Elimination Experiments in the (Canadian) Far East

Case studies in building elimination strategies

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SAIL Senescence Aging Infection & Immunity Laboratory

DALHOUSIE UNIVERSITY Inspiring Minds

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Disclosures

- **Industry:**
  - AbbVie
  - Gilead
  - Merck
  - BMS
- **Academic:**
  - Affiliation with Dalhousie University and Nova Scotia Health Authority
  - Blatant HCV virology/immunology lover
- **Advocacy:**
  - HCV and HIV advocacy groups

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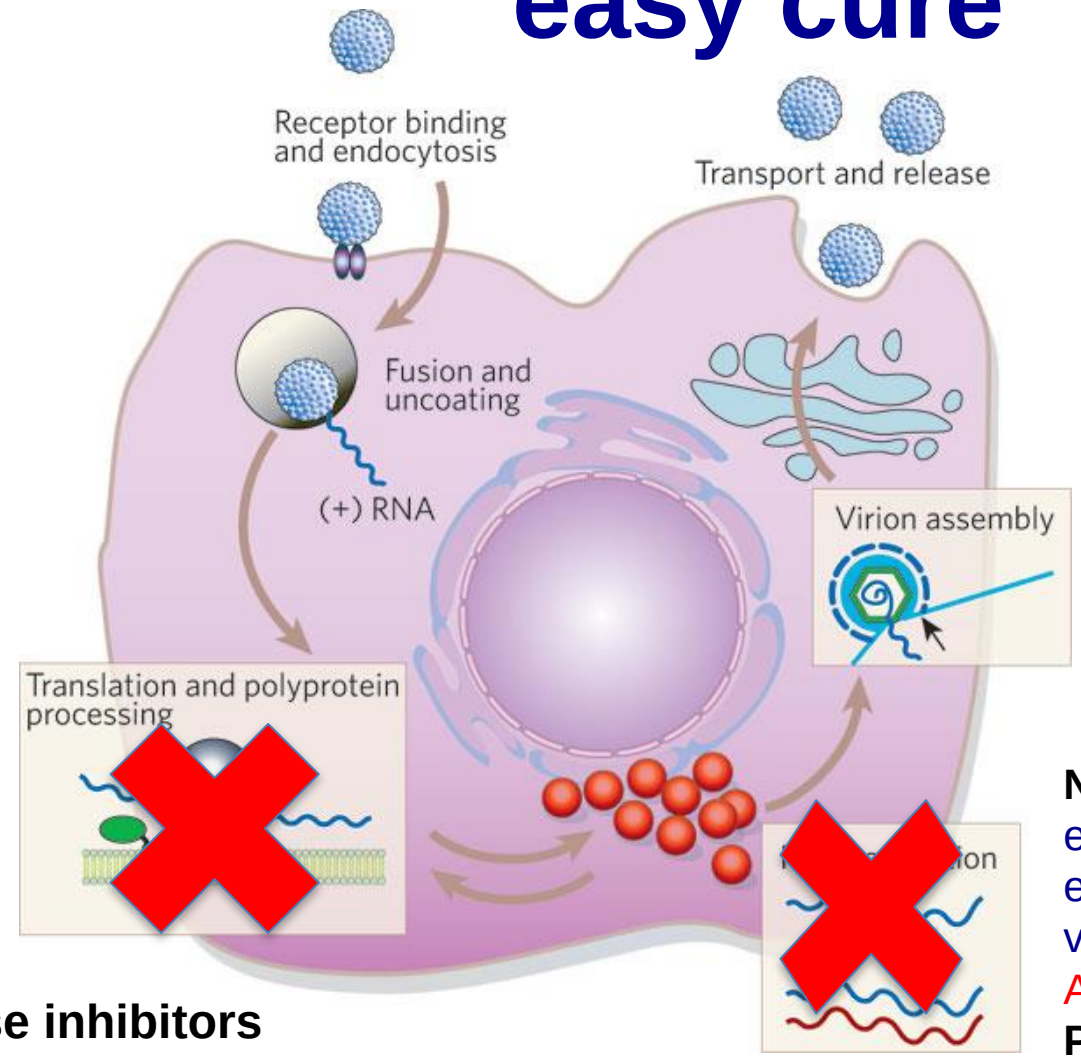
  - Dr. Shelly McNeil

Objectives

- Present 2 provincial HCV elimination models at different implementation stages
- Review early results from the PEI elimination program
- Highlight critical nodes of success in implementation audience on how they compare between Atlantic and Saskatchewan.

New HCV drugs: easy cure



Protease inhibitors
eg. simeprevir, paritaprevir, grazoprevir

NS5A inhibitors
eg. ledipasvir, ombitasvir, elbasvir, daclatasvir, velpatasvir
AND
Polymerase inhibitors
eg. sofosbuvir, dasabuvir

Lindenbach and Rice 2005. Nature 436, 933-938

Ideal HCV treatment

Cure for (almost all) treated ✓

All oral ✓

No/low side effects ✓

Short ✓

Once daily ✓

Accessible ??

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HCV elimination

HCV elimination

Home >> Projects >> CEASE: Control and Elimination within AuStralia of HEpatitis C from people...

CEASE: Control and Elimination within AuStralia of HEpatitis C from people living with HIV

Research Program
Viral Hepatitis Clinical Research Program

Date Commenced: July 2014

Project Status Ongoing

Expected Date of Completion: Ongoing

Currently recruiting Yes

CEASE

Project

hanced HCV monitoring, primary care–based workforce development, rapid scale-up of ublic health policy action in HIV positive individuals within Australia.

How to implement a Comprehensive Plan For Hepatitis C in Spain

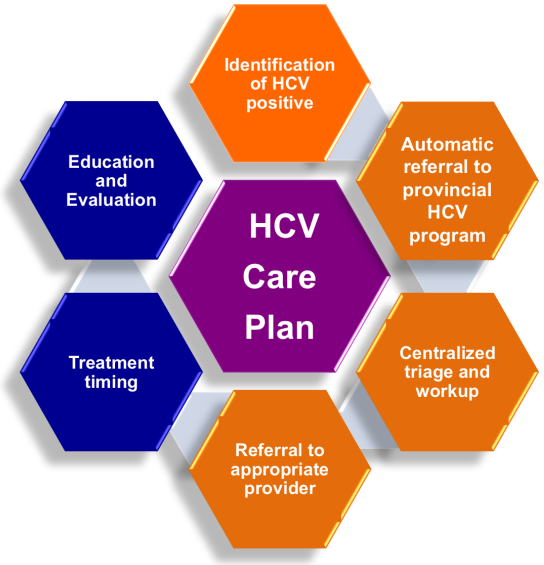
Identifying the key success factors

https://www.pwc.es/es/publicaciones/sector-publico/assets/informe-plan-integral-hepatitis-c-english.pdf

Challenges to broad role out

GOAL OF
Prince Edward Island
HCV elimination strategy

Phase 1



Phase I: centralized triage and referral, provincial **standardized** treatment algorithm, registry; assessment of patient, provider, and system outcomes

