



**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	Gingolx	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 / Maxtakxaata	674	Lax Kw'alaams
676	Kitimaat Village Council / Haisla	681	Kitsumkalum
680	Kitselas / Gitselasu		

Objectives:

1.0 What is Metabolic Syndrome?

2.0 Data - How does this impact BC?

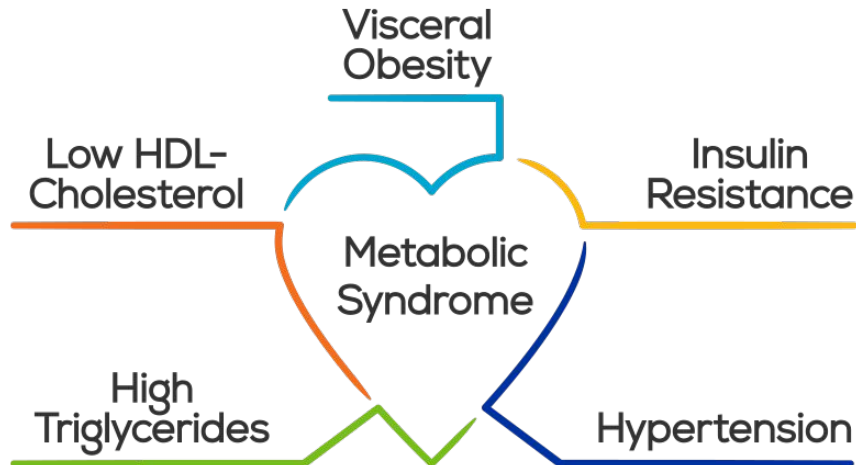
3.0 What is CHANGE BC?

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 (≥ 5.6 mmol/L, or receiving medication)
- High triglycerides (≥ 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 (≥ 102 cm in men, ≥ 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 failure 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

What is CHANGE BC?

Canadian Health Advanced by
Nutrition and Graded Exercise

CHANGE BC Rural Family Physician Leaders:



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...

[Read More](#)



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...

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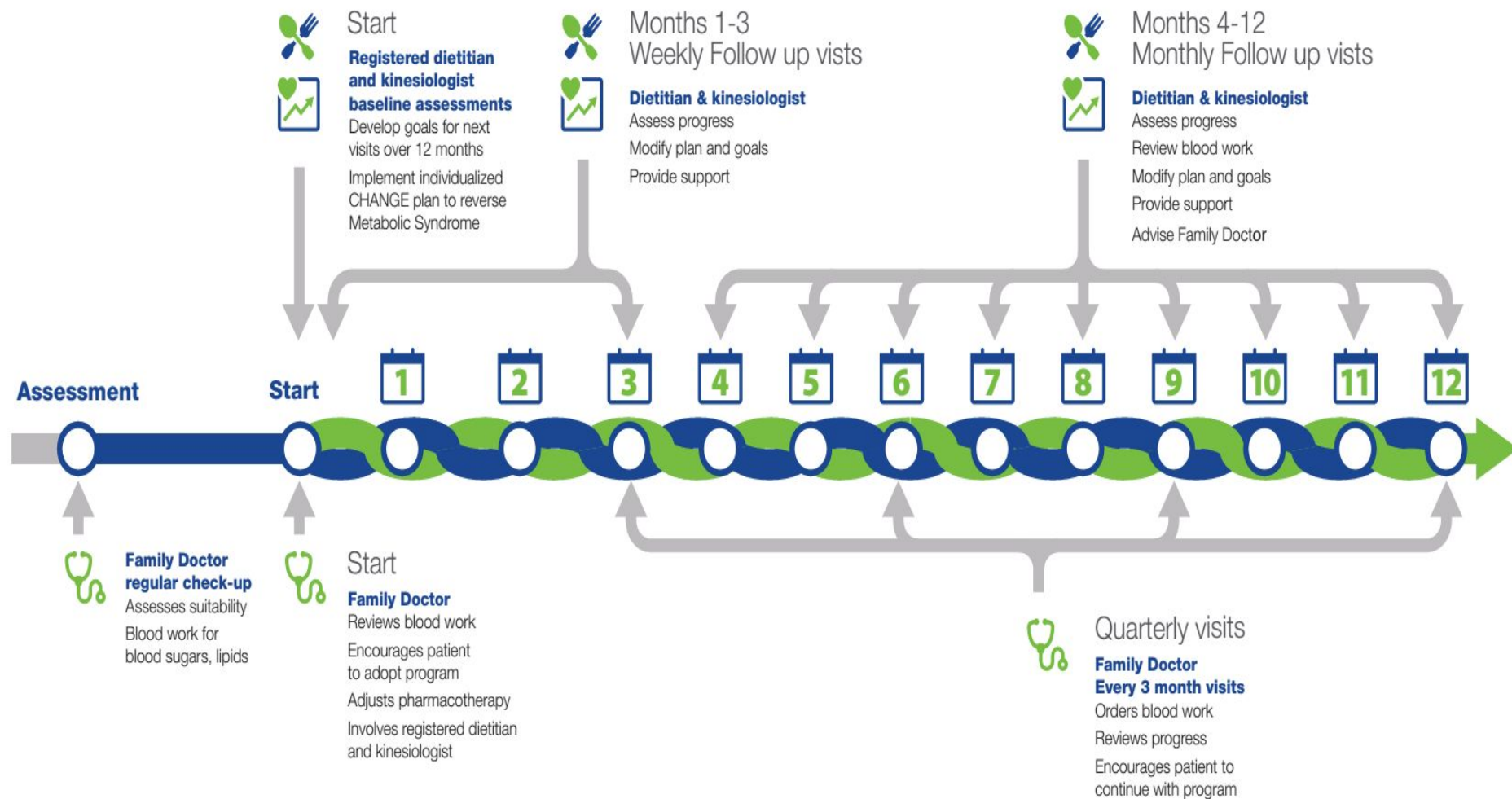


