



**BC PATIENT SAFETY  
& QUALITY COUNCIL**  
Working Together, Accelerating Improvement.

**Institute for Health System  
Transformation & Sustainability**



## **Spotlight on Innovation – Pacific Northwest Division of Family Practice**



**MetSC**  
METABOLIC SYNDROME CANADA



## Disclosure Slide

- All presenters have no actual or potential conflict of interest in relation to this program/presentation

# Territory Acknowledgement



## Northwest - 25 First Nations

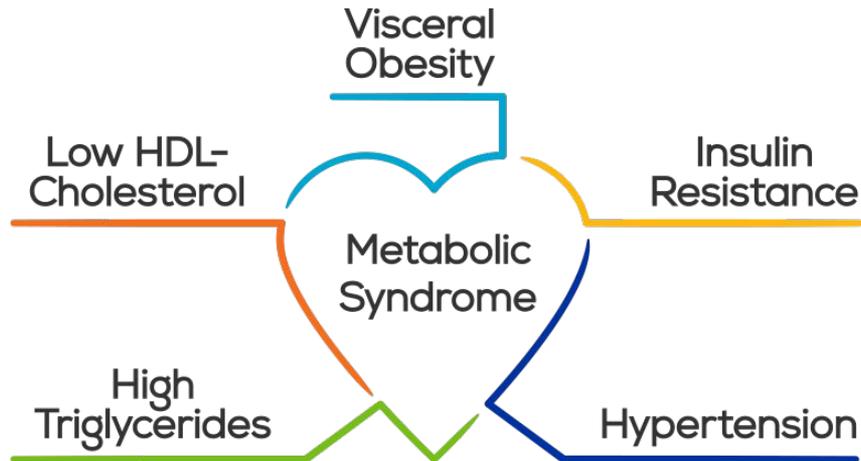
501	Taku River Tlingit	682	Tahltan
504	Dease River Band (Good Hope Lake)	683	Iskut
671	Gingox	678	Lax Galt'sap
677	Gitlaxt'aamiks / New Alyansh	679	Gitwinsihi kw
531	Gitanmaax	535	Gitsegukla
537	Gitanyow	536	Gitwangak
533	Sik E Dakh / Glen Vowell	532	Anspayaxw / Kispiox
534	Tse-kya / Hagwilget	530	Moricetown / Key' ah' wiget
669	Old Massett Village Council	670	Skidegate
675	Gitga'at / Hartley Bay	672	Gitxaala / Kitkatla
673	Metlakatla / Maktakxaata	674	Lax Kw'alaams
676	Kitimaat Village Council / Haisla	681	Kitsumkalum
680	Kitselas / Gitselasu		

# Objectives:

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- 1.0 What is Metabolic Syndrome?
- 2.0 Data - How does this impact BC?
- 3.0 What is CHANGE BC?
- 4.0 What were CHANGE BC's results?
- 5.0 Your opinion...
- 6.0 What are we up to now?

# What is Metabolic Syndrome?



## WHEN 3 OF THESE ARE PRESENT:

- High blood pressure ( $\geq 130/85$  mm Hg, or receiving medication)
- High blood glucose levels ( $\geq 5.6$  mmol/L, or receiving medication)
- High triglycerides ( $\geq 1.7$  mmol/L, or receiving medication)
- Low HDL-Cholesterol ( $< 1.0$  mmol/L in men or  $< 1.3$  mmol/L in women)
- Large waist circumference ( $\geq 102$  cm in men,  $\geq 88$  cm in women; ranges vary according to ethnicity)

5

# Every three minutes

another British Columbian is diagnosed with diabetes



Approximately 1.527 Million people in BC have diabetes or prediabetes, and this number is expected to grow by 35 % over the next 10 years

Diabetes contributes to:



40% of heart attacks



30% of strokes



50% of kidney failyre requiring dialysis



70% of non-traumatic lower limb amputations



and is a leading cause of vision loss

Annual cost to BC's health care system: \$509 million

# Why do we care?

We see people with Metabolic Syndrome in our practices every day...



#1

According to a 2014 study published in Chronic Diseases and Injuries in Canada, 19.1% of all Canadian adults – nearly 1 in 5 people – meet this diagnosis

#2

The prevalence of metabolic syndrome steadily rises in older demographics: it's estimated 40% of people over 65 have Metabolic Syndrome.