Phase 2

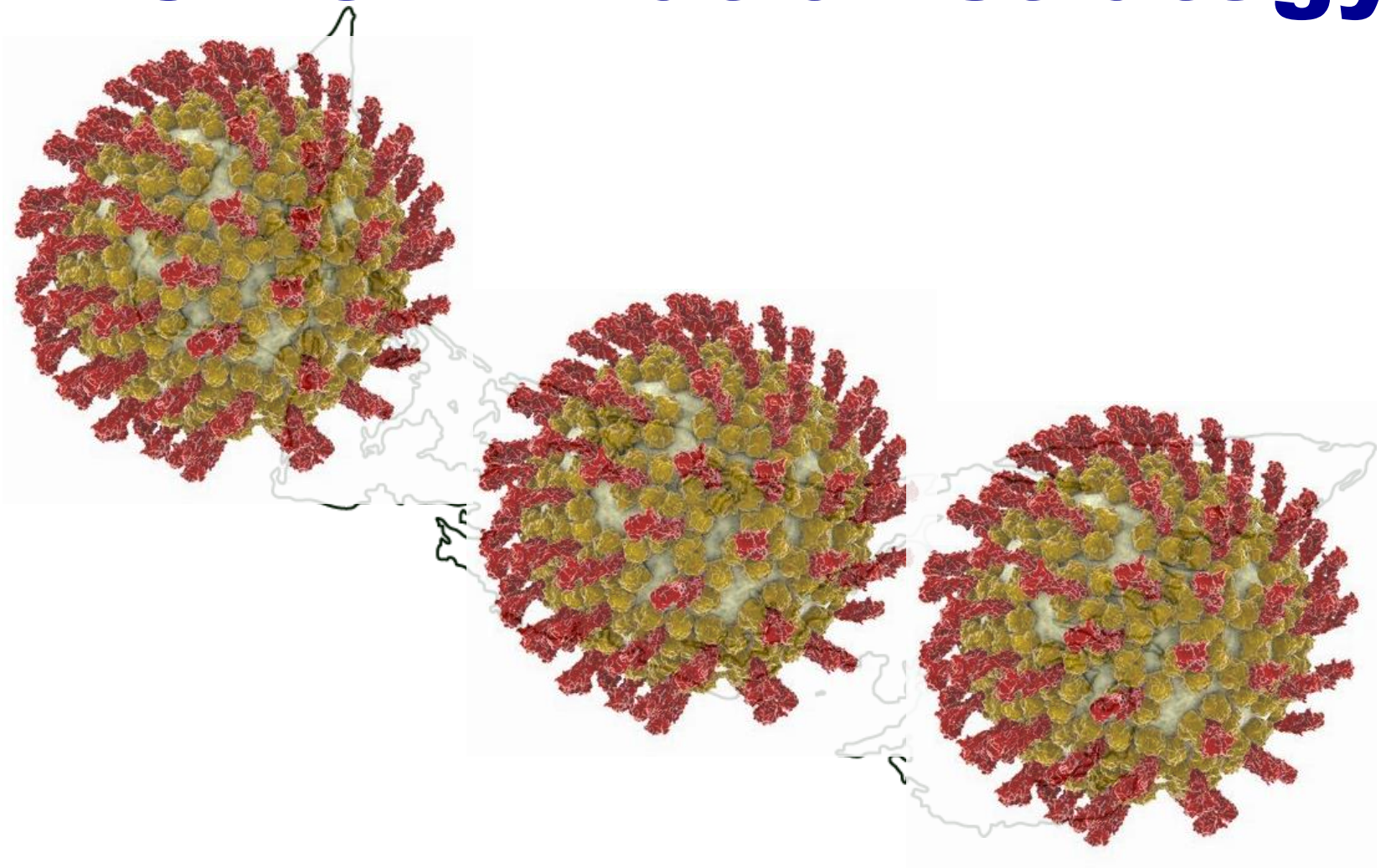
- Expanded providers
- Vulnerable population engagement
- Harm reduction
- Blood borne pathogens

Phase 3

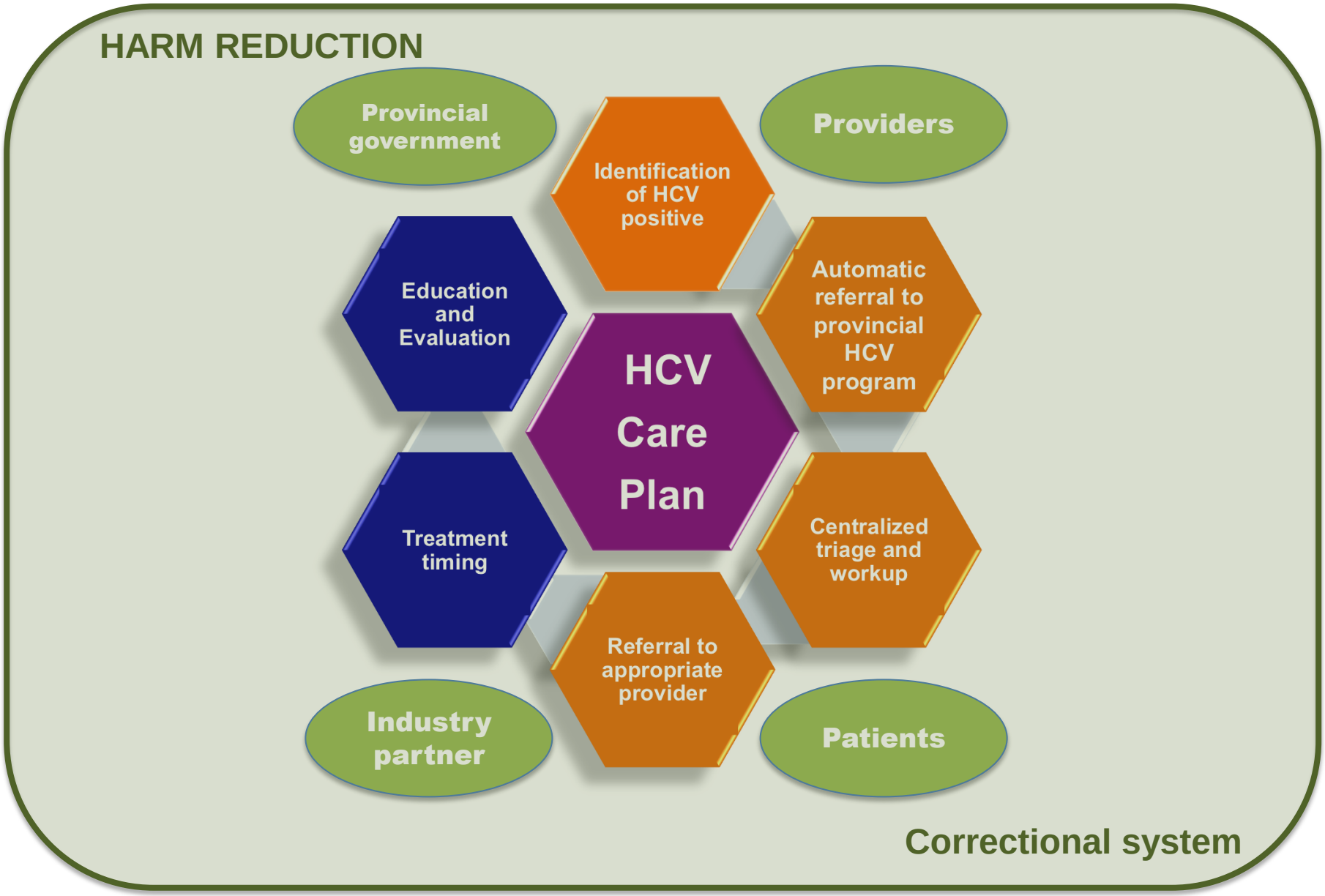
- Expanded providers
- Vulnerable population engagement
- Harm reduction
- Blood borne pathogens

Phase III: integrated assessment and model revision based on results in phase I and II