Dr. Greg Linton

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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Program Overview



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

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 to 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">• Severe hyperglycemia > 11 mmol/L. <i>However, can be enrolled if blood sugars are stabilized i.e. FBS < or equal to 11 mmol/L with medication prior to start of program</i>
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 >40 not expected to see improved outcomes with program hence do NOT enrol.</i> <i>Failure of outcome improvement is not to be interpreted as failure of program.</i>



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



Micro – Hackathon.... (Audience poll)

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



Micro – Hackathon.... (Audience poll)

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



Can Metabolic Syndrome be reversed?

32.4%

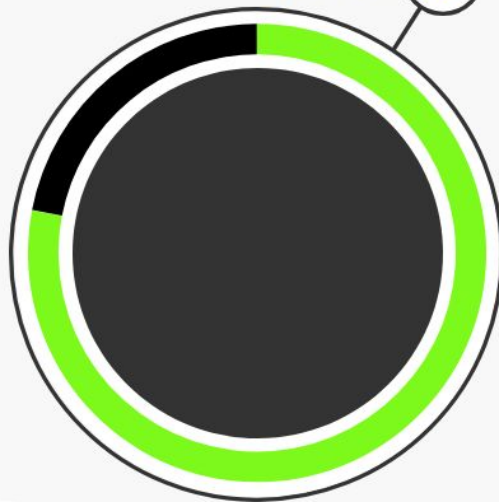
REVERSED METABOLIC SYNDROME

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)



