

Choosing Wisely for Patients and the Planet

The Primary Care Twist

Primary Care Grand Rounds

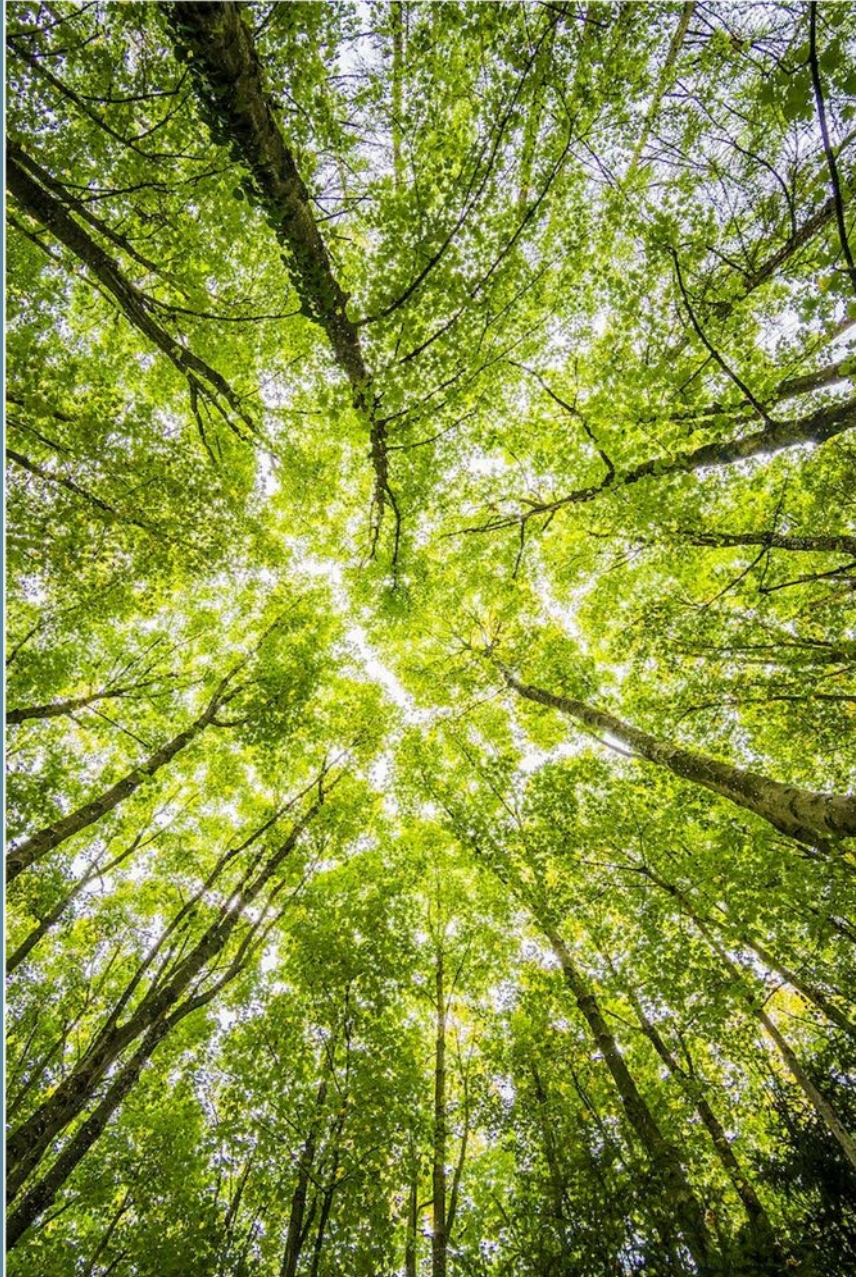
January 22, 2025

Ilona Hale, MD, FCFP



Sustainable, High Quality Care





Planetary Health

“...human health and human civilization depend on flourishing natural systems and the wise stewardship of those natural systems.”

Overview

Where are we now?

Describe the current state of the relationship between human health, the healthcare system and the environment

Where do we need to go?

Identify a framework for creating a sustainable healthcare system

How are we going to get there?

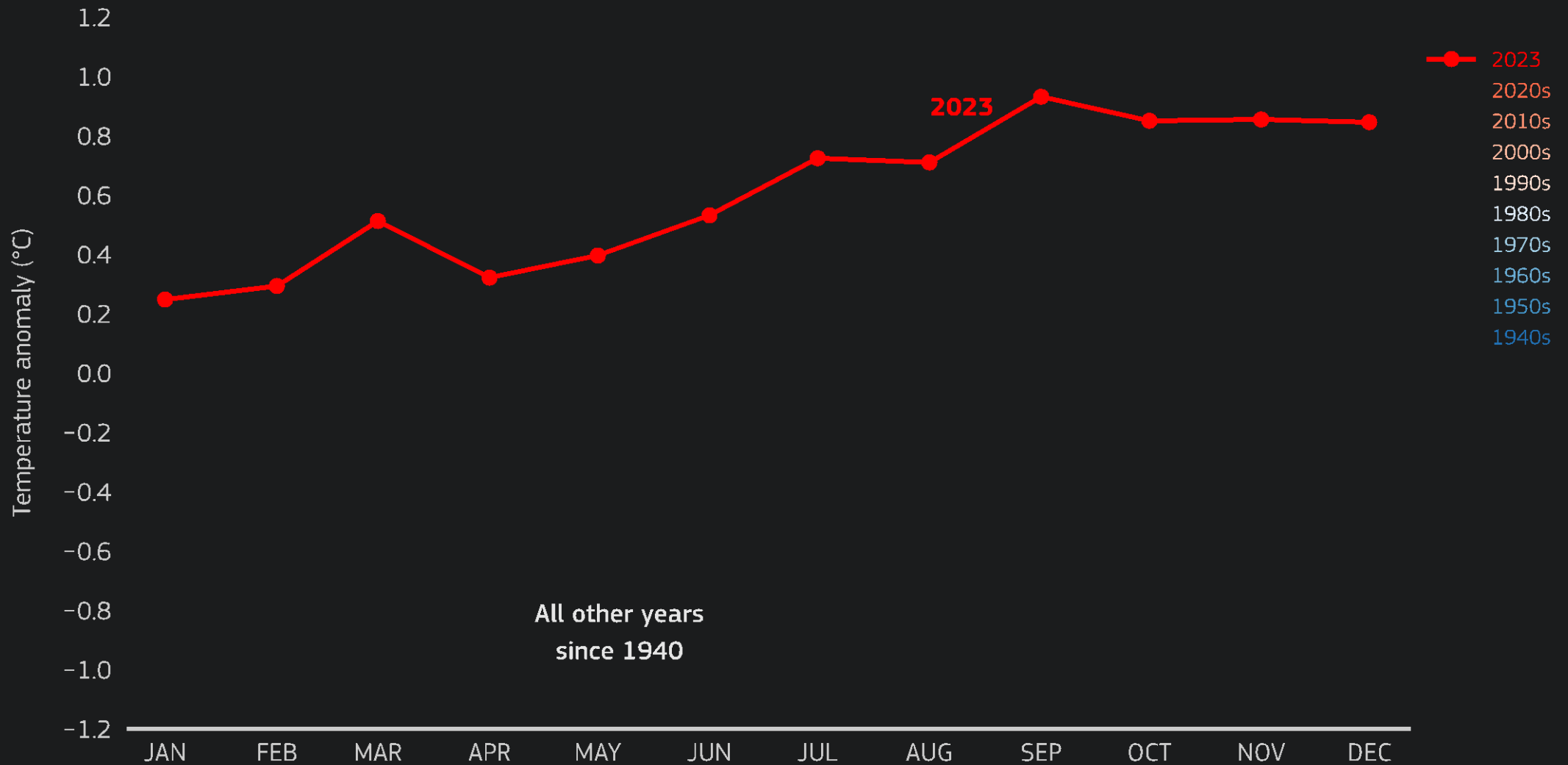
Take home practical clinical strategies for low carbon, high quality healthcare

Where are we now?