#3

Similar studies also show a high burden of abdominal obesity, low HDL and hypertriglyceridemia among people aged 18-49.

#4

The result is a growing prevalence of chronic conditions like diabetes and heart disease that account for 17% of all health care costs in Canada and tragically, 43% of all deaths.

#5

The good news is that Family Physicians can detect the condition and treat it using CHANGE BC, working together with Registered Dietitians and Kinesiologists

<https://www.changebc.net/>

 CHANGE  
BRITISH COLUMBIA

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# What is CHANGE BC?

Canadian Health Advanced by  
Nutrition and Graded Exercise

# CHANGE BC Rural Family Physician Leaders:

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**Dr. Matthew Menard**

Dr. Menard practices family medicine in Massett, Haida Gwaii, British Columbia. Dr. Menard graduated from McMaster Medical School before completing his residency training in Remote and Rural Practice with the University of British Columbia where he currently is...

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**Dr. Jocelyn Black**

Dr. Jocelyn Black is a newly graduated family medicine physician from a rural and remote focused training program in British Columbia. Dr. Black is passionate about primary care and prevention...

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**Dr. Brenda Huff**

Dr. Brenda Huff is a rural family physician, clinical instructor with University of British Columbia and the Medical Lead for BC annual Rural Health Conference. Her current research interest is metabolic syndrome in the paediatric population. She has had an integral role...

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**Dr. Wouter Morkel**

Dr. Wouter Morkel is a long standing rural Family Physician who practices in Smithers British Columbia, with a special interest in incorporating innovative primary care lifestyle supports into family practice. Dr. Morkel is an avid proponent and advocate for encouraging local patients...

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**Dr. Onuora Odoh**

Dr. Odoh is a family physician with a strong interest in preventive medical care, which he has incorporated as the bedrock of his roles and practice as a primary care provider. Fully convinced that lifestyle which includes appropriate exercise and diet regimens could prevent...

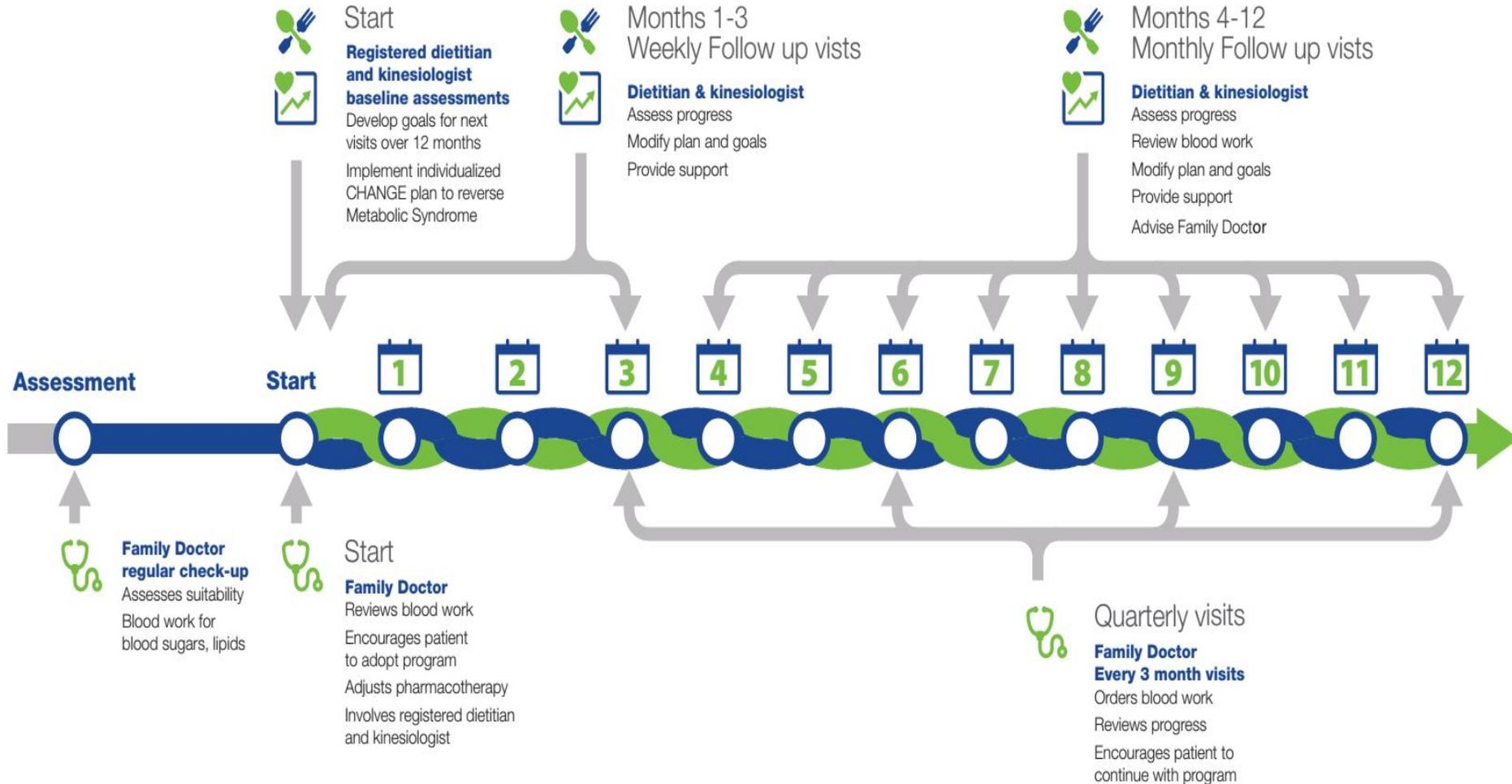
[Read More](#)