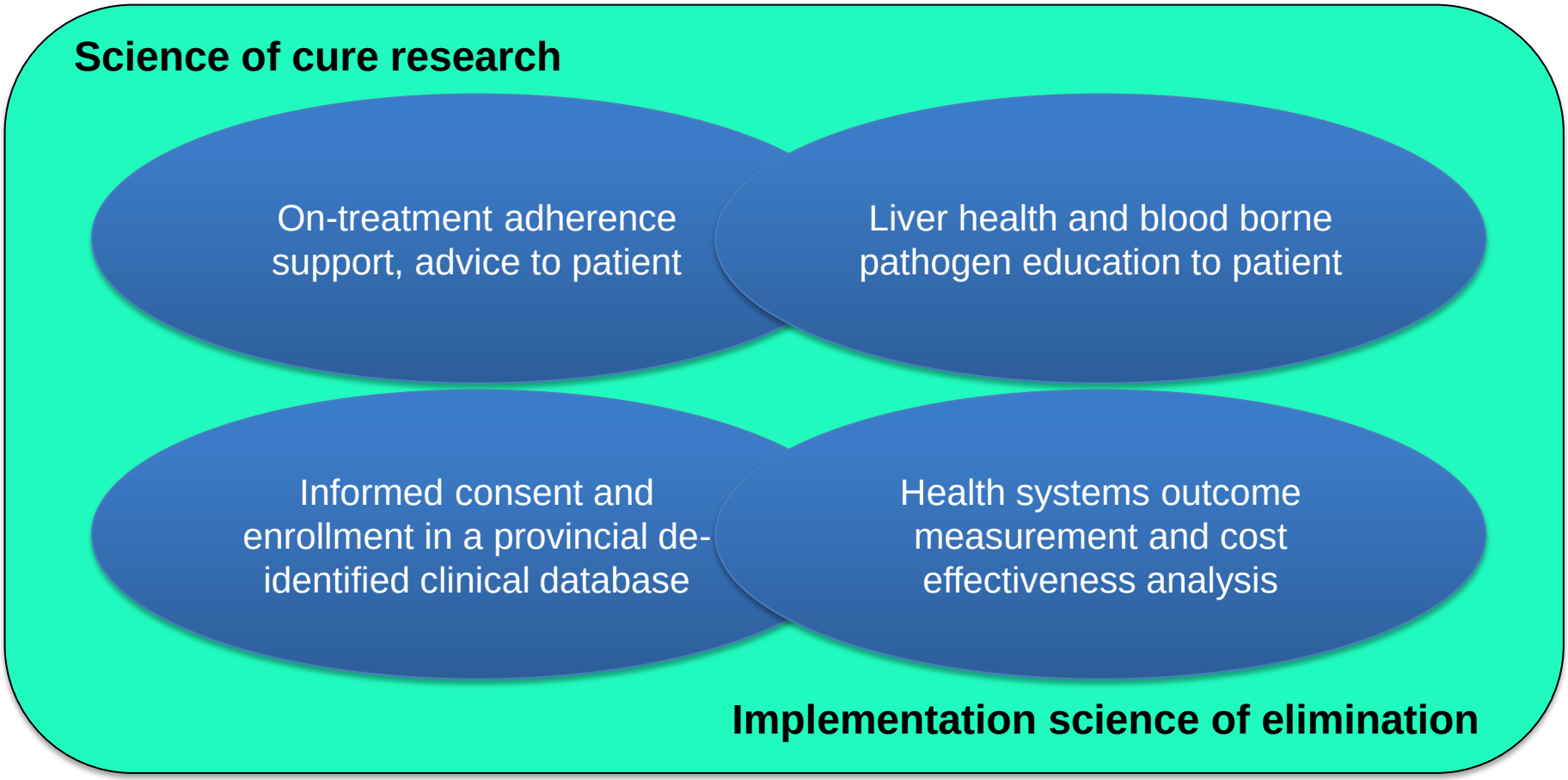
GOAL OF
Prince Edward Island
HCV elimination strategy



PEI model


HARM REDUCTION
Provincial government
Providers
Identification of HCV positive
Education and Evaluation
Automatic referral to provincial HCV program
HCV Care Plan
Treatment timing
Centralized triage and workup
Referral to appropriate provider
Industry partner
Patients
Correctional system

TREATMENT SUPPORT, EVALUATION AND EDUCATION



The first 9 months

Initial Assessment
N = 123

Genotype	n (%)
1a	118 (48.8)
1b	16 (6.6)
1other	23 (9.5)
2	21 (8.7)
3	45 (18.6)
4	1 (0.4)
Unknown	1 (0.4)
Spontaneous clearance	17 (7.0)

Genotype	n (%)	Fibrosis Stage	n (%)
1a	87 (70.7)	F0-F1	59 (48.0)
1b	15 (12.2)	F2	15 (12.2)
1other	18 (14.6)	F3	17 (13.8)
3	2 (1.6)	F4	29 (23.6)
4	1 (0.8)	Unknown	3 (2.4)

225 with chronic HCV identified

Objectives

- Present 2 provincial HCV elimination models at different implementation stages
- Review early results from the PEI elimination program
- Highlight critical nodes of success in implementation and discuss how they compare between Atlantic and Saskatchewan

The first 9 months

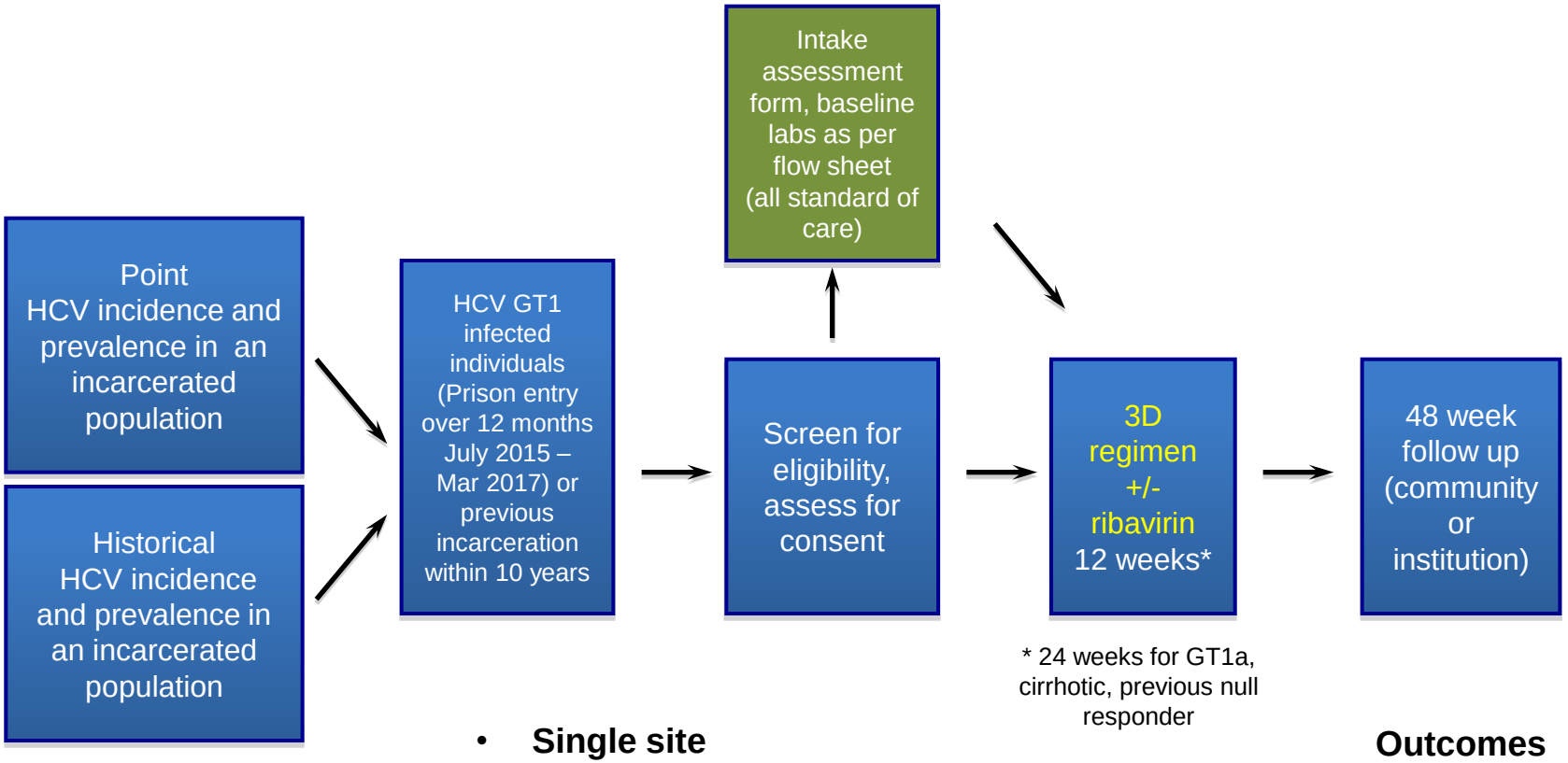
Outcome	n (%)
SVR12 (“cure”)	82 (97.6)
Lost to follow-up	1 (1.2)
Deceased	1 (1.2)