GLOBAL SURFACE AIR TEMPERATURE ANOMALIES

Data: ERA5 1940–2023 • Reference period: 1991–2020 • Credit: C3S/ECMWF



All other years
since 1940



PROGRAMME OF THE
EUROPEAN UNION



IMPLEMENTED BY

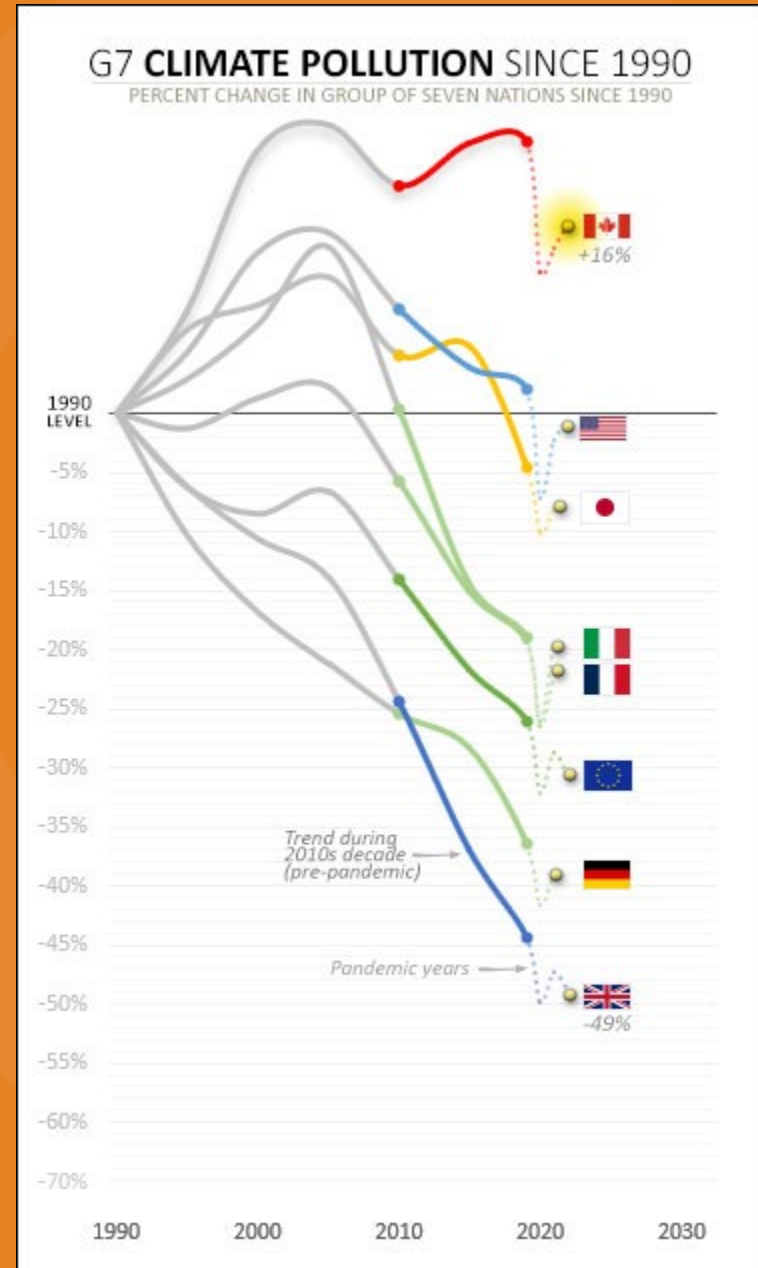


Climate
Change Service
climate.copernicus.eu



“Relax. Pot temperatures have been going up and down for centuries.”

G7 CLIMATE POLLUTION CHANGES SINCE 1990. Historical emissions data from UNFCCC National Inventory Reports for 2023. Chart shows every fifth year from 1990-2015 and then each year since. Solid parts of line shows trends from 2010-2019. Dotted ends of line shows pandemic years of 2020, 2021 (plus 2022 for some). Estimates for 2022 for USA, EU and UK from those nations. For Canada, 2022 estimate from Canadian Climate Institute. CHART by Barry Saxifrage at VisualCarbon.org and NationalObserver.com. Nov 2023.

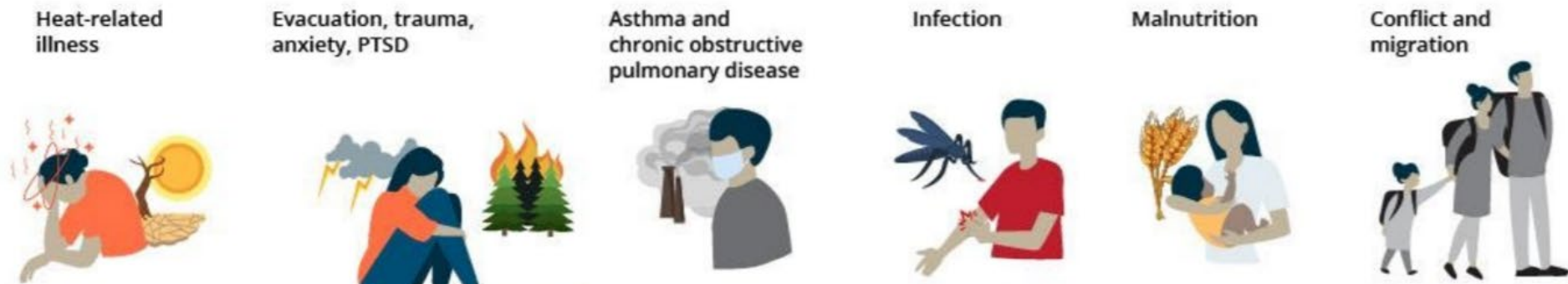


Climate- related Health Impacts



Climate change-related impacts to health and health systems

Health



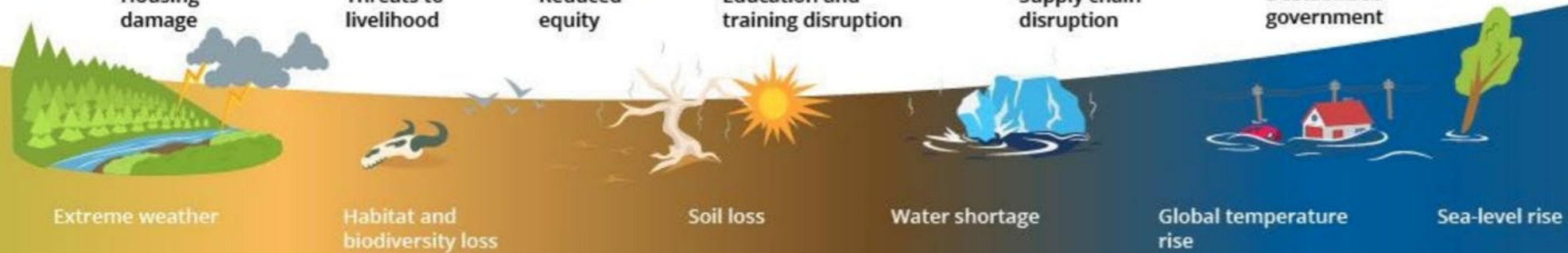
Health systems



Social & structural determinants of health



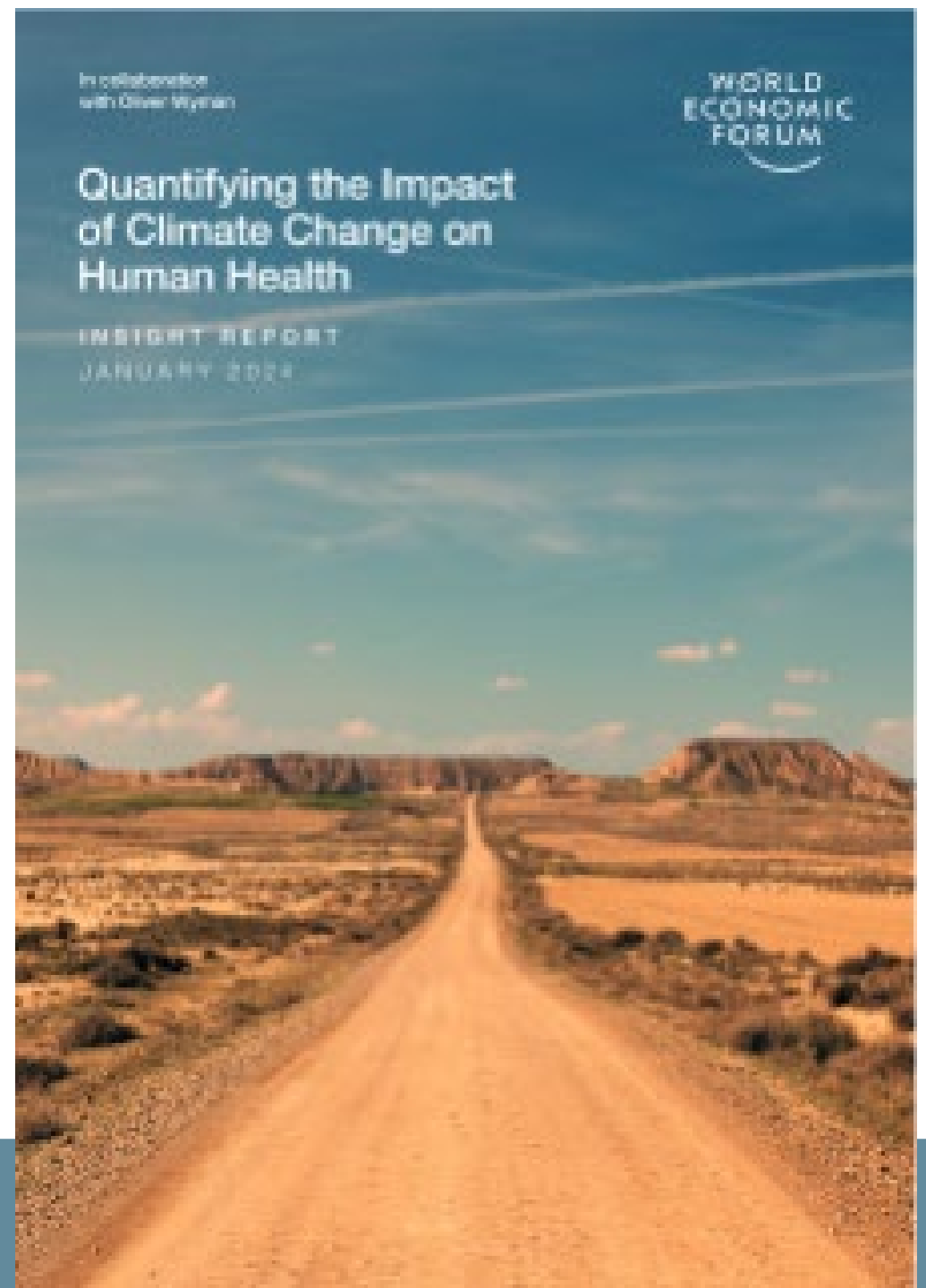
Ecological determinants of health



Health Impacts

By 2050:

- 14.5 million additional deaths
- \$12.5 trillion economic losses
- \$1.1 trillion in extra costs to the healthcare system



Health Care Environmental Effects



Health systems contribute upwards of **5%** of greenhouse gas emissions, almost on par with the aviation industry's environmental impact.*



1 aerosol inhaler, depending on the type, can have the same carbon footprint as driving up to **170km** in a gas car.*



An operating surgical suite has an estimated impact of over **3,200,000kg CO₂e**. Equivalent to powering over 718 Canadian homes annually.*