**Dr. Greg Linton**

Dr. Greg Linton is an established and highly skilled Family Physician who has practiced in the beautiful community of Terrace British Columbia for the past 24 years. In addition to operating a busy, full scope Family Practice, Dr. Linton is Site Director ...

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## Participant Eligibility Criteria

### Inclusion Criteria

Both the following inclusion criteria must be met for patient to be placed on the CHANGE Program

1.	≥ 18 yrs old and
2.	Meets <b>2 or more</b> out of the 5 criteria for metabolic syndrome i.e. <ol style="list-style-type: none"><li>Blood Pressure of <math>\geq 130/85</math> mm Hg or receiving pharmacotherapy<ul style="list-style-type: none"><li><i>both systolic and diastolic have to be beyond these ranges</i></li></ul></li><li>Fasting Blood Glucose <math>\geq 5.6</math> mmol/L or <b>HbA1c <math>\geq 5.7\%</math></b> or receiving pharmacotherapy</li><li>Fasting Triglyceride of <math>\geq 1.7</math> mmol/L or receiving pharmacotherapy</li><li>Fasting HDL-C <math>&lt; 1.0</math> mmol/L males and <math>&lt; 1.3</math> mmol/L females</li><li>Abdominal circumference as determined by a pre-specified technique:<ul style="list-style-type: none"><li><i>Canadian and US Whites, Europids, Whites, sub-Saharan Africans, Mediterranean, middle east (Arab) Or ethnicity unknown</i> <math>\geq 94</math> cm Males, 80 cm Females</li><li><i>Asian and South-Central Americans</i> <math>\geq 90</math> cm Males and 80 cm Females</li></ul></li></ol>

## Suggested Exclusion Criteria

The determination of exclusion criteria is to be made by the Family Physician/Primary Care Practitioner, hence flexibility is allowed.

Generally, the following patients should **NOT** be enrolled to the CHANGE Program:

- those **unable** to adhere to the diet and/or exercise intervention safely due to medical/physical reasons
- those who have a chronic clinical condition that could impact metabolic syndrome
- those **not** likely be responsive to the intervention

See examples of conditions that qualify as suggested exclusions and cautionary notes in the table below.