- **Highly effective treatment**
  - High SVR (“cure”) rates with no failures
- **Patient engagement in nurse-directed care program**
  - Only 1 patient lost to follow-up

Patients not initiated on therapy (*N* = 30)

Reason	n (%)
Pending specialist consult	16 (53.3)
Active IVDU	4 (13.3)
Spontaneous clearance	2 (6.7)
Lack of drug coverage – G3	2 (6.7)
Moved out of province	2 (6.7)
Medical contraindication	2 (6.7)
Behavioural management issues	1 (3.3)
Incarcerated	1 (3.3)

Treating high risk individuals: the HCV corrections study



* 24 weeks for GT1a, cirrhotic, previous null responder

- **Single site**
- **Rolling enrollment**
- **3D regimen:**
  - **all oral**
  - **high efficacy (in the 90% cure range)**
  - **low side effect**

Outcomes

- **SVR**
- **Reinfection rate**
- **Infection rate**
- **HCV Immunity**

Study quick facts:
12 months since start

- 72% of eligible offenders in the PCC were screened for HCV in July 2015 – July 2016

- 16% of screened offenders were HCV positive

- Major HCV risk factor in 23 / 27 individuals: IV drug use, past or present

- Over 10% of total enrollment achieved in 8 month then plateau

- 4 people currently on drug, 2 enrolled pending drug start

Additional benefit: screening in study 7 / 18 individuals in need of HBV vaccination who were then vaccinated by PCC

Study quick facts:
14 months since start

- 100% medication adherence in house
- 75% individuals HCV undetectable viral load at week 1
- 100% individuals HCV undetectable viral load at week 4
- 16 individuals in the community to finish treatment and follow up
- 10 people cured SVR12
- 4 people lost to followup

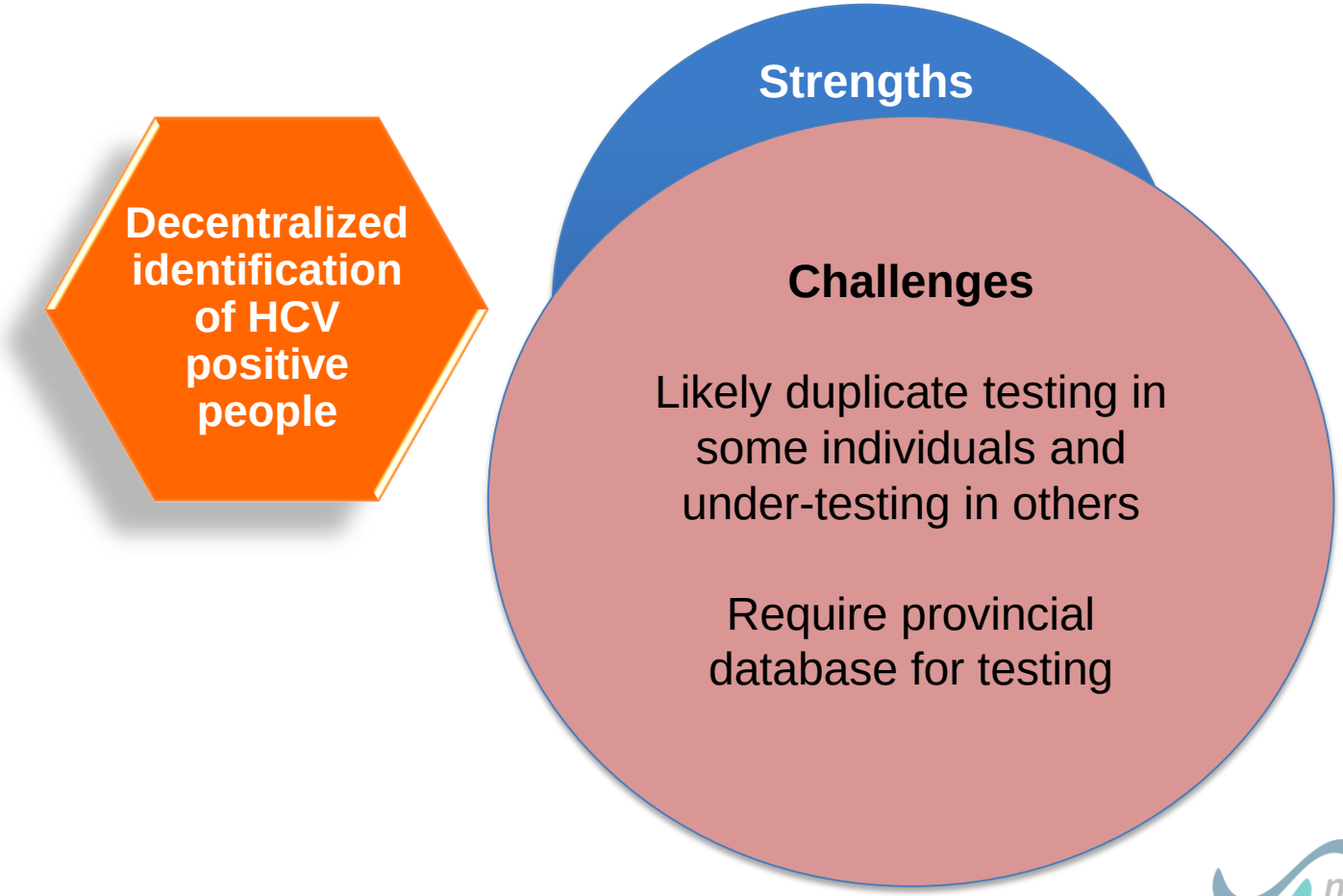
REQUIRES

- **Registry** and health outcomes specialists
- Engaged providers
- Engaged communities
- Sustainable treatment **access** for **ALL HCV positive persons**
- **Innovative** partnerships for treatment and care procurement and delivery
- Commitment to **assessment and research**

What about Nova Scotia?

How does HCV care work in Nova Scotia today?

Current Nova Scotia HCV related care



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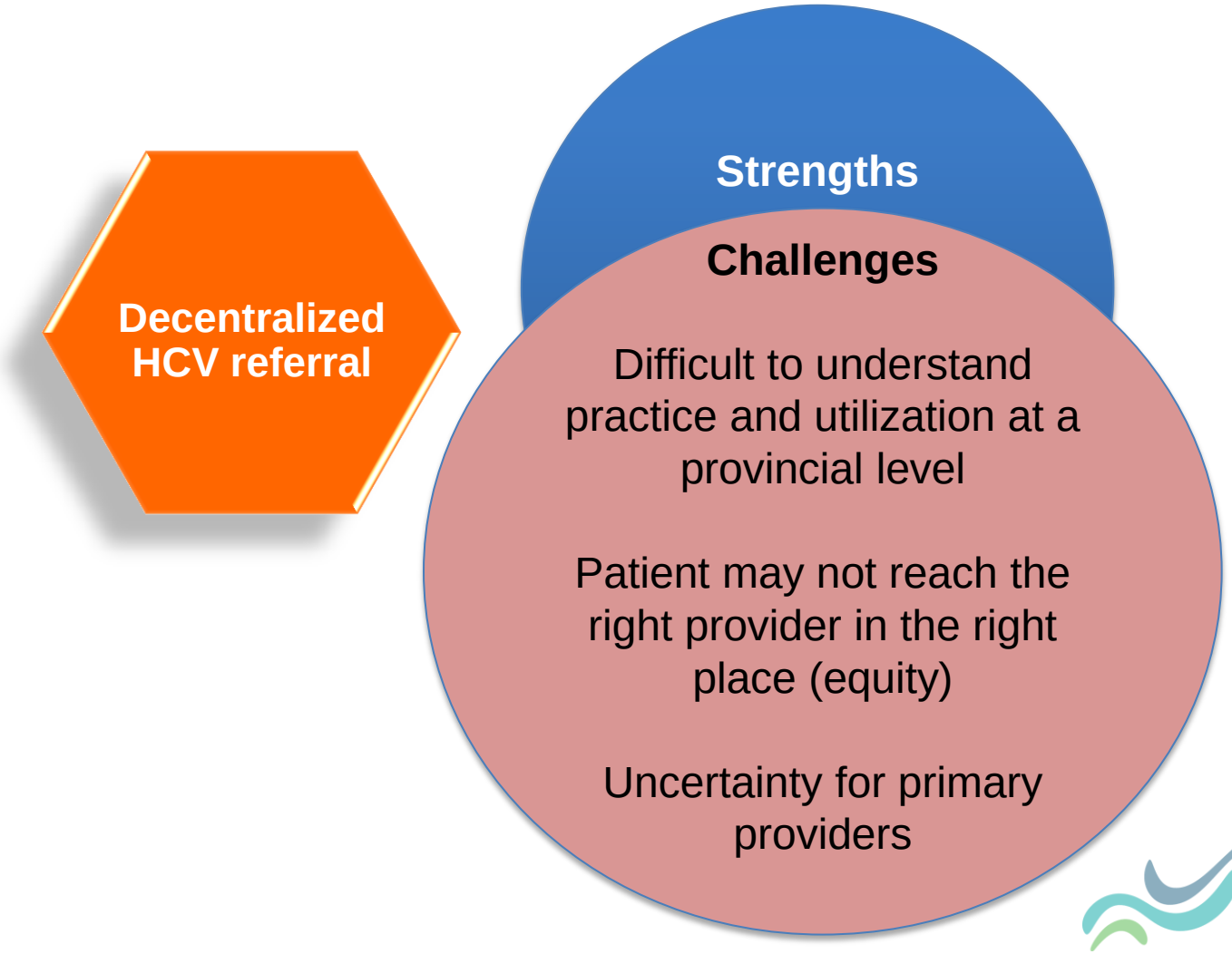
Current Nova Scotia HCV related care



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The hepatitis C situation

- Excellent work within public health to identify and contact trace individuals newly positive for HCV

- Expert providers in multiple disciplines who want to work together
  - Good: expert treatment capacity exists

- Highly invested in:
  - HCV elimination and public health (prevention)
  - Excellent patient care
  - Equitable access to care
  - Judicious, evidence based use of new therapies
  - Assessing outcomes to guide future program decisions
  - Understanding the science of cure – research in a living lab

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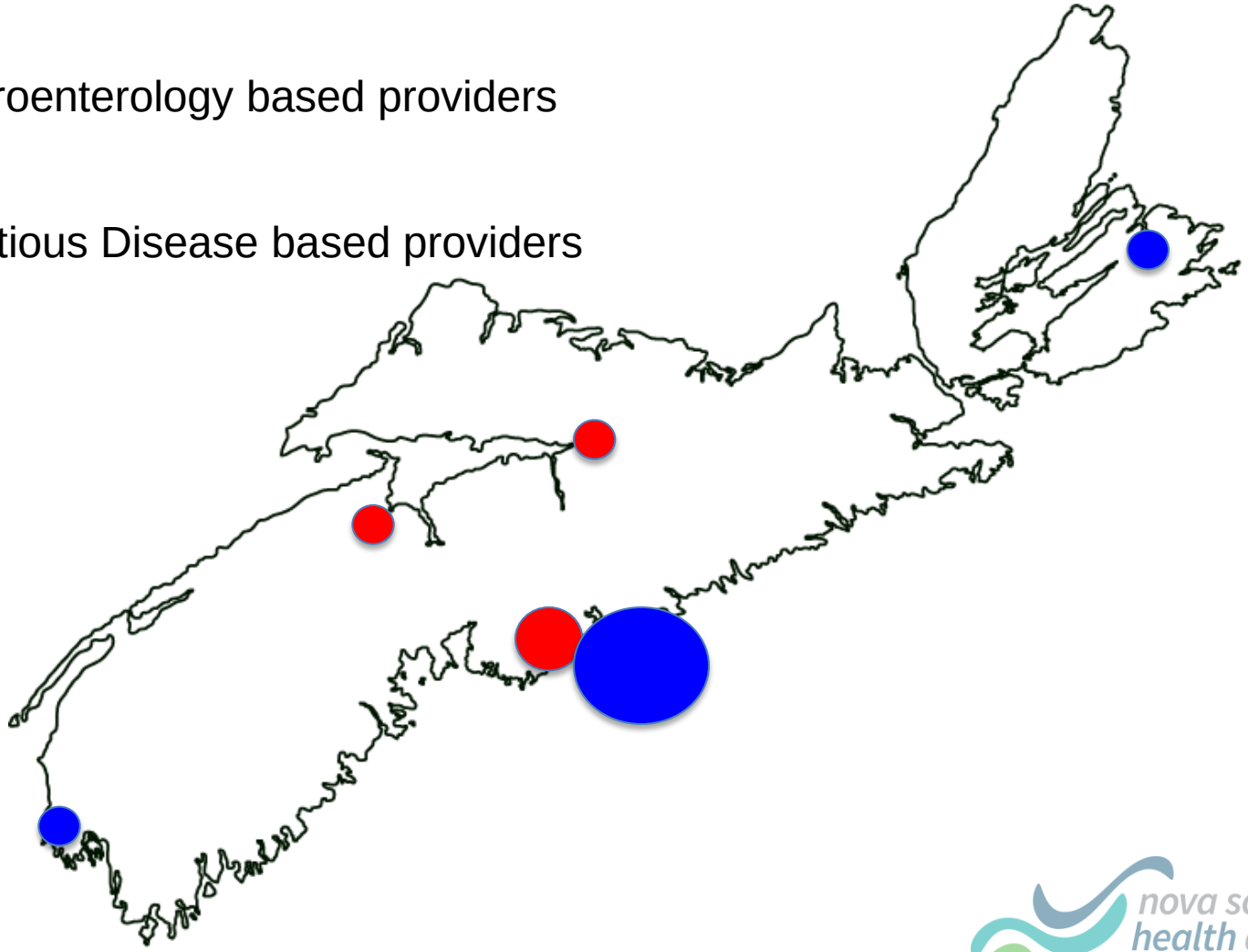
Hepatitis C care providers Nova Scotia

Gastroenterology based providers

Infectious Disease based providers



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Move to one health authority great opportunity