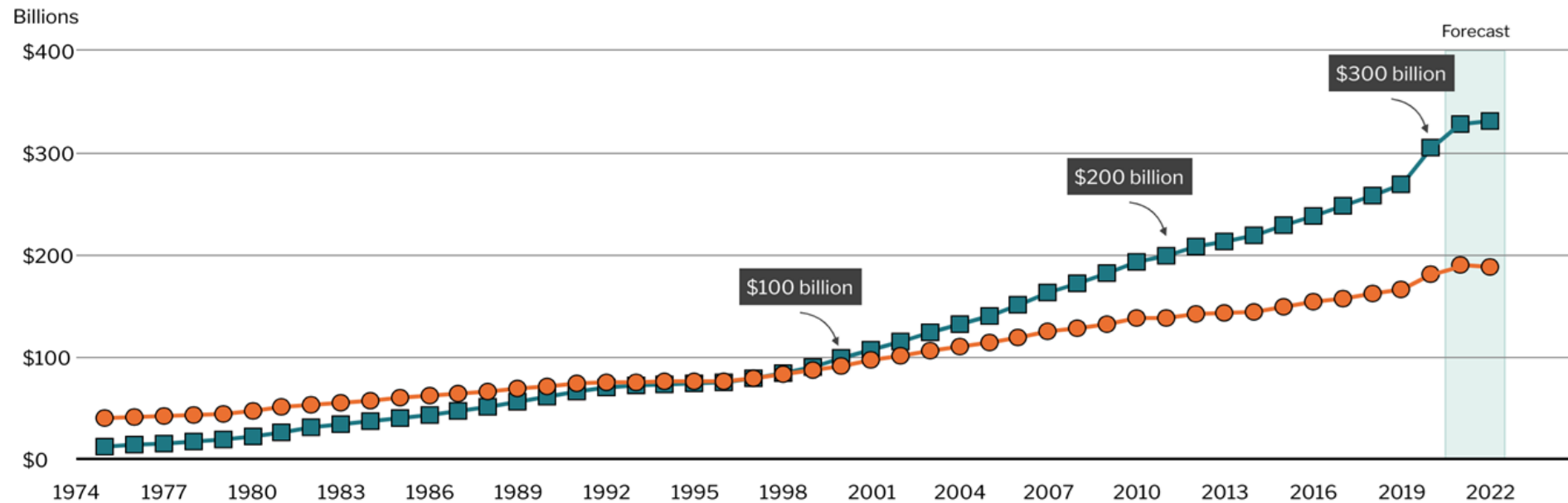
Unsustainable Healthcare System

How much will Canada spend on health in 2022?

1975 to 2022 (forecast)

Options

■ Current (\$ billions) ● Constant (\$ 1997, billions)



Line chart of total health expenditures in current and 1997 constant dollars from 1975 to 2022. It shows the trending of health expenditure in the last 40+ years.



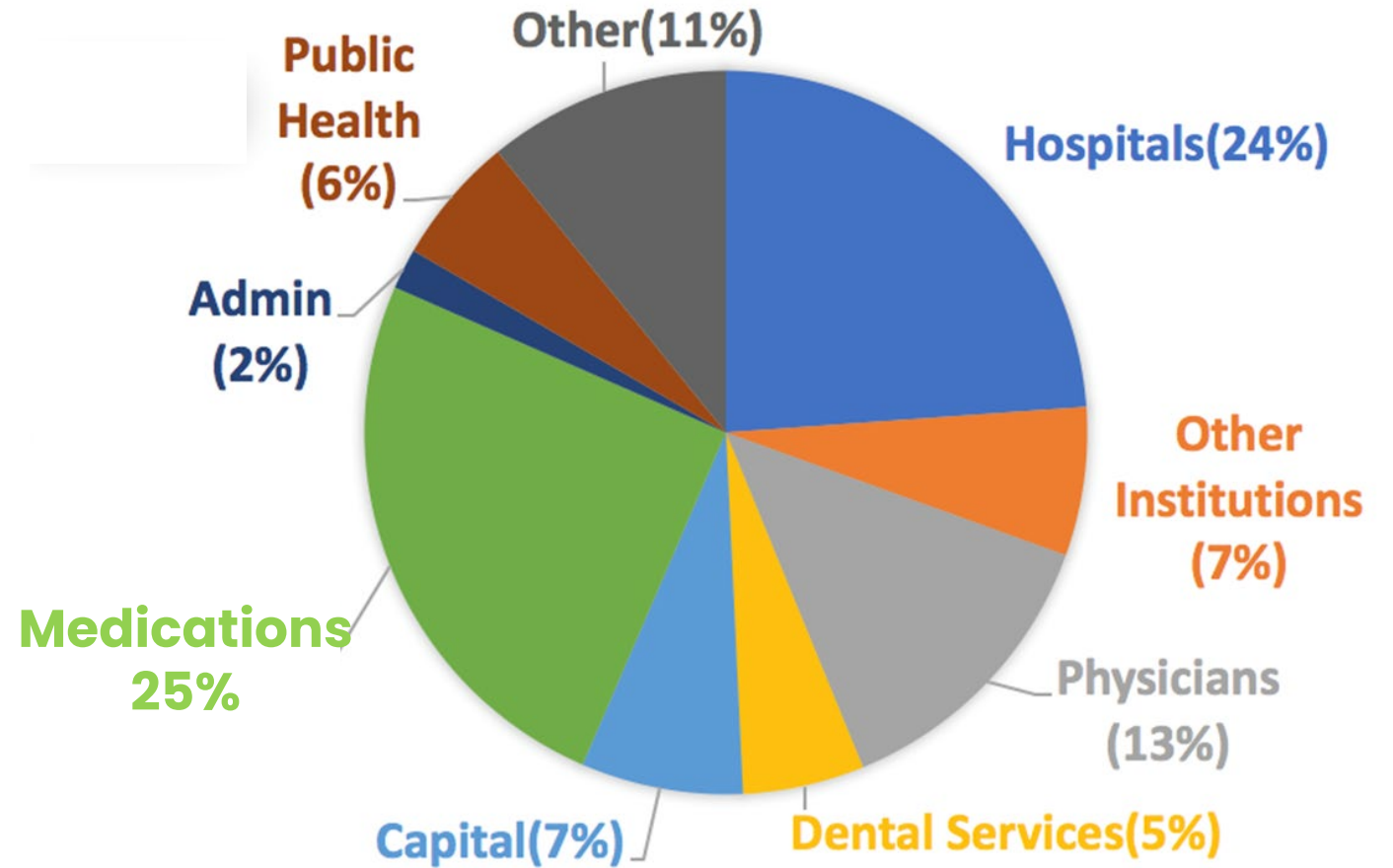


HEALTH QUALITY BC

Understanding Climate Solutions: Fun Fact or Fake News?

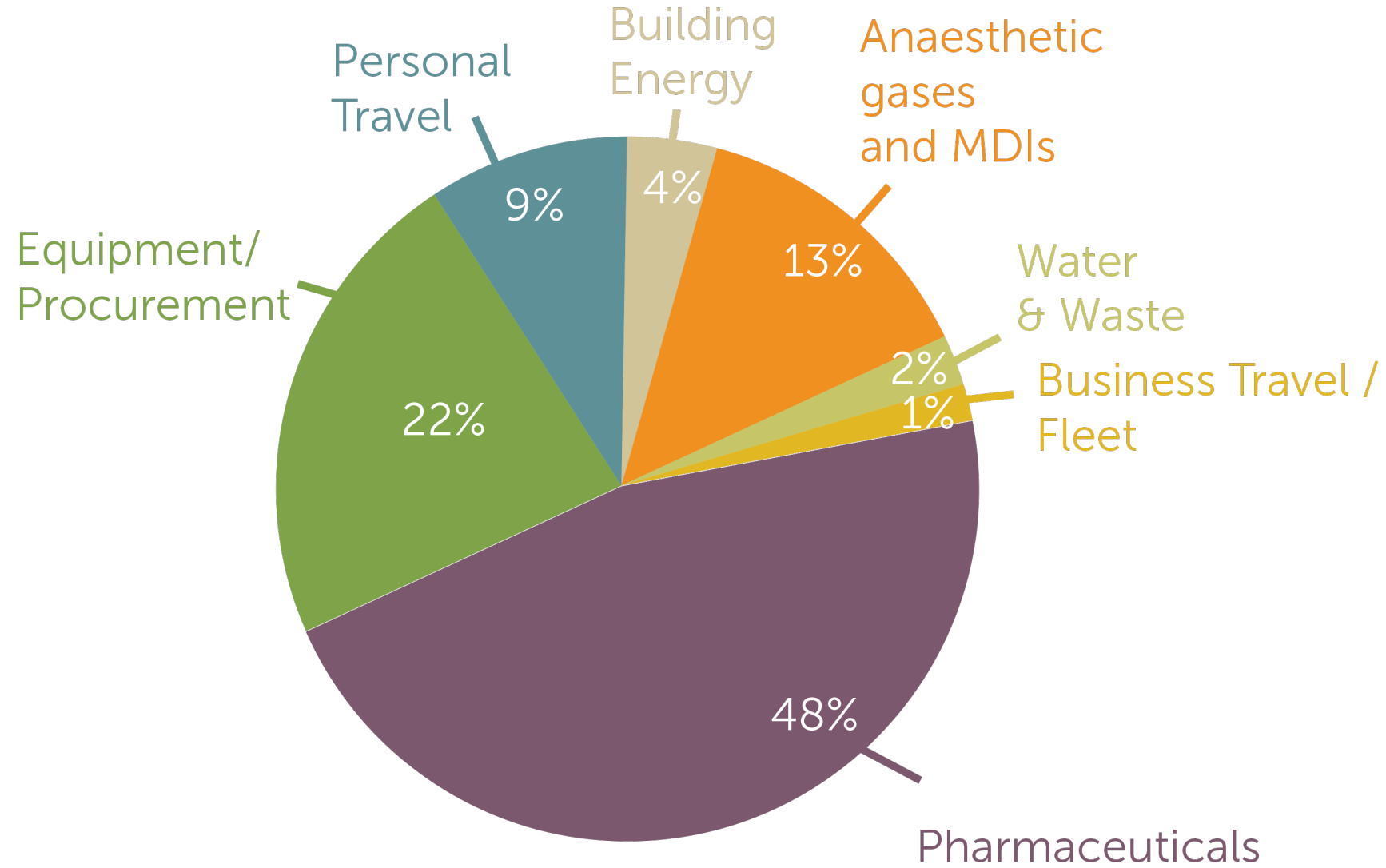
- 1) Natural gas is a clean energy source that can help hospitals achieve net zero emissions – **FAKE NEWS!**
- 2) Motorbikes have the same footprint as electric cars – **FUN FACT!**
- 3) The US president's strategy for addressing climbing temperatures is to switch from Fahrenheit to Celsius – **FAKE NEWS??**
- 4) In Canadian healthcare, pharmaceuticals have a bigger carbon footprint than hospitals – **FUN FACT!**