1.	Diagnosis of Type 1 diabetes mellitus
2.	Advanced stage of type 2 diabetes mellitus defined as <ul style="list-style-type: none"><li>• Severe hyperglycemia &gt; 11 mmol/L. <i>However, can be enrolled if blood sugars are stabilized i.e. FBS &lt; or equal to 11 mmol/L with medication prior to start of program</i></li></ul>
3.	Significant medical co-morbidities, including uncontrolled metabolic disorders (e.g., thyroid, renal, liver), stroke, and ongoing substance abuse
4.	Clinically significant renal failure, as per Family MDs discretion
5.	Diagnosis of psychiatric disorders (cognitive impairment) that would limit ability to comply with the program
6.	Diagnosis of cancer (other than non-melanoma skin cancer) that was active or treated with radiation or chemotherapy within the past 2 years or a terminal illness and/or in hospice care
7.	Pregnant, lactating or planning to become pregnant during the program
8.	Clinically active chronic inflammatory diseases
9.	Body Mass Index >40 <i>BMI 35-40 NOT likely to respond to diet/exercise in long term, may enrol with caution.</i> <i>BMI &gt;40 not expected to see improved outcomes with program <b>hence do NOT enrol.</b></i> <b><i>Failure of outcome improvement is not to be interpreted as failure of program.</i></b>



● Location of participating CHANGE BC Pilot Communities within the the Pacific Northwest Division of Family Practice



# Micro – Hackathon.... (Audience poll)

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What do you feel are key **enablers** for large scale implementation of CHANGE BC?



# Micro – Hackathon.... (Audience poll)

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What do you feel are potential **barriers** for large scale implementation of CHANGE BC?



# Can Metabolic Syndrome be reversed?

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# 32.4%

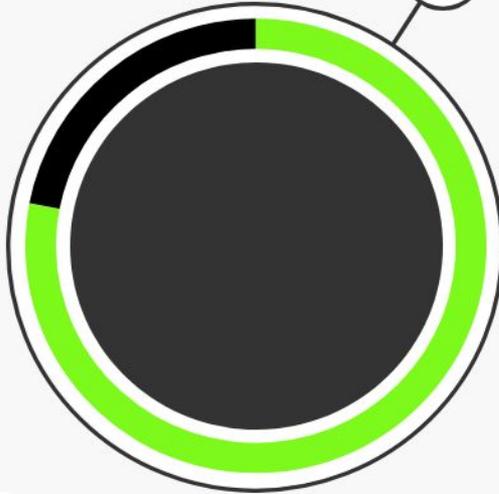
## REVERSED METABOLIC SYNDROME

**32.4% of patients who completed the 12-month CHANGE BC program were able to declassify themselves as having metabolic syndrome (less than 3/5 criteria)**



