Stakeholders' Perspectives

Dr. Yvonne Bombard, on behalf of the Qualitative Study Team

BC Cancer Agency
CARE & RESEARCH
An agency of the Provincial Health Services Authority

SFU
SIMON FRASER UNIVERSITY
ENGAGING THE WORLD

a place of mind
UBC

UNIVERSITY OF TORONTO

Cancer Care Ontario
Action Cancer Ontario

Canadian Cancer Society
Société canadienne du cancer

Study demographics and methods

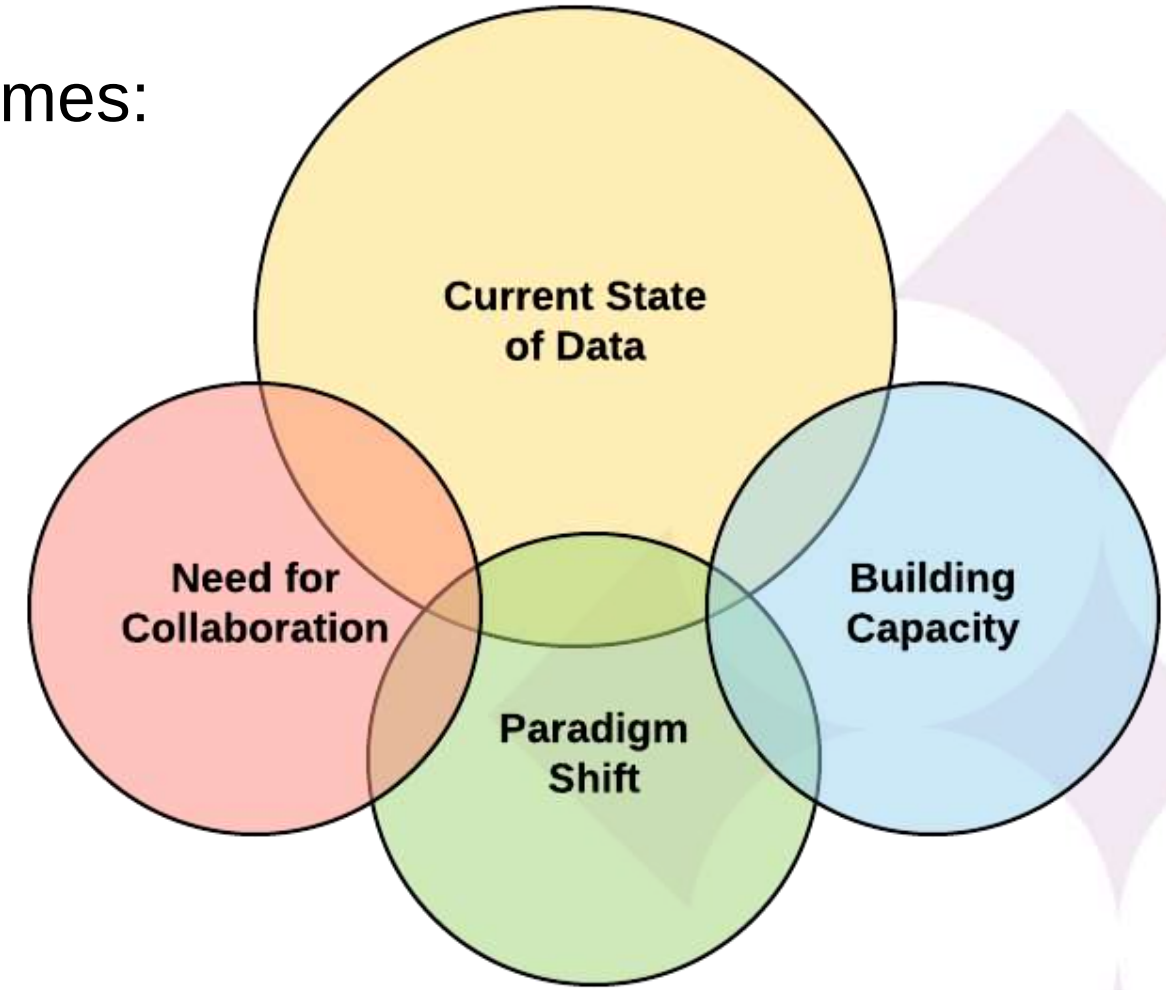
Aim: Explore stakeholders' views regarding the creating and implementation of a framework to incorporate RWE in cancer rugs funding decisions in Canada