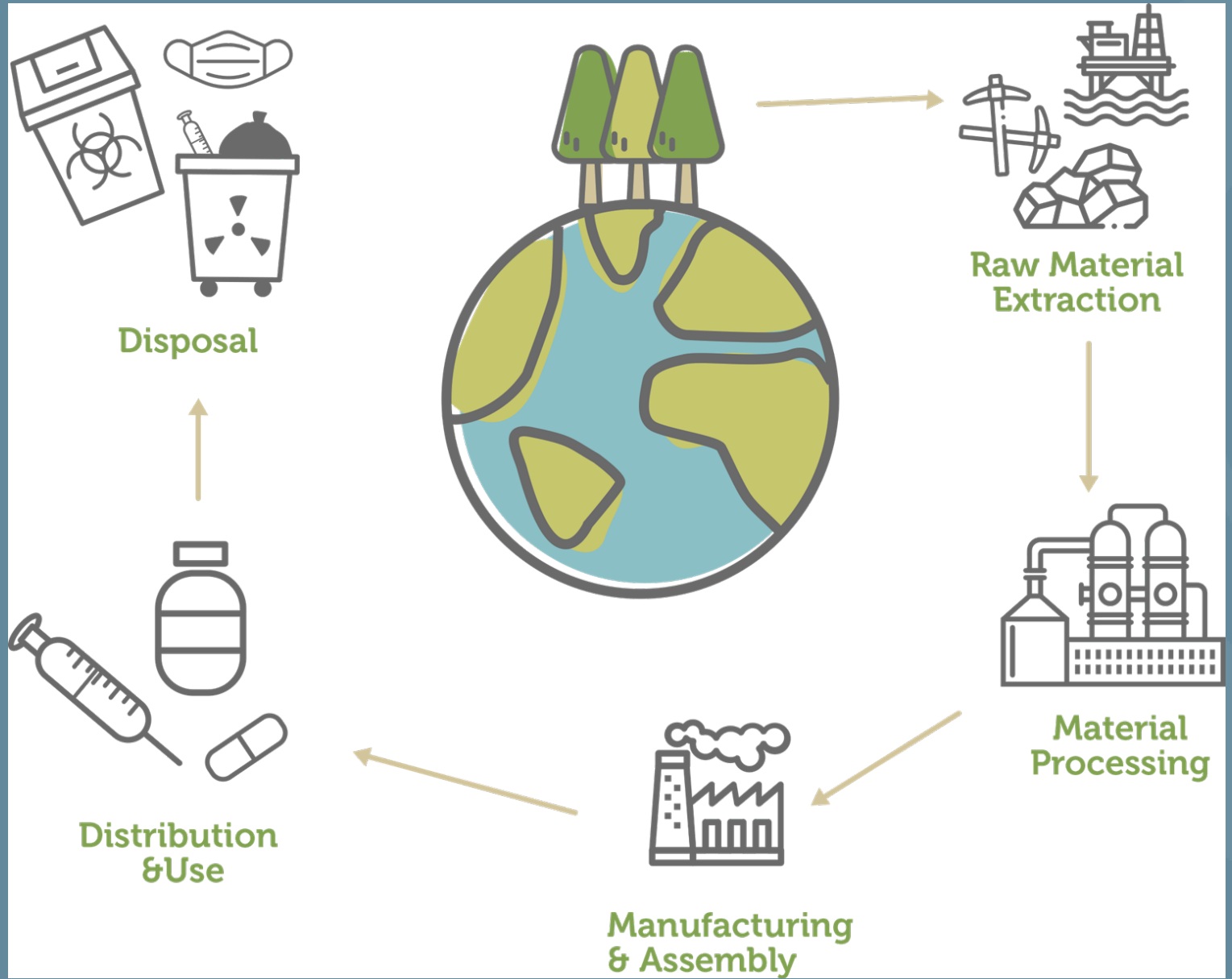
Greenhouse Gas Pollution from Canadian Health Care



Eckelman MJ, Sherman JD, MacNeill AJ. Life cycle environmental emissions and health damages from the Canadian healthcare system: an economic-environmental-epidemiological analysis. *PLoS medicine*. 2018;15(7):e1002623.

Greenhouse Gas Pollution from Primary Care





Life Cycle Environmental Impacts of Medical Supplies



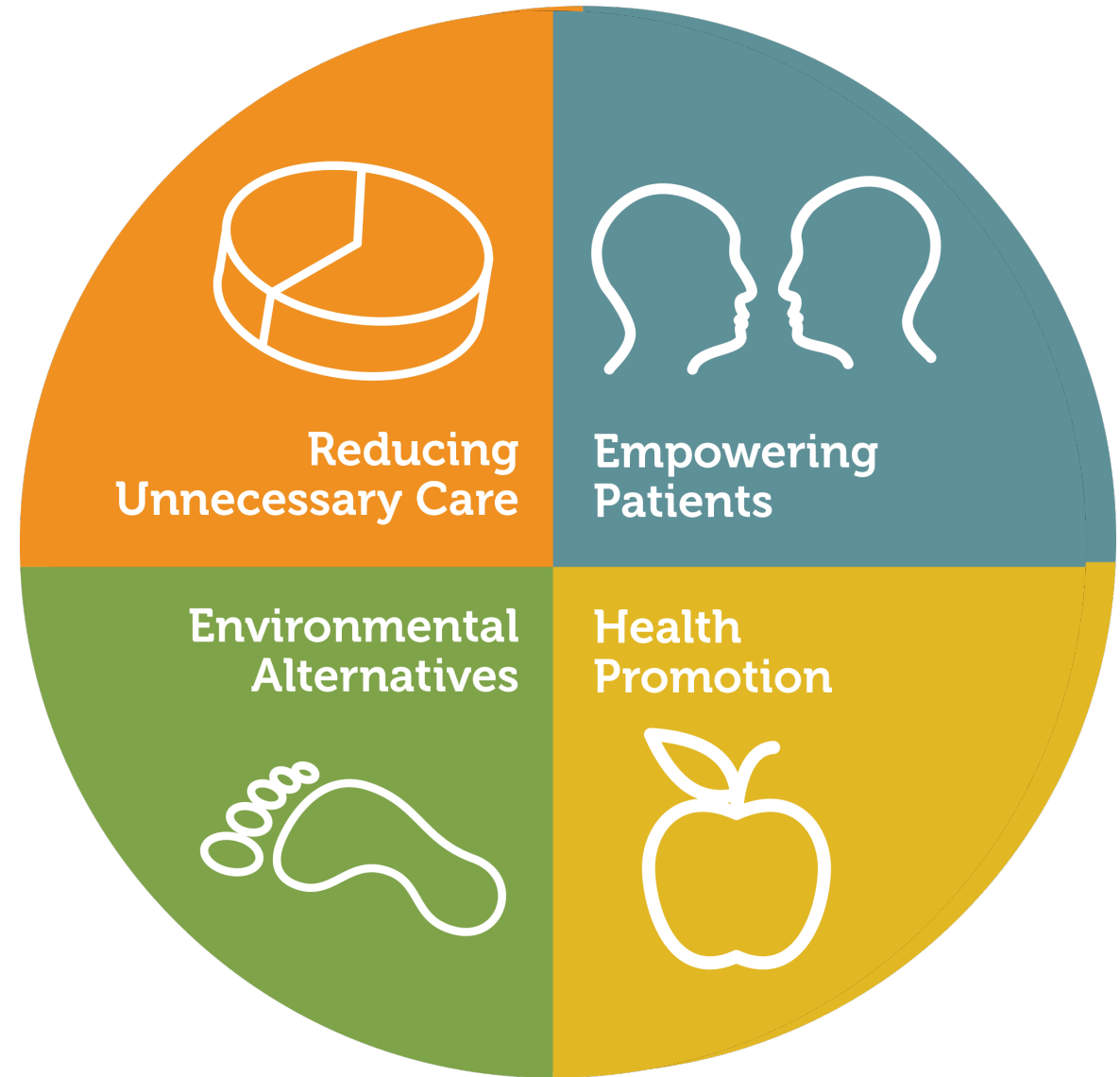
The Recycler

“We are not going to recycle our way out of this”

Where do we need to go?

Sustainable, High Quality Healthcare

Principles of Environmentally Sustainable Health Care

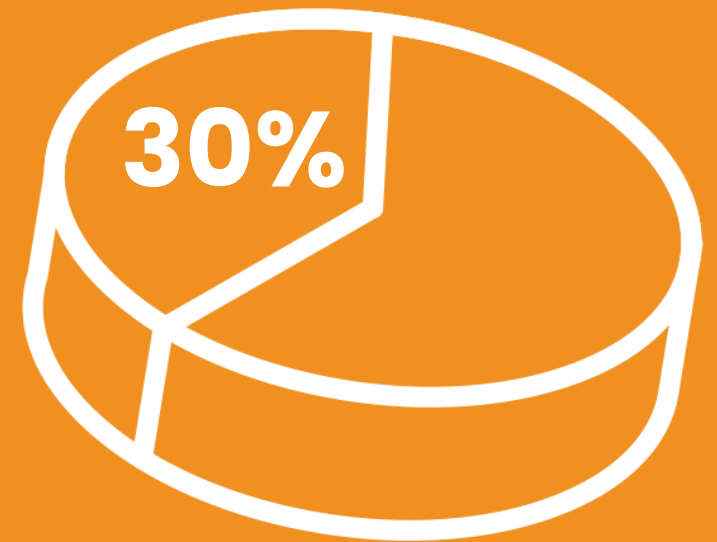


Mortimer F. The sustainable physician. *Clinical medicine* (London, England). 2010;10(2):110-1.