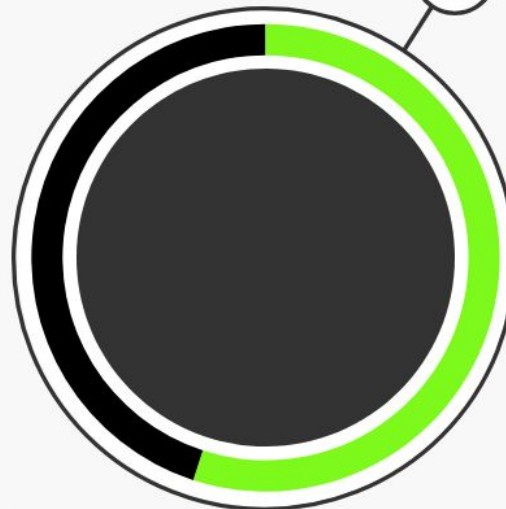
Blood Pressure

78%
improved
blood
pressure



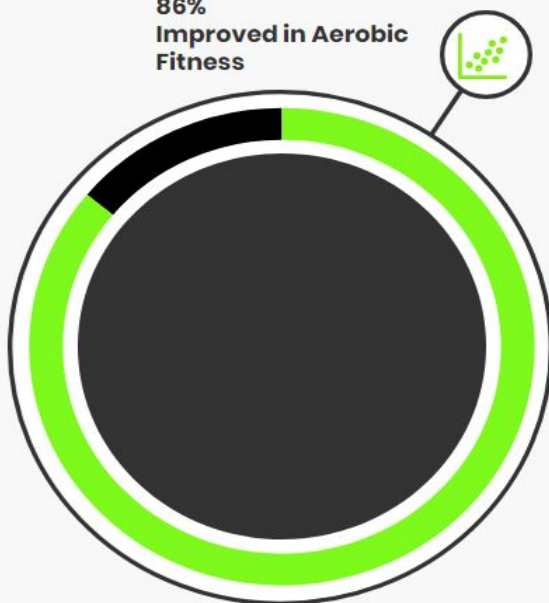
Total Cholesterol

55%
Improved
Total
Cholesterol



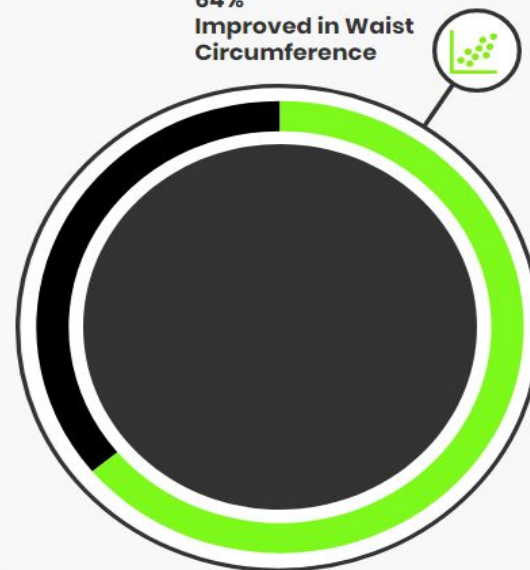
Improvement in Aerobic Fitness

86%
Improved in Aerobic
Fitness



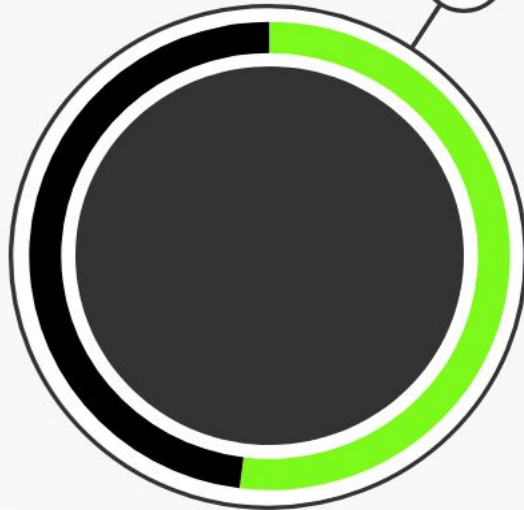
Improvement in Waist Circumference

64%
Improved in Waist
Circumference



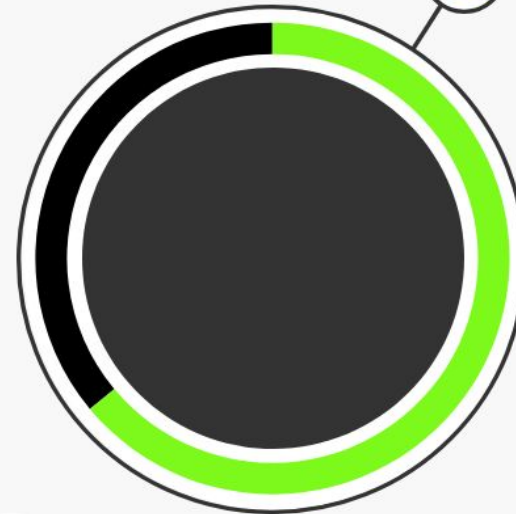
Improvement in Triglycerides

52%
Improved in
Triglycerides



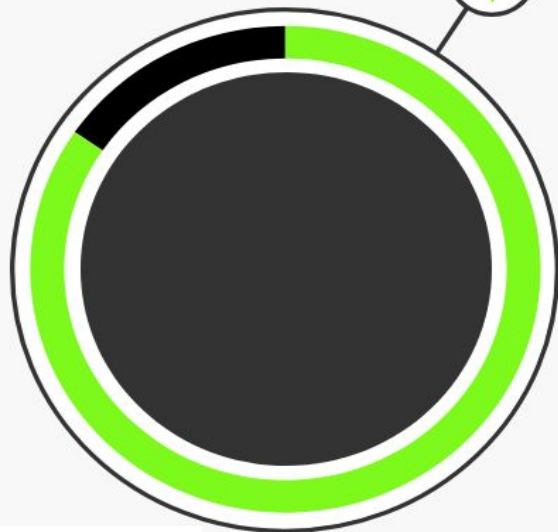
Improvement in Blood Glucose Levels

64%
Improved in Blood
Glucose Levels