Methods:

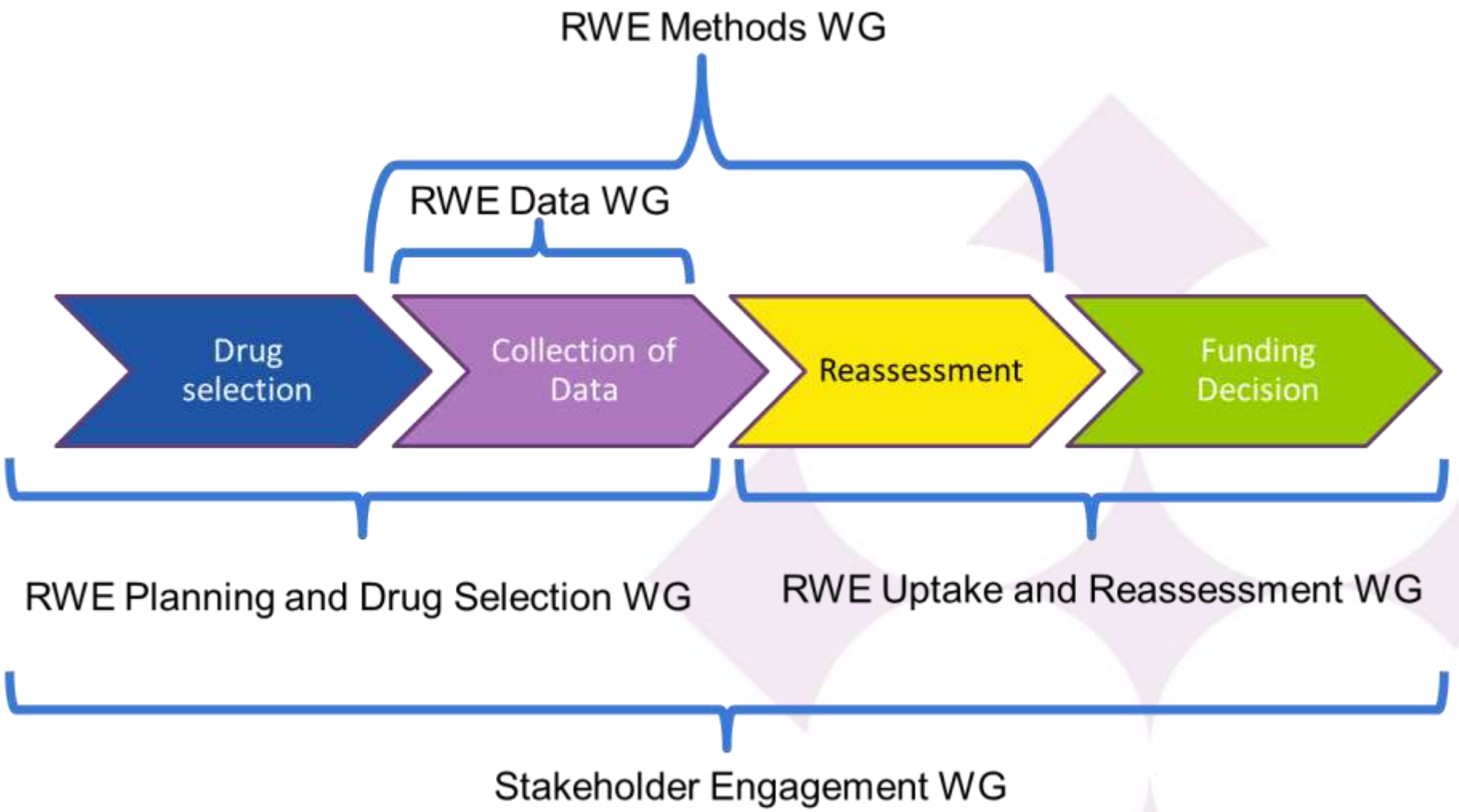
- Semi-structured interviews (in person/phone
- Pan-Canadian and internal sample of stakeholders
- Thematic analysis

Results

- 4 Themes:

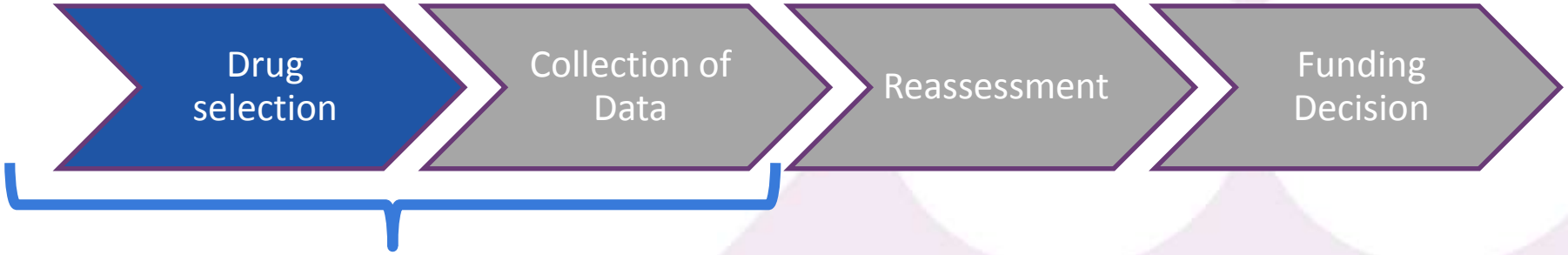


The Working Groups



Planning and Drug Selection WG

Chair: **Scott Gavura,** Director, Provincial Drug Reimbursement Programs (Cancer Care Ontario)



RWE Planning and Drug Selection WG

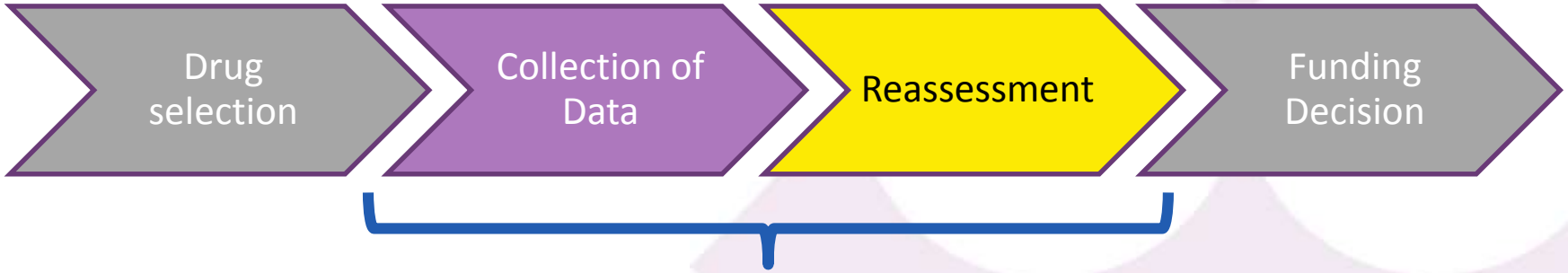
To develop recommendations for the establishment of provincial infrastructure for RWE

Topics and Questions to Explore: Examples

- How should drugs be selected for evaluation?
- What criteria should be used to select drugs?
- What evidence is required for decision makers?
- What infrastructure and resources are needed for RWE?

Methods Working Group

Chair: **Dr. Jeffrey Hoch,** Professor and Chief, Division of Health Policy and Management, Department of Public Health Sciences, UC Davis; Associate Director, Center for Healthcare Policy and Research



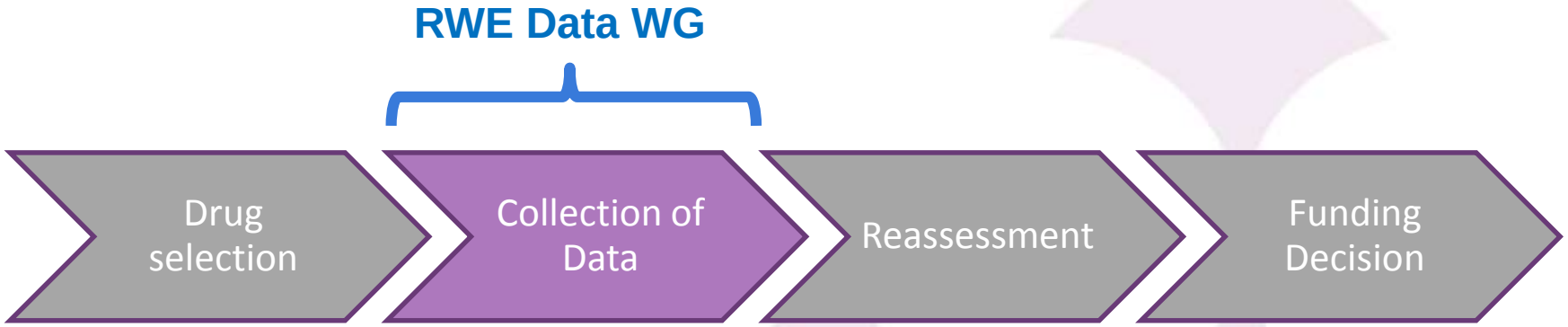
To recommend methods to analyze real world data with methodological rigor (minimal bias).