30% of care is unnecessary 10% is harmful

- Over-investigation
- Overdiagnosis
- Over-treatment

Barratt AL, Bell KJ, Charlesworth K, McGain F. High value health care is low carbon health care. *The Medical journal of Australia*. 2022;216(2):67-8.



Reducing Unnecessary Care

Unnecessary Lab Testing

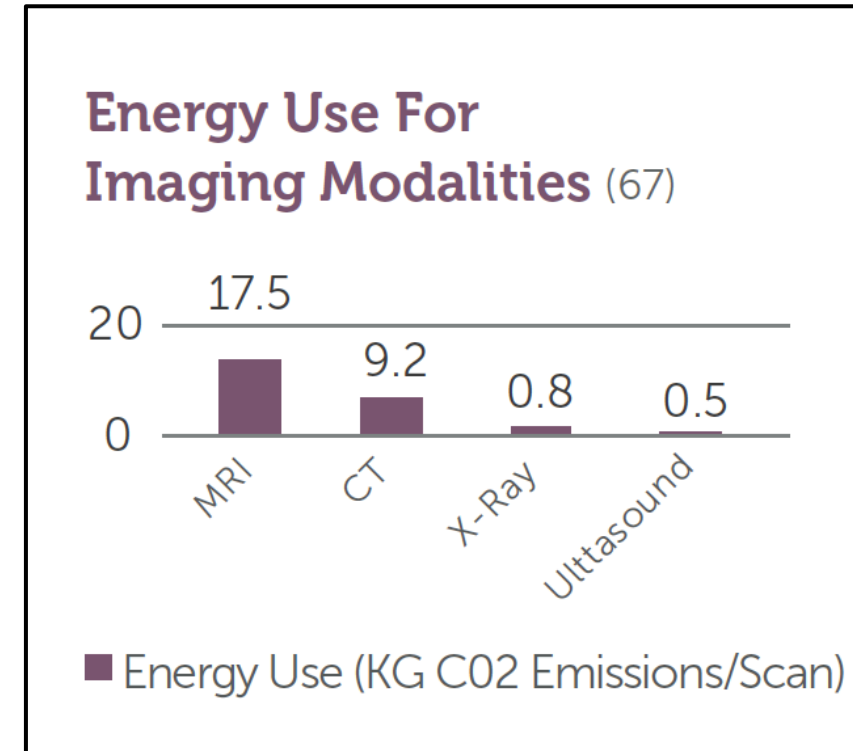
Vitamin D testing in Australia – 2020

- 4,457,657 tests
- \$87 million AUD
- >76.5% unnecessary
- **Greenhouse Gas reduction = 160,000 – 230,000 km driving**

Breth-Petersen M, et al. Health, financial and environmental impacts of unnecessary vitamin D testing: a triple bottom line assessment adapted for healthcare. *BMJ Open* 2022;12:e056997. doi:10

Carbon footprint of radiology

- **4% of hospital energy**
- **CT = 5 households**
- **MRI = 26 households**



Heye T, Knoerl R, Wehrle T, Mangold D, Cerminara A, Loser M, et al. The Energy Consumption of Radiology: Energy- and Cost-saving Opportunities for CT and MRI Operation. *Radiology*. 2020;295(3):593-605.; McAlister S, McGain F, Petersen M, Story D, Charlesworth K, Ison G, et al. The carbon footprint of hospital diagnostic imaging in Australia. *Lancet Reg Health West Pac*. 2022;24:100459.

Unnecessary Imaging

**Canadian Institute for Health Information study (2022)
found inappropriate imaging in:**

- **24 - 31% of lower back pain**
- **30% paediatric asthma / bronchiolitis in ER**
- **33% of paediatric minor head injury**

Canadian Institute for Health Information: Overuse of tests and treatments in Canada [Internet]. 2022 [cited January 19, 2023.]

What is the incidence of incidentalomas on chest CT?

- 11%
- 22%
- **33%**
- 44%

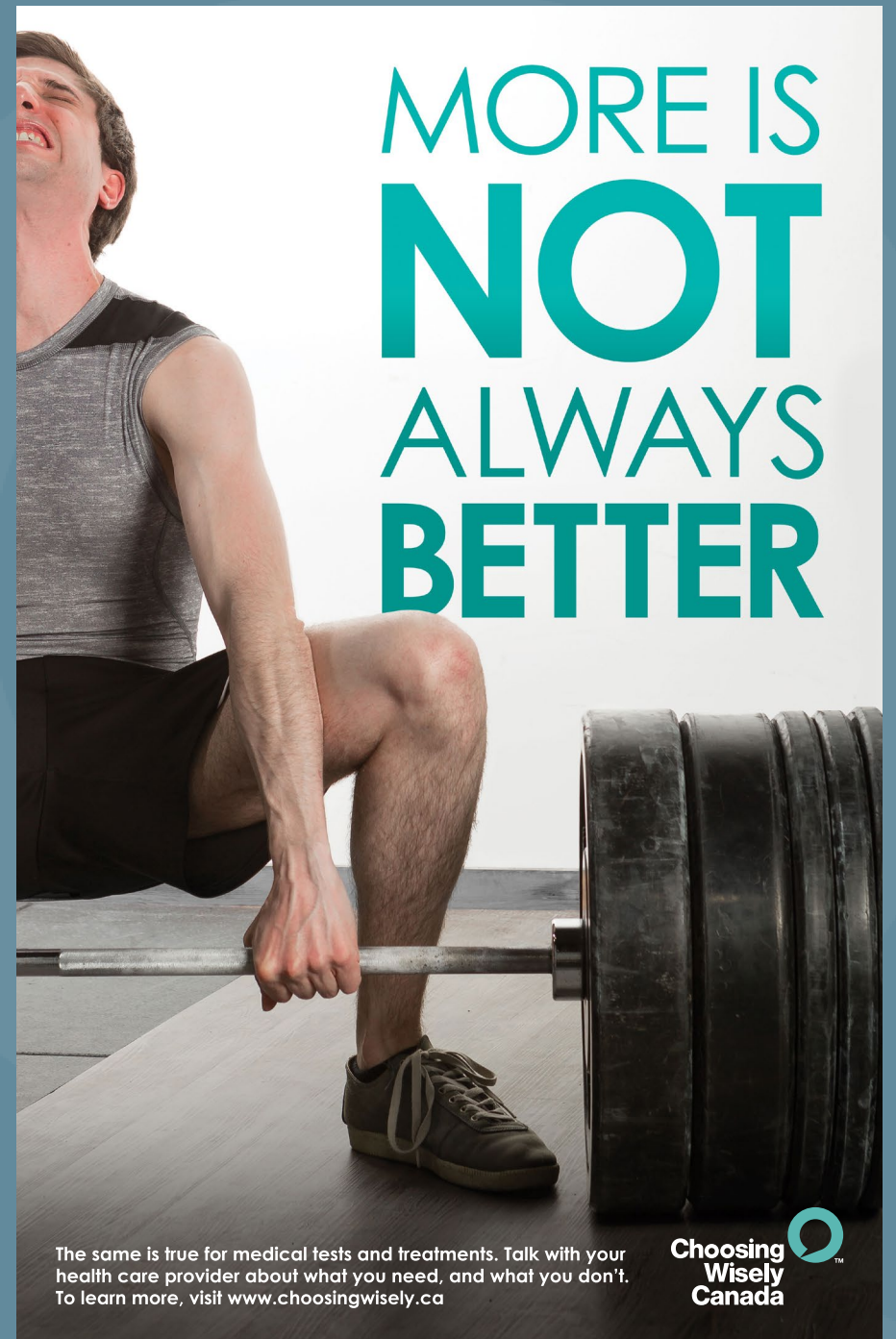
Harms of Unnecessary Care

- Adverse events / risks
- Incidentalomas
- Anxiety/ fear
- Pressures on providers
- Increased wait times
- Costs (system/patient)



PlanetaryHealth
for Primary Care

Hensher M, Canny B, Zimitat C, Campbell J, Palmer A. Health care, overconsumption and uneconomic growth: A conceptual framework. *Social science & medicine* (1982). 2020;266:113420.

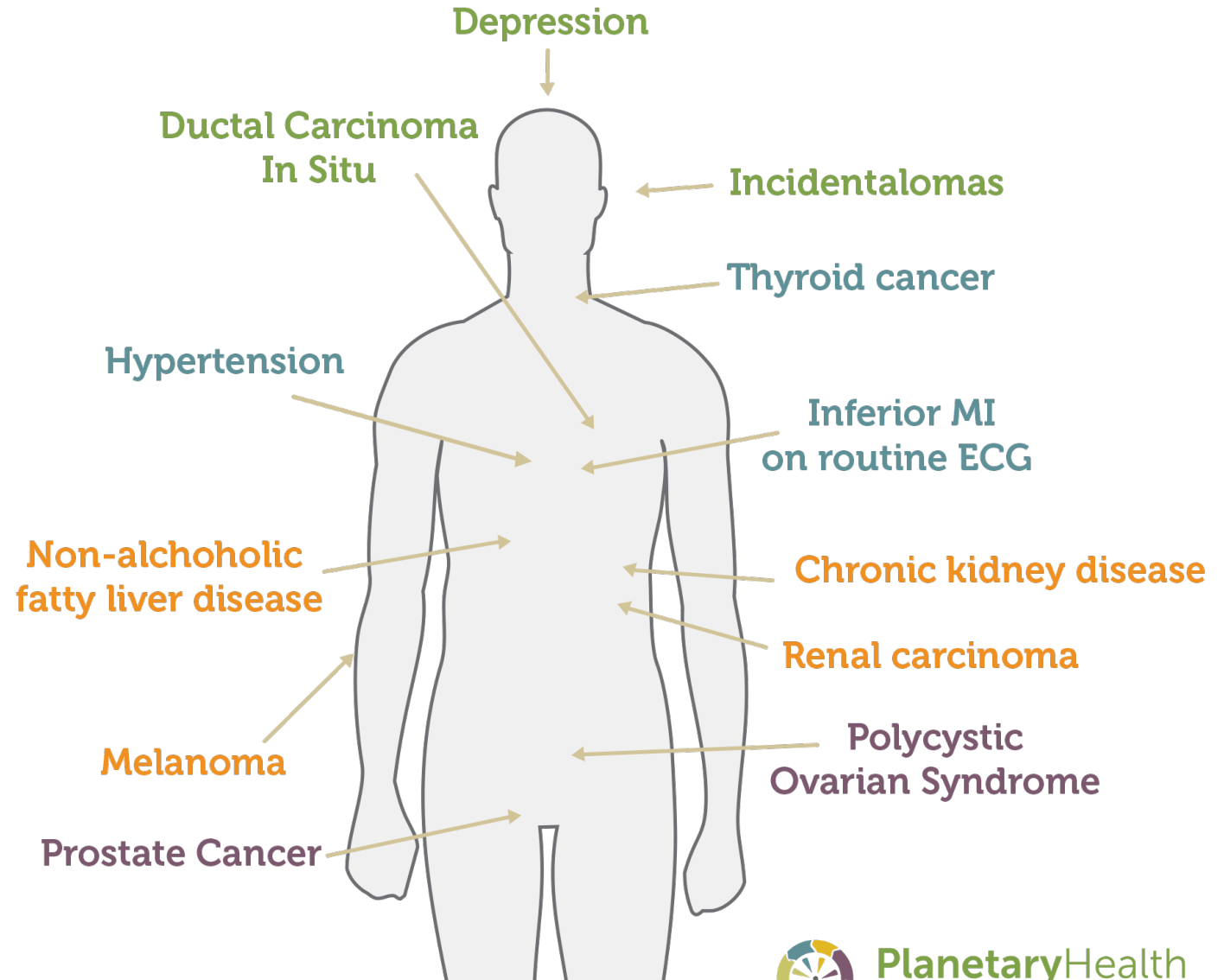


The same is true for medical tests and treatments. Talk with your health care provider about what you need, and what you don't. To learn more, visit www.choosingwisely.ca

Choosing
Wisely
Canada

Overdiagnosis

- Over-screening
- Diagnostic “creep”
- Medicalizing normal



Over-treatment

Antidepressants:

- #1 prescribed drug in BC
- Recommended to stop 6 months after resolution of symptoms
- Actual mean duration 4.8 years



Walker, A. J., Curtis, H. J., Bacon, S., Croker, R., & Goldacre, B. (2018). Trends and variation in prescribing of low-priority treatments identified by NHS England: A cross-sectional study and interactive data tool in English primary care. *Journal of the Royal Society of Medicine*, 111(6), 203–213.

Drivers of Overuse

- Habit/Training
- Fear of missing something
- Idea that “More is Better”
- Patient requests
- Guidelines / policies
- Influence of special interests
- “Fast Medicine”





Empowering Patients

“Well-informed patients consume less medicine ...the delivery of unwanted services is eliminated...and patients are far more likely to keep their conditions under control, leading to fewer hospitalisations and emergency department visits”

Mulley A. Patient Preferences Matter: Stop the Silent Misdiagnosis. London: The King's Fund, Dartmouth Centre for Health Care Delivery Science; 2012 2012.; WHO. Patient engagement. Geneva: World Health Organization; 2016 2016.; Paterick TE, Improving health outcomes through patient education and partnerships with patients. Proceedings (Baylor University Medical Center). 2017;30(1):112-3

What percentage of patients do not take their medications as prescribed?

- 20%
- 30%
- 40%
- 50%

Patient Empowerment

- “What matters to YOU?”
- Respect preferences
- Individualize guidelines
- Serious illness conversations



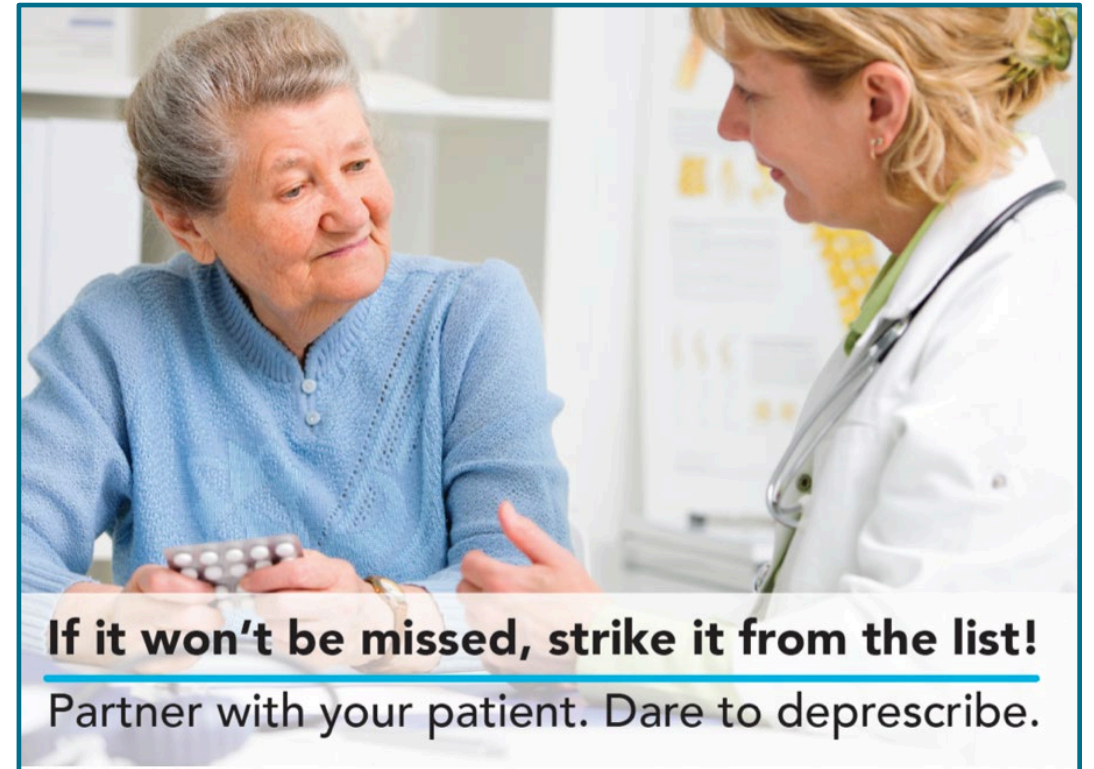
Hamilton JE, et al. Patient and Provider Perspectives on Medication Non-adherence Among Patients with Depression and/or Diabetes in Diverse Community Settings – A Qualitative Analysis. Patient preference and adherence. 2022;16:1581-94.; Rosenbaum L. Beyond Belief — How People Feel about Taking Medications for Heart Disease. NEJM. 2015;372(2):183-7.

Involve patients

- 73% want to be involved in medication decisions
- 50% felt they were not

New Zealand Study:

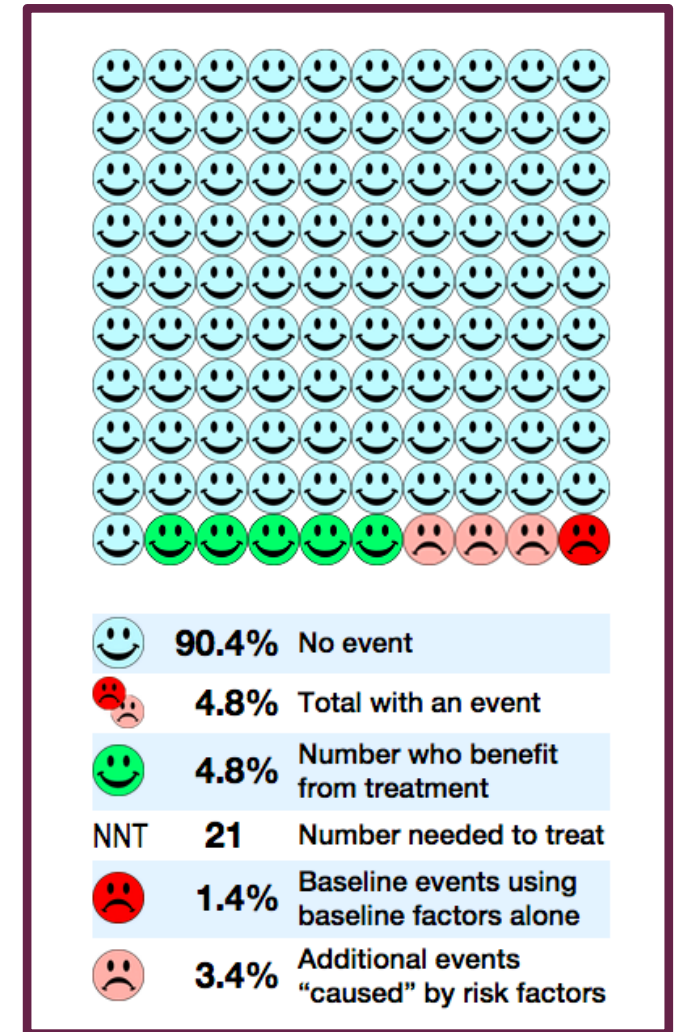
- 50% “Too many meds!”
- 84% willing to stop



Mohammed MA, Attitude towards deprescribing and its association with frailty and complexity of medication regimen: A survey of older inpatients in a district health board in New Zealand. BMC Geriatr. 2023 Mar 23;23(1):166.; Tannenbaum C, Reduction of Inappropriate Benzodiazepine Prescriptions Among Older Adults Through Direct Patient Education: The EMPOWER Cluster Randomized Trial. JAMA internal medicine. 2014;174(6):890-8. Weir KR, Consumer Attitudes Towards Deprescribing: A Systematic Review and Meta-Analysis. Gerontol A Biol Sci Med Sci, 2022, Vol. 77, No. 5, 1020-1034

Shared Decision-Making

- *True* informed consent
- ↓ overuse *and* underuse
- ↑ adherence, trust, understanding
- Reminds *us* about the evidence
- Adds 2.6 minutes to visit

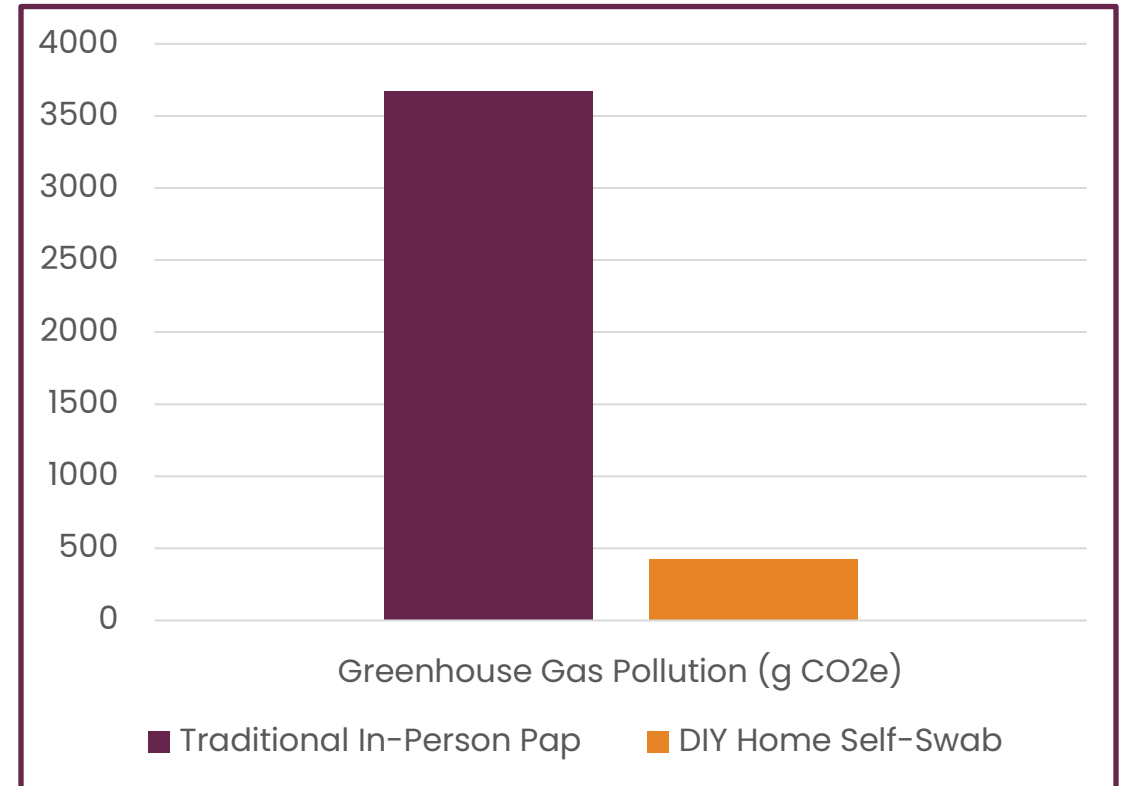


Stacey D, Légaré F, Lewis K, Barry MJ, Bennett CL, Eden KB, et al. Decision aids for people facing health treatment or screening decisions. The Cochrane database of systematic reviews. 2017;4(4):Cd001431.; Krouss M, Croft L, Morgan DJ. Physician Understanding and Ability to Communicate Harms and Benefits of Common Medical Treatments. JAMA Internal Medicine. 2016;176(10):1565-7.

Cervix Cancer Screening

Traditional pap smears:
**8.7 x larger
carbon footprint**
than self-swab options

Whittaker M, Davies JC, Sargent A, Sawyer M, Crosbie EJ. A comparison of the carbon footprint of alternative sampling approaches for cervical screening in the UK: A descriptive study. BJOG. 2024;131(5):699–708. <https://doi.org/10.1111/1471-0528.17722>



Health Promotion

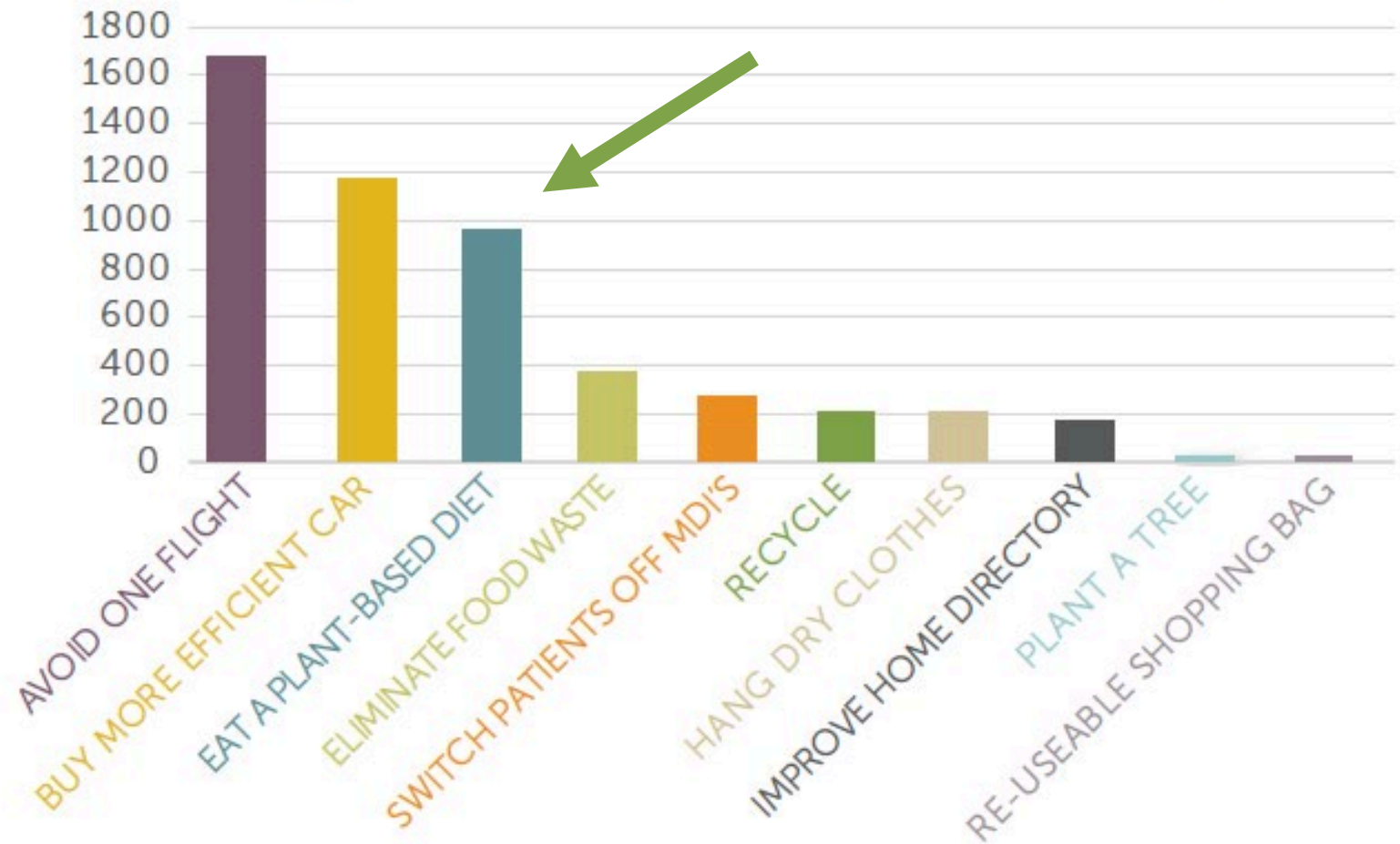


Shift to prevention (avoid *under-use*)

- More effective
- Less expensive
- More sustainable

Plant Based Diets

Approximate CO₂e reduced/year



Environmental Alternatives

- **Re-think**
- **Reduce**
- **Re-use**



Metered Dose Inhalers



can have the same carbon footprint
as driving up to **170 km**
in a gas car*

*Stoynova V, Culley C. Detailed Inhaler Carbon Footprint Chart. Available from <https://cascadescanada.ca/resources/inhalers/>

Inhaler Guide: British Columbia

Inhaler Carbon Emissions:



Instructions

1. Select indication:*

Asthma ▼

2. Add criteria:

- Green inhalers only
- Regular PhamaCare coverage
(Special Authority NOT required)
- Available in hospital

Patient's Age:

7

[Disclaimer & About Us](#)

[Quick Guide to Inhaler Switches](#)









There is now a guide for every province
Check out inhalerguide.ca for more info

Click on an inhaler for more info








SABA

 Bricanyl Turbuhaler terbutaline	 Vannia Diskus salbutamol	 Vannia MDI salbutamol	 Vannia MDI salbutamol
--	--	---	---

ICS

 Pulmicort Turbuhaler budesonide	 Aeruly Ellipta fluticasone furoate	 Flovent Diskus fluticasone propionate	 Aeruly Ellipta fluticasone propionate
 Asmanex Twisthaler mometasone furoate	 Flovent MDI fluticasone propionate	 Aeruly Ellipta fluticasone propionate	 Qvar MDI beclomethasone dipropionate

ICS/LABA

 Symbricort Turbuhaler budesonide + formoterol	 Breez Ellipta fluticasone furoate + salmeterol	 Wixela Inhub fluticasone propionate + salmeterol	 Advair Diskus fluticasone propionate + salmeterol
 AstraZenca Brexhaler budesonide + formoterol	 Advair MDI fluticasone propionate + salmeterol	 Duohaler MDI mometasone + formoterol fumarate	

ICS/LAMA/LABA

Infection Prevention

- Gloves / sterile gloves
- Sterile water / saline
- Alcohol swabs
- Prophylactic antibiotics
- Clean vs sterile

GLOVES AREN'T MAGIC

CLEAN YOUR HANDS.
GLOVES DO NOT REPLACE
HAND HYGIENE.



Protect patients and yourself by following proper hand hygiene procedures.

Clean your hands:

- Before and after patient / environment contact
- Before donning and after doffing gloves
- Before aseptic procedure
- When there is a risk of exposure to blood / bodily fluids
- Before handling medication or food
- After taking personal breaks



Scan the QR code for more hand hygiene and glove use tips.



Eliminating Exam Table Paper

No Staff of patient concerns

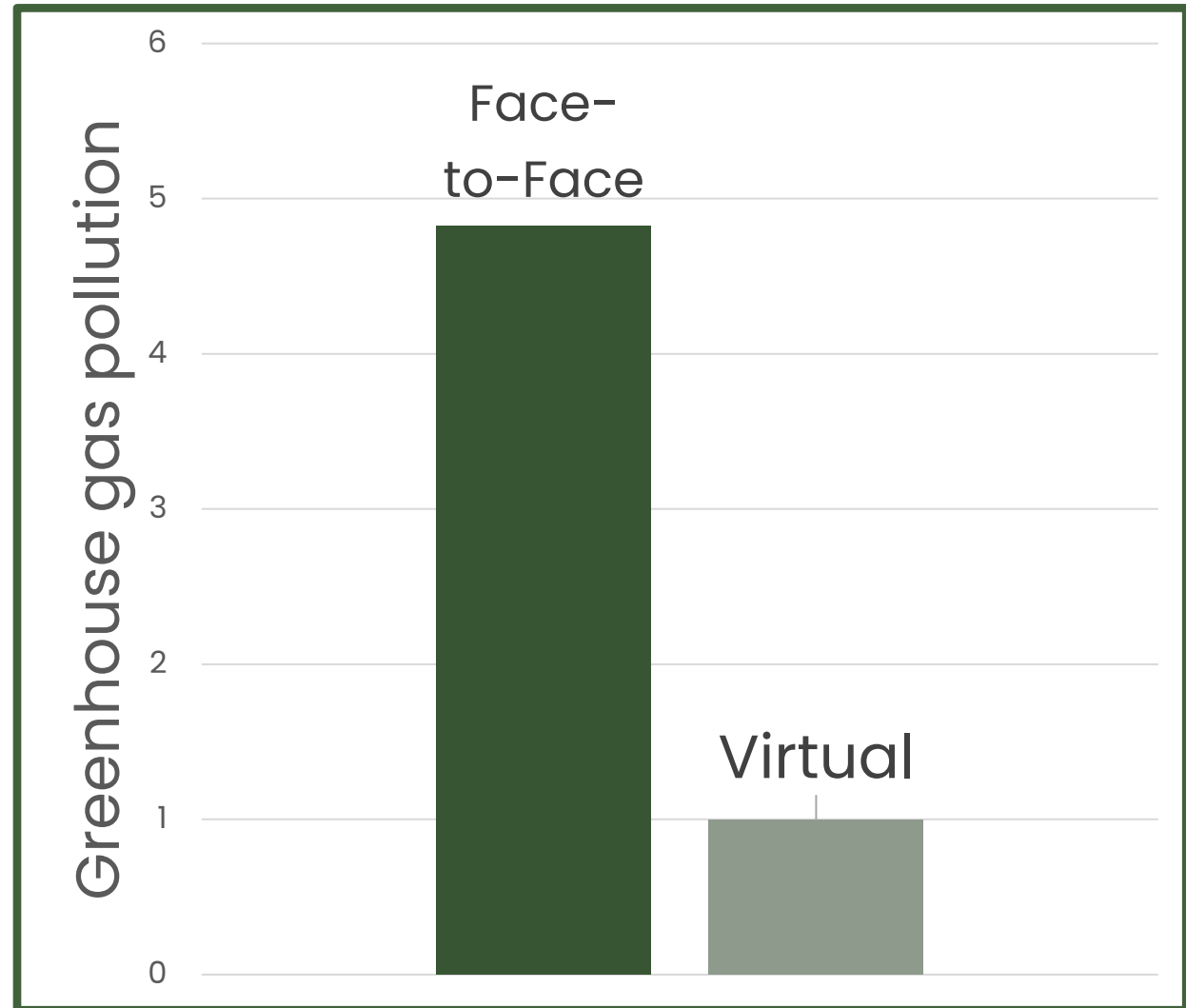
Annual Canada-wide savings?

20,000 trees,
95,000 km of paper
\$8.5 million



Virtual Care

In person visits
= **4727 km**
driving /year



Bartlett S, Keir S. Calculating the carbon footprint of a Geriatric Medicine clinic before and after COVID-19. *Age and ageing*. 2022;51(2).

Re-useable

vs

Disposable



**750% less
solid waste**

**200-300 %
less energy**

**Fewer
volatile
organics**

**250-350 %
less water**

**Better
instrument
recovery**



Slow Medicine: Take time to...

- Listen to the patient's story
- Do a good physical exam
- Communicate clearly
- Allow bodies to heal
- Review old records
- Do some homework
- Talk to a colleague



Power of Primary Care

- Low Resource / High Value Care
- Longitudinal Relationships
- Low prevalence / acuity of disease
- Independent
- Gatekeepers
- Low-cost solutions



Why are all of these people smiling?



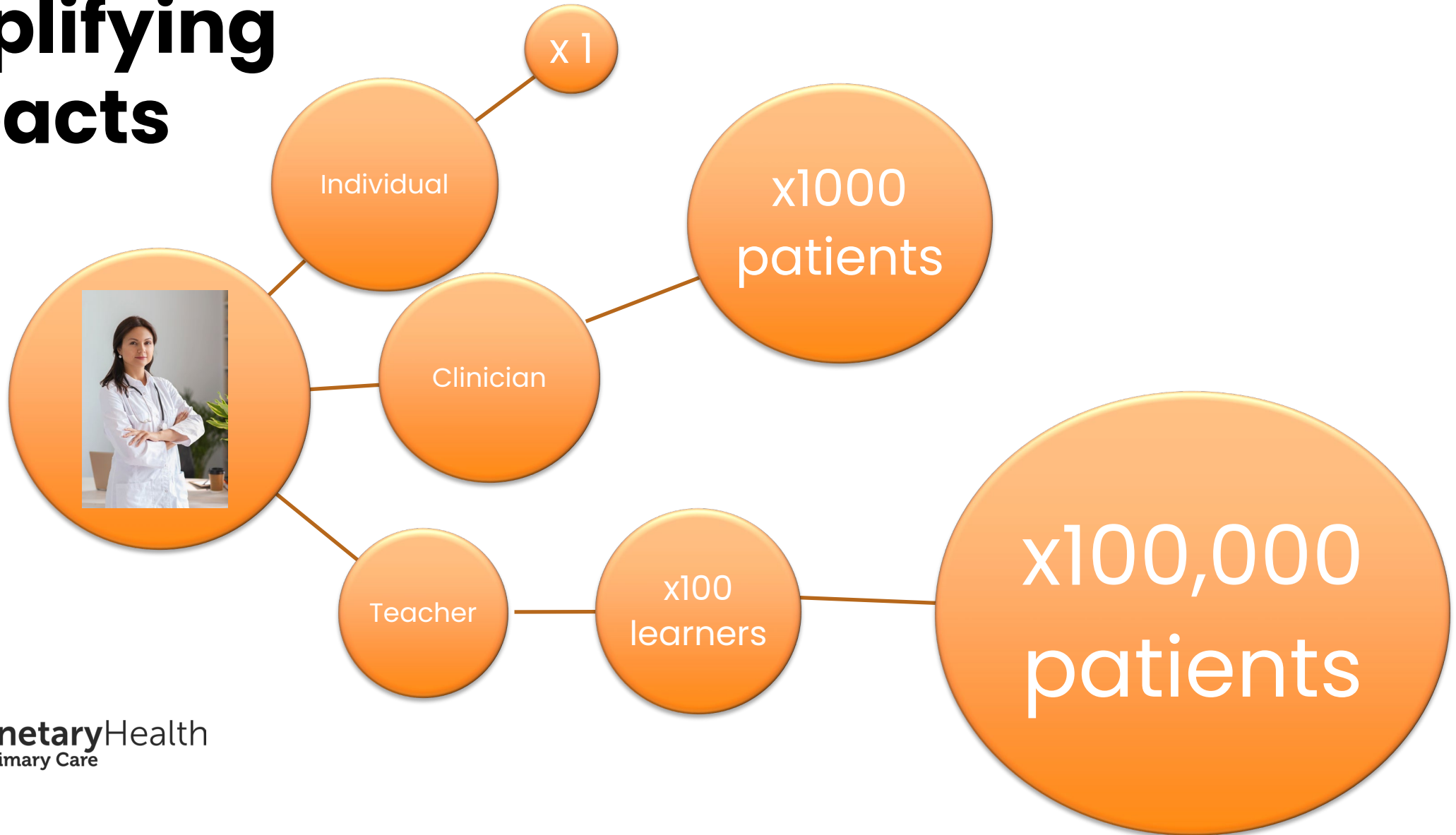
Case Study