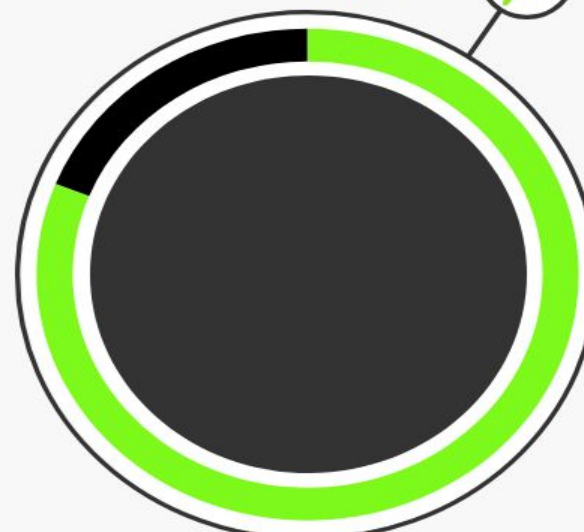
Improvement in Nutrition Knowledge

93%
Improved in Nutrition
Knowledge



Improvement in VO2 Max

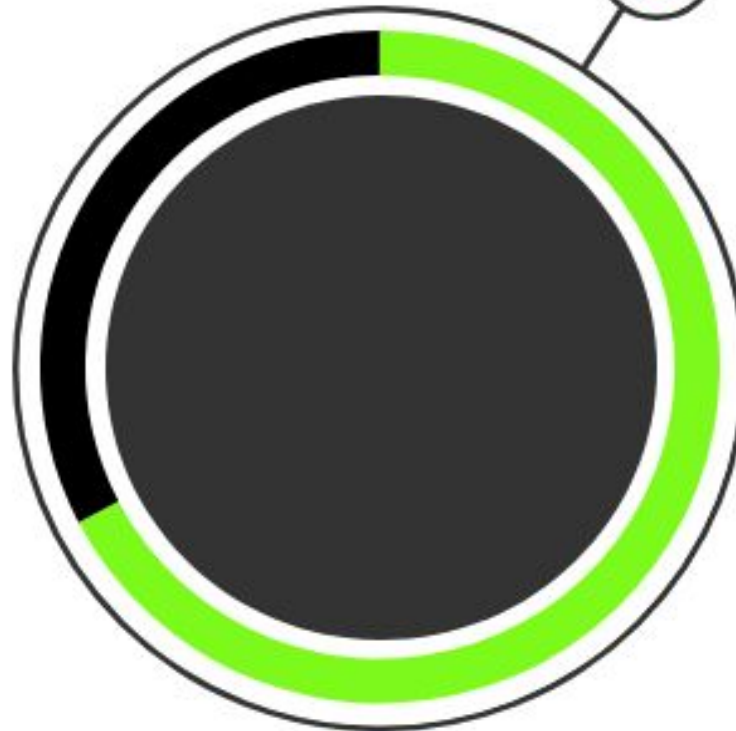
81%
Improved in
VO2 Max



**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:

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 billion⁴ in health system costs.



Cost per patient: \$1,000

Why CHANGE BC works?

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?

Thank you

Contact Information

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Dr. Onuora Odoh onuora.odoh@northernhealth.ca

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