Topics and Questions to Explore: Examples

- What outcomes should we consider?
- What methods should be used for different outcomes?
- How to describe the amount of uncertainty in the data from RWE studies
- How to pool results across provinces?

Data Working Group

To identify strategies for data access across provinces and harmonize data elements relevant for RWE studies



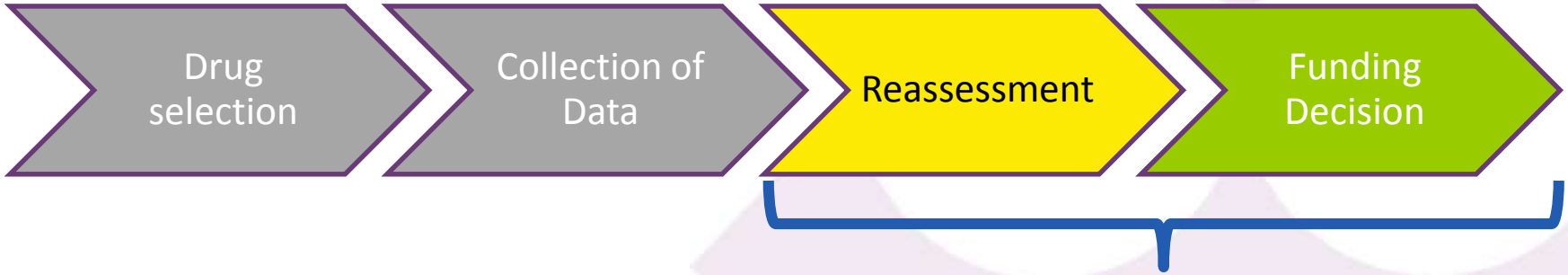
Chair: **Dr. Claire de Oliveira,** Assistant Professor, University of Toronto; Scientist, Centre for Addiction and Mental Health

Topics and Questions to Explore: Examples

- What databases are available?
- What data elements are available?
- How to access data?
- How long would it take?

Uptake and Reassessment WG

Chair: **Alexandra Chambers,** Director, pan-Canadian Oncology Drug Review (pCODR)



RWE Uptake and Reassessment WG

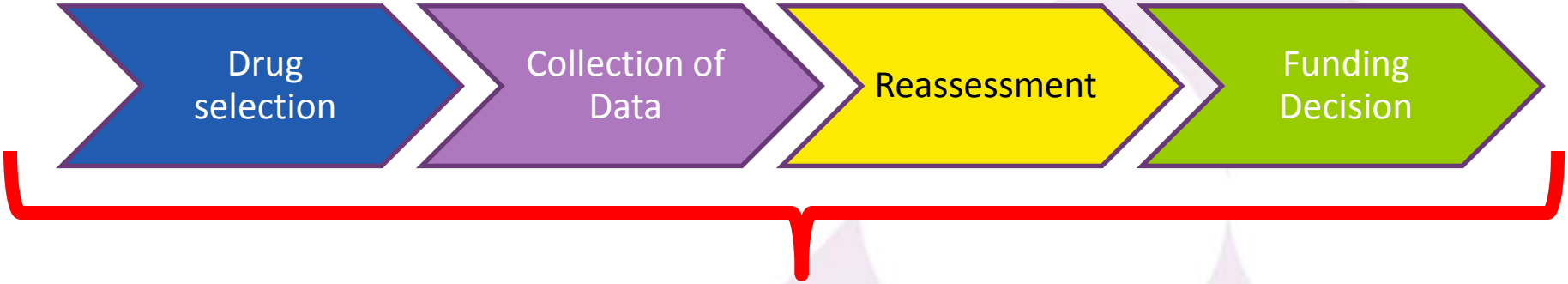
To develop strategies for implementing RWE results for HTA reassessment and policy making decisions

Topics and Questions to Explore: Examples

- How to initiate the reassessment?
- Who should conduct the reassessment?
- What are the enablers and barriers to conducting reassessment and revisiting funding decision?
- How might re-assessment be different from initial assessments?

Engagement Working Group

Chair: **Dr. Bill Evans,** Medical Oncologist, Professor Emeritus, McMaster University



To ensure appropriate input from key stakeholders cross-jurisdictionally, at all steps of the framework development

Topics and Questions to Explore: Examples

- How to engage payers?
- How to engage clinicians?
- How to engage industry?
- How to engage patient groups?

Patient engagement

Is there an interest from patient groups in engaging with CanREValue collaboration?

If “YES”, please indicate the interest by contacting us via email: CanREValue@cc-arcc.ca

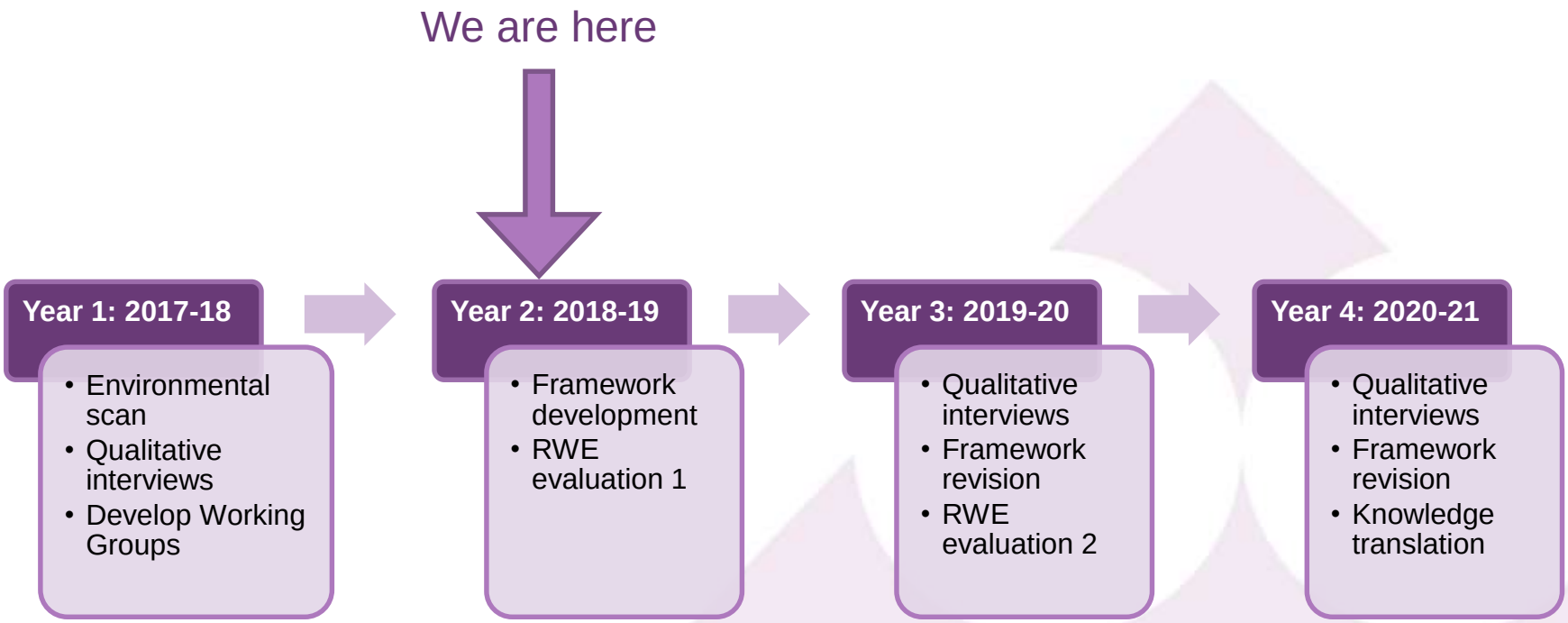
Patient engagement

What would be the best way to engage?

1. Potential methods for patient group to provide input
2. Patient groups respond:

- Individually send their responses?
- CCSN to take on the role of co-leader of responses from patient groups?

Timeline & Next Steps




Q
A