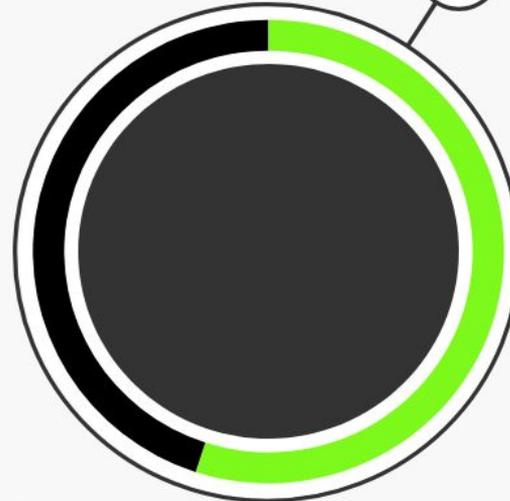
## Blood Pressure

78%  
improved  
blood  
pressure



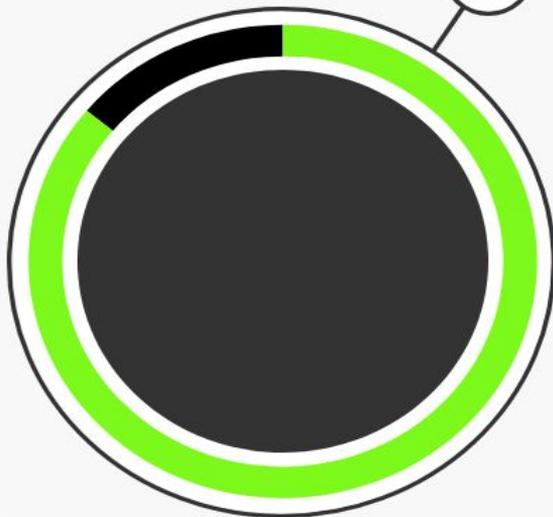
## Total Cholesterol

55%  
Improved  
Total  
Cholesterol



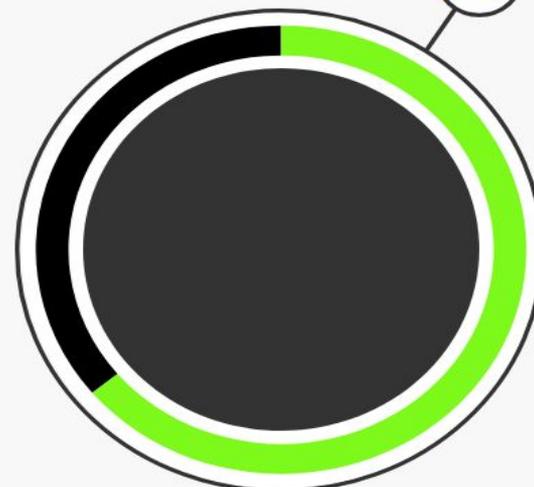
## Improvement in Aerobic Fitness

86%  
Improved in Aerobic  
Fitness



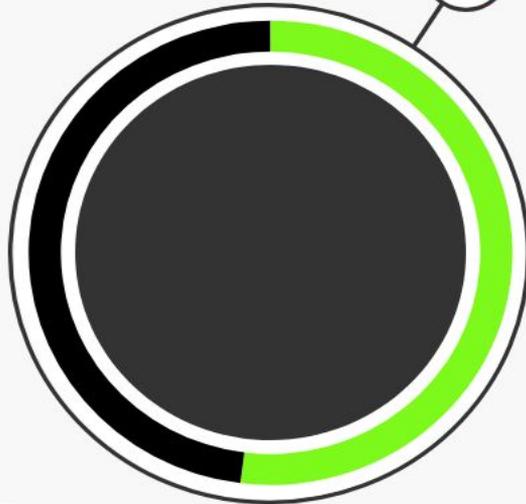
## Improvement in Waist Circumference

64%  
Improved in Waist  
Circumference



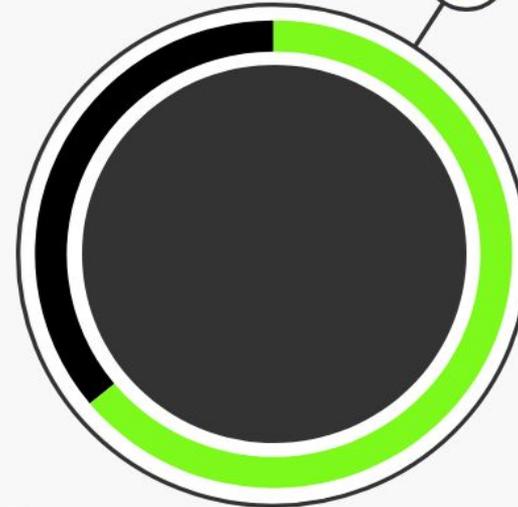
## Improvement in Triglycerides

52%  
Improved in  
Triglycerides



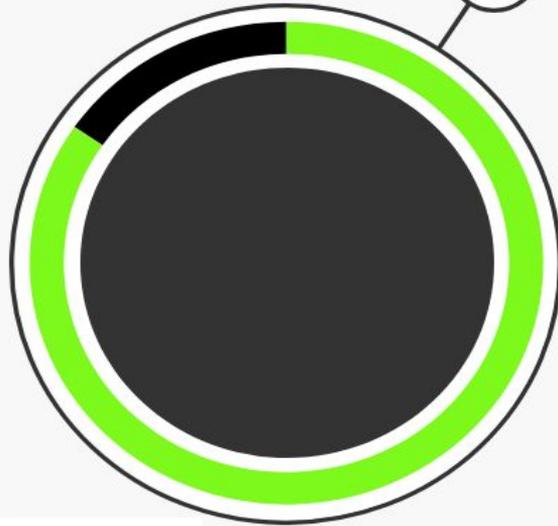
## Improvement in Blood Glucose Levels

64%  
Improved in Blood  
Glucose Levels



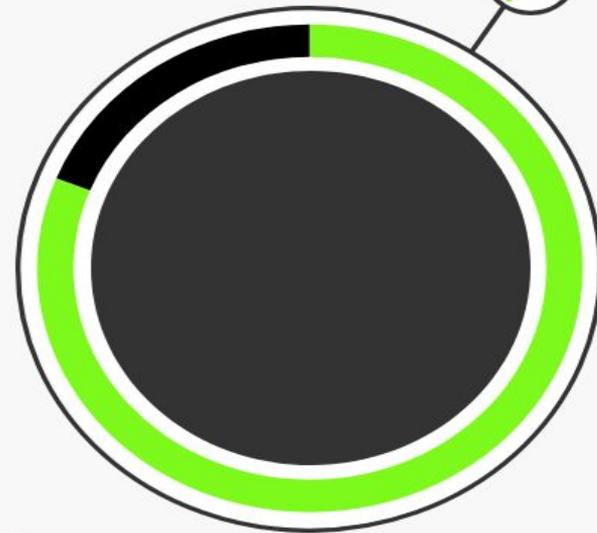
## Improvement in Nutrition Knowledge

93%  
Improved in Nutrition  
Knowledge



## Improvement in VO2 Max

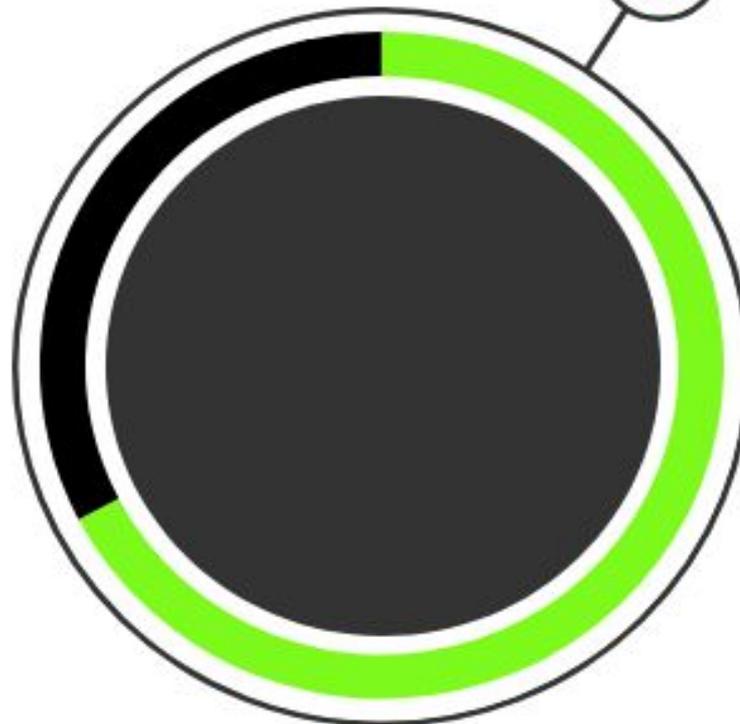
81%  
Improved in  
VO2 Max



**Cardiovascular Risk PROCAM Score:  
Predicts 10-year cardiovascular risk  
based on risk factors like history of MI,  
diabetes or high cholesterol:**

**66.7%**

**Improved PROCAM Score**



**Pacific Northwest**  
**Division of Family Practice**  
A GPSC initiative



# METABOLIC SYNDROME PATIENT EXPERIENCE AND ACTIVATION FROM SUPERVISED DIET AND EXERCISE PROGRAM - CHANGE BC

2 years post CHANGE BC - Patient check in

1

**100%**

agreed or strongly agreed that the CHANGE BC program was relevant to them



2

**100%**

agreed or strongly agreed that the program helped them to understand their health issues



3

**80%**

agreed or strongly agreed that the program increased their knowledge of supports that are available to them



4

**61%**

agreed or strongly agreed that attending sessions with other patients added value to them



5

**100%**

agreed or strongly agreed that seeing a dietitian and kinesiologist, along with their physician, added value for them



# What our patients are saying:



"The CHANGE BC Program was truly life-changing."



"The CHANGE BC Program helped me to feel much better about my body and health."



"I feel 10 years younger after the CHANGE BC program."



"I felt supported throughout the whole process with consistent communication between me and the three streams of healthcare professionals."