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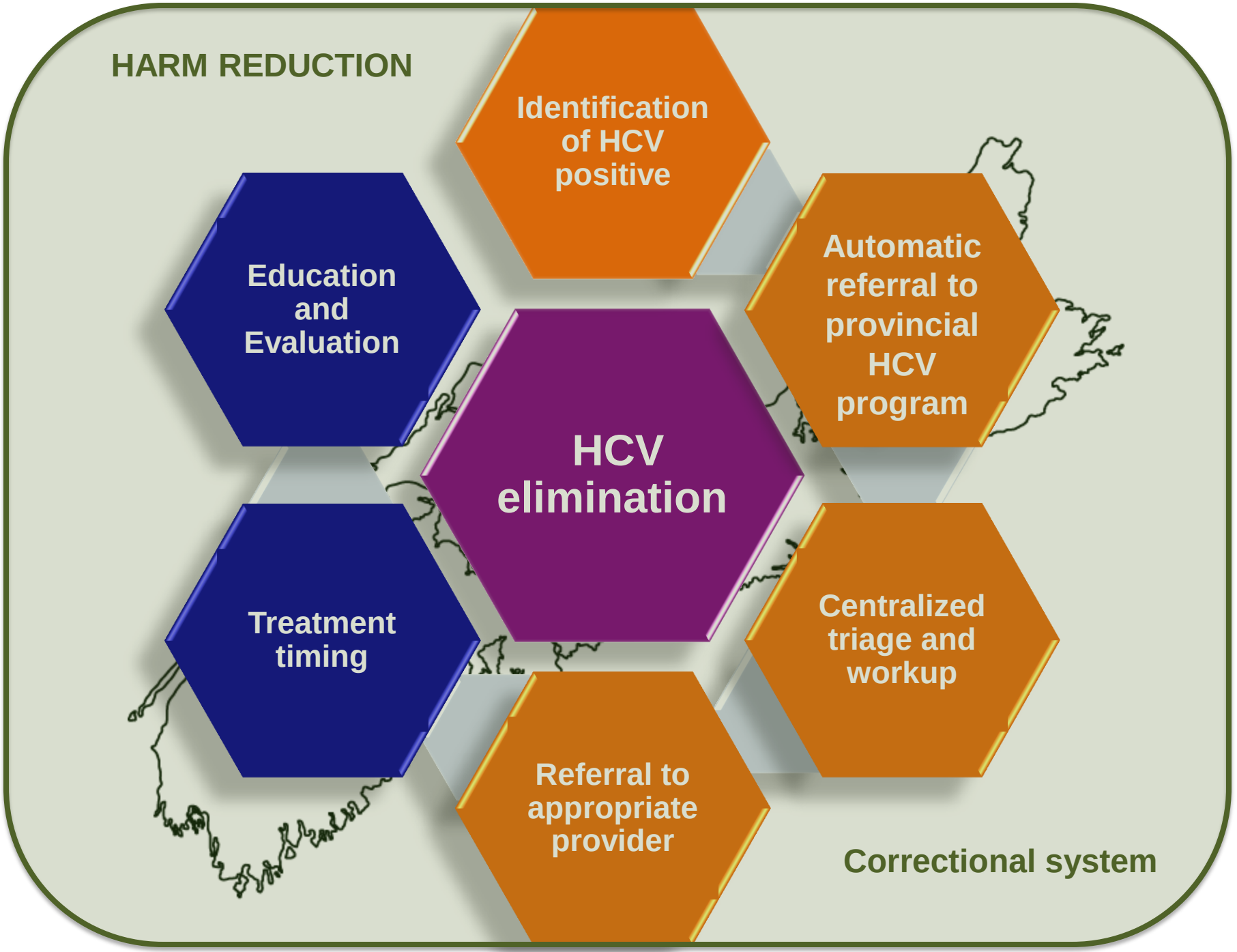
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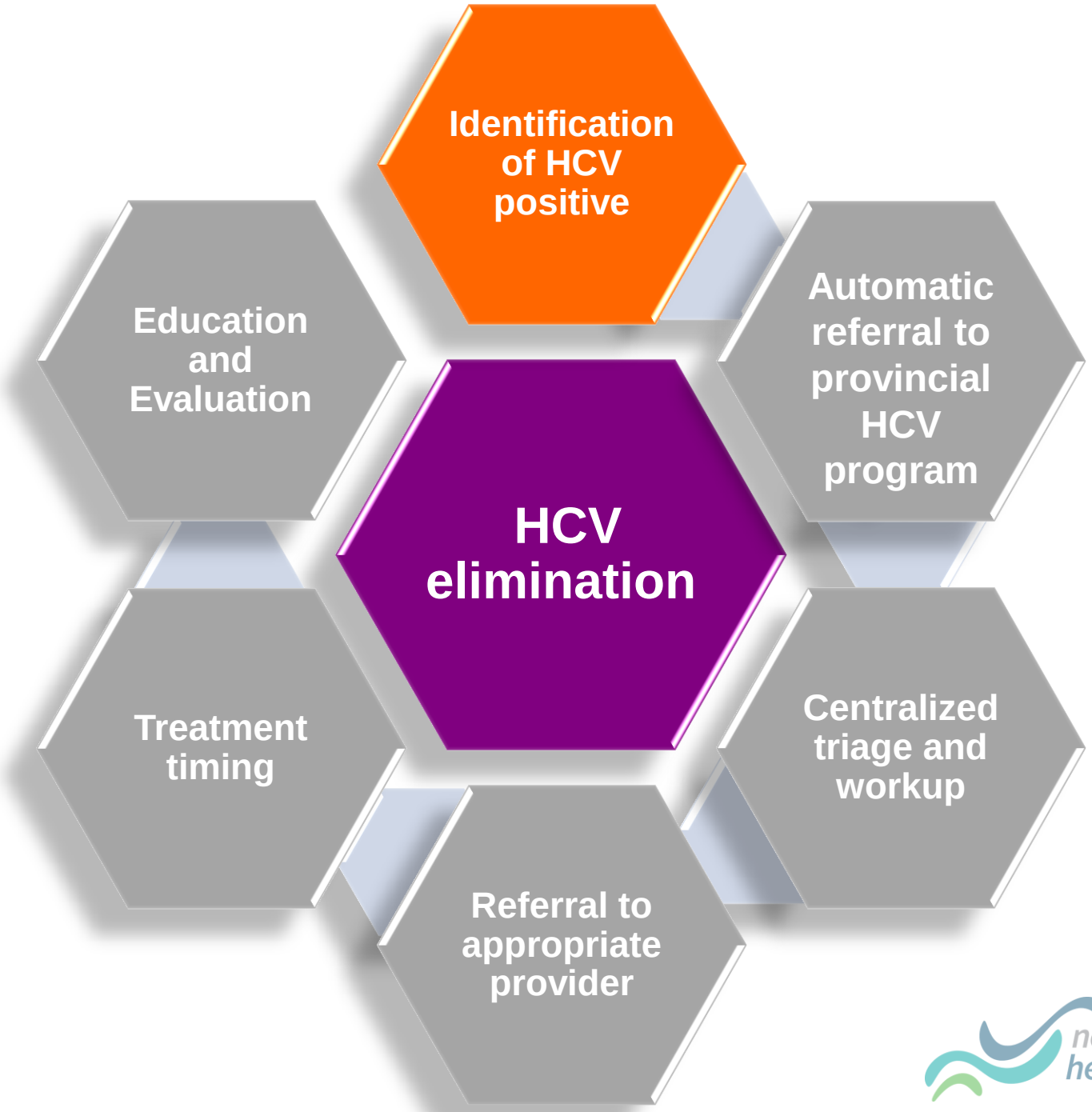
Referral to appropriate provider
Correctional system



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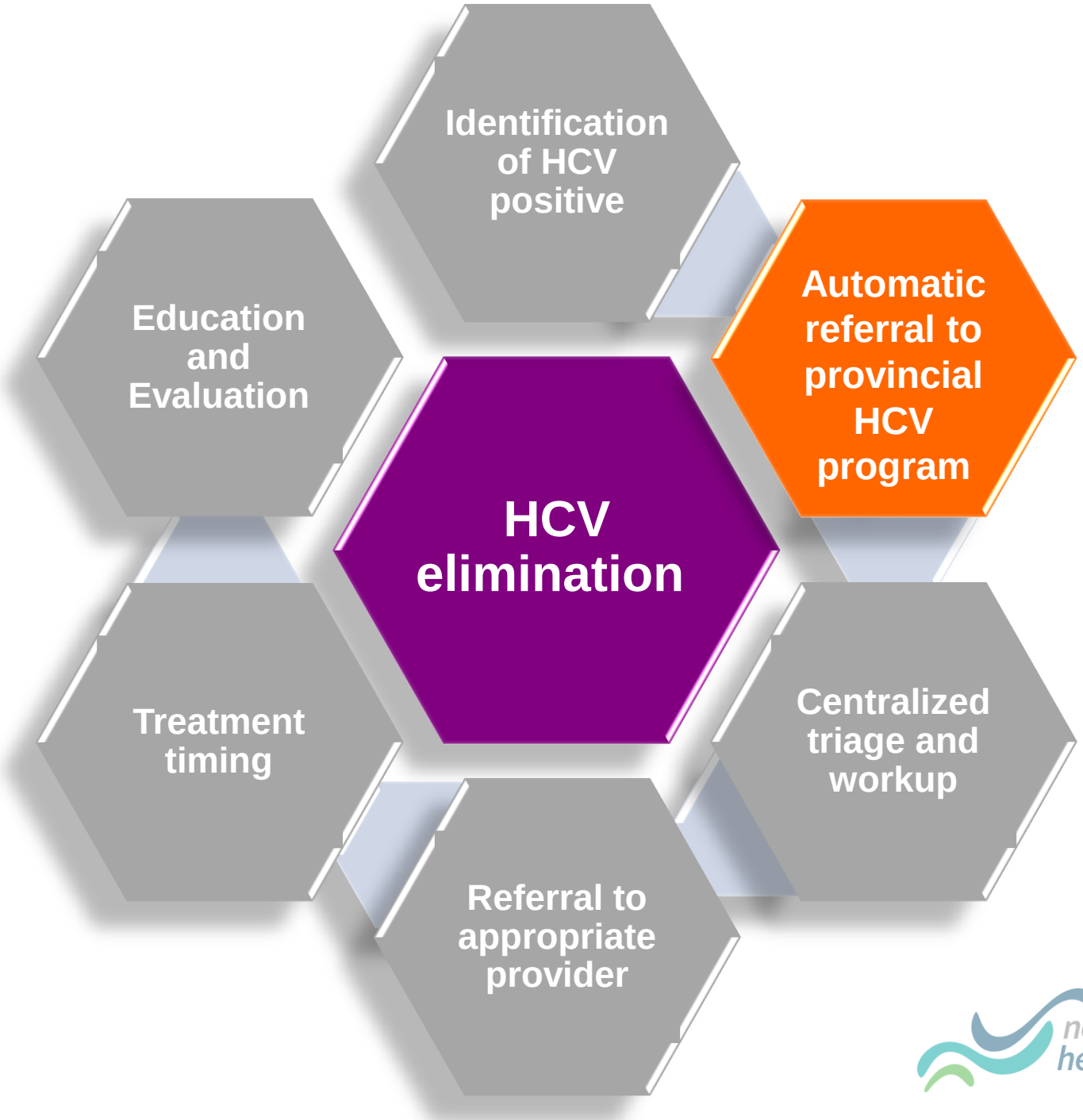

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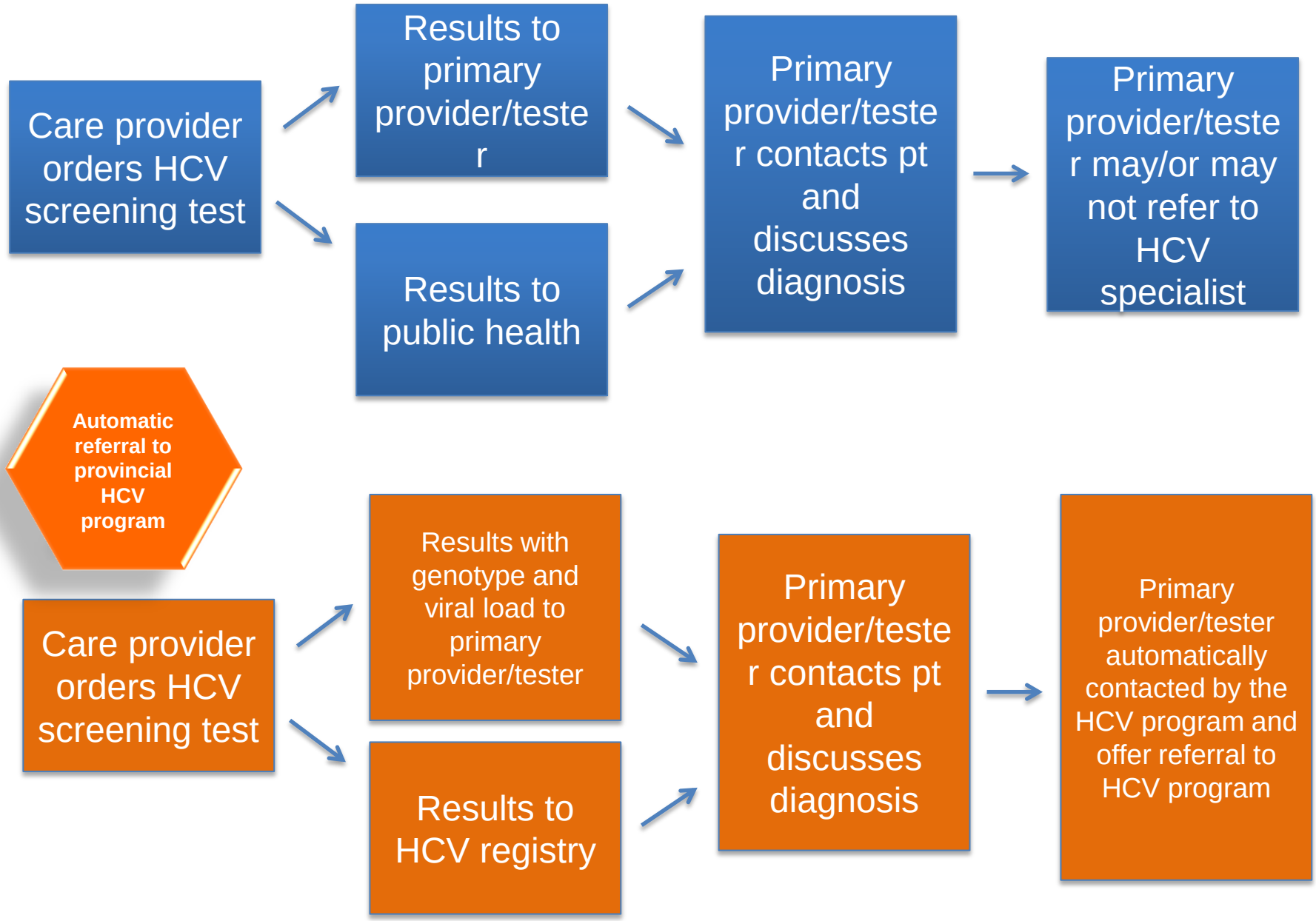
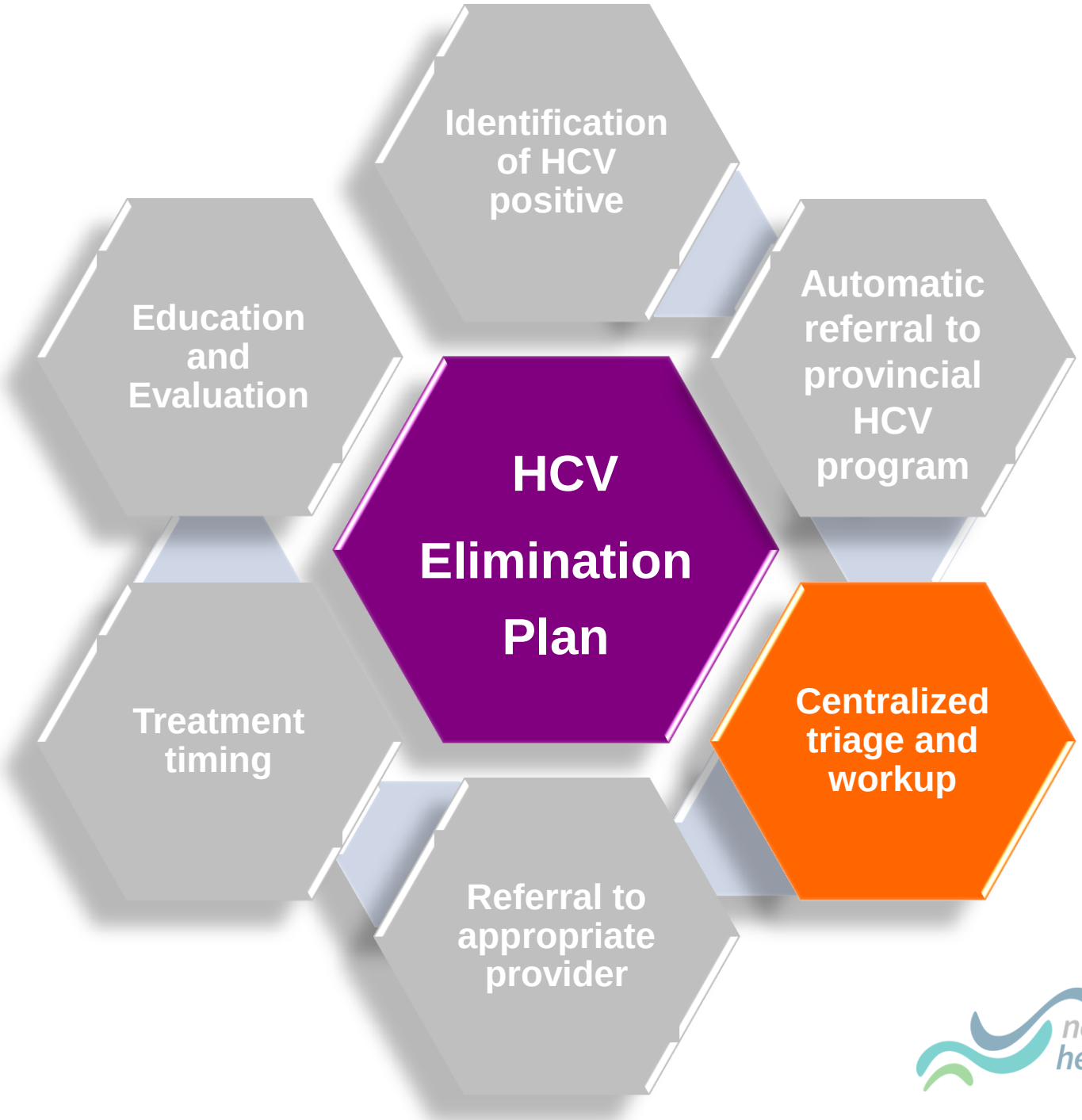
Current model





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Current model

New model

HCV confirmed genotype and viral load may / may not be known

HCV confirmed Genotype and viral load known

Multiple tertiary care team members in multiple departments do this simultaneously now

Potentially delayed booking while waiting for further information

Forward to HCV program

Automatic reporting

Send provincial form with additional testing required

Admin support or nursing

Potential for referral to wrong specialist

All information received and entered in database

Triage completed
Right patient
Right referral
Right time

Nursing review

Elimination: Phase 2a

INTERVENTION

- Provider specific needs based HCV treatment curriculum
- HCV expert mentorship
- Provider feedback and revision

Study Arms

Current model of care

Intervention Group 1

Intervention Group 2

Provincial HCV treatment program

Specialist providers
- Central referral and triage
- Standard 2 day HCV screening

Community based addictions providers
- Central referral and triage
- Point of care HCV screening

Collaborative based family practice providers
- Central referral and triage
- Point of care HCV screening

Study Outcomes

OUTCOMES

PROVIDER
- Satisfaction with intervention
- Pre and post knowledge
- Comfort with HCV treatment

PATIENT
- Cure
- Quality of life
- Work productivity

Biomarker /Biomedical
- Biomarker development to predict cure

HEALTH SYSTEM
- Time from triage to care
- Loss to follow up
- Total cost of treatment / pt
- Public health: identify infections

Elimination: Phase 2b

INTERVENTION

Contemporaneous HCV treatment in high risk HCV **networks**

Group 1: Offenders

Group 2: PWID together

Study Arms

- **Current model of care**
- **Intervention Group 1**
- **Intervention Group 2**

Provincial HCV treatment program

- **Specialist providers**
  - Central referral and triage
  - Standard 2 day HCV screening
- **Corrections based providers**
  - Central referral and triage
  - Point of care HCV screening
- **Addictions based providers**
  - Central referral and triage
  - Point of care HCV screening

Study Outcomes

OUTCOMES

PROVIDER
- Satisfaction with intervention
- Pre and post knowledge
- Comfort with HCV treatment

PATIENT
- Cure
- Reinfection
- Quality of life
- Work productivity

Biomarker /Biomedical
- Biomarker development to predict cure

HEALTH SYSTEM
- Time from triage to care
- Loss to follow up
- Total cost of treatment / pt
- Public health: identify infections

Elimination: Phase 2c

INTERVENTION
High prevalence and incidence HCV populations
Group 1: First nations in home community
Group 2: First nations in urban areas

Study Arms

Current model of care

Intervention Group 1

Intervention Group 2

Provincial HCV treatment program

Specialist providers
- Central referral and triage
- Standard 2 day HCV screening

First nations based providers
- Central referral and triage
- Point of care HCV screening

Urban first nations associated providers
- Central referral and triage
- Point of care HCV screening

Study Outcomes

OUTCOMES

PROVIDER
- Satisfaction with intervention
- Pre and post knowledge
- Comfort with HCV treatment

PATIENT
- Cure
- Reinfection
- Quality of life
- Work productivity

Biomarker /Biomedical
- Biomarker development to predict cure

HEALTH SYSTEM
- Time from triage to care
- Loss to follow up
- Total cost of treatment / pt
- Public health: identify infections

Provincial
person centric
elimination focused
HCV strategy

- Optimizes patient care
- Enhances population health
- Sustainable use of health system resources

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- Sustainable treatment **access** for **ALL HCV positive persons**
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Take home points

- Collaborative, motivated, responsible providers aligned to build a centralized, provincial model of care that is population and public health oriented

- HCV strategies lend themselves to simultaneous incorporation with blood borne pathogen health needs

- Built in evaluation and research to monitor economic, patient, and care effects are key to sustainable program improvement

NOhep

NOHEP - A MOVEMENT TO ELIMINATE VIRAL HEPATITIS BY 2030. JOIN US.

JOIN US TO MAKE THE ELIMINATION OF VIRAL HEPATITIS OUR NEXT GREATEST ACHIEVEMENT

GET INVOLVED

WORLD HEPATITIS DAY

Every action is an action towards elimination of viral hepatitis

This year sees the first ever World Health Organization's Global Strategy for Viral Hepatitis, which sets a goal of eliminating viral hepatitis as a public health threat by 2030.

Let's join together on World Hepatitis Day (28 July) to make the elimination of viral hepatitis our next greatest achievement.