# Innovation Considerations:

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**A 30% risk-reduction intervention aimed at individuals (Canadians) with the highest diabetes risk (i.e. the top 10% of the highest-risk group) would save \$1.48 billion<sup>4</sup> in health system costs.**



**Cost per patient: \$1,000**

# Why CHANGE BC works?

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Family Physician Designed and Led Innovation, together with Dietitians and Kinesiologists:



Your Family Doctor



A team approach



Personalized  
diet-exercise plan



Gradual intervention

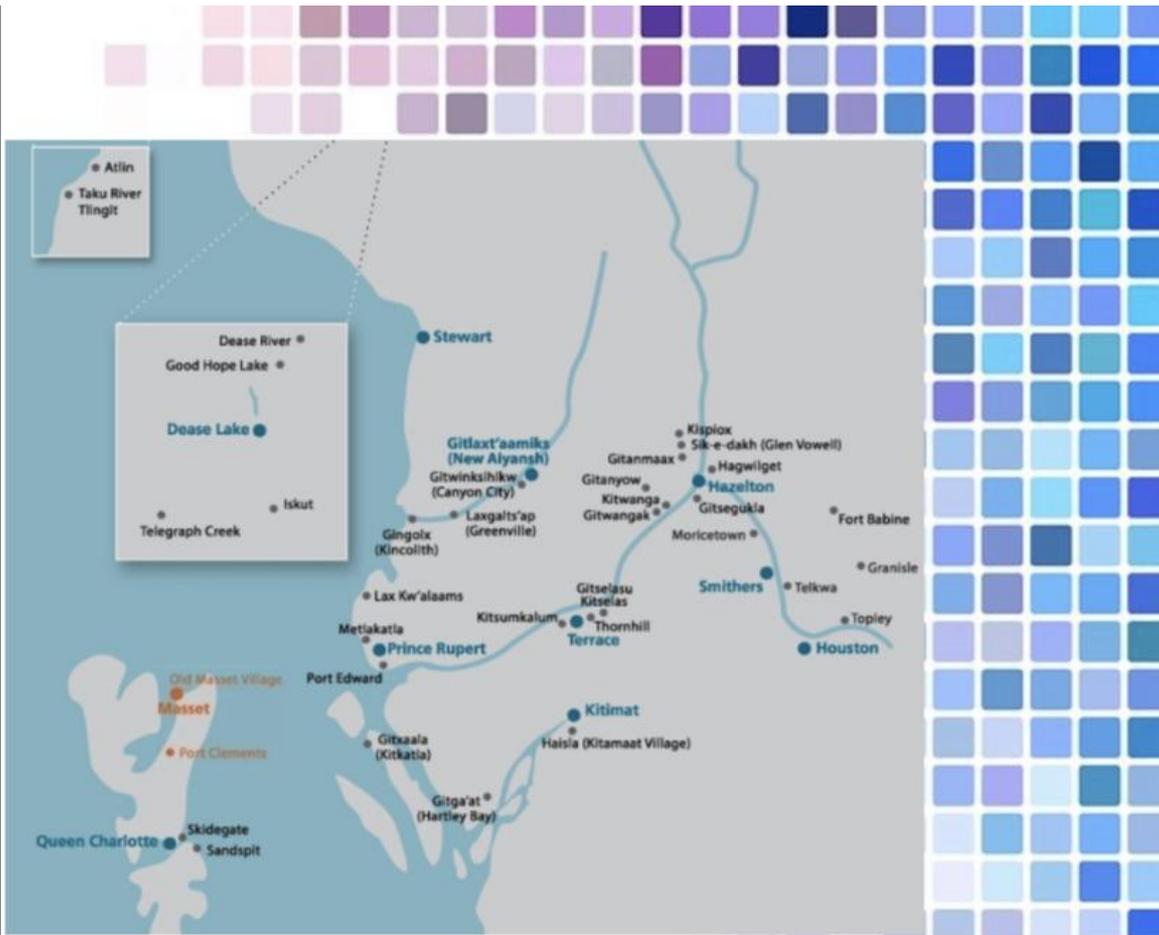


Close follow-up  
over 12 months

# What are we doing now?

Actively taking steps to move from Innovation to BC Wide Implementation through a Mosaic Approach for partnerships and sustainable funding:

- Adding culturally sensitive capabilities
- Brings the best of innovation to virtually and in person support patients
- Building partnerships and funding opportunities
- Prehab Rehab Development
- Having more GPs and Specialists involved (Shared Care Opportunities)



# Building a Mosaic Approach to Sustainability

# QUESTIONS AND FEEDBACK?

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# Thank you

## Contact Information

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Dr. Onuora Odoh [onuora.odoh@northernhealth.ca](mailto:onuora.odoh@northernhealth.ca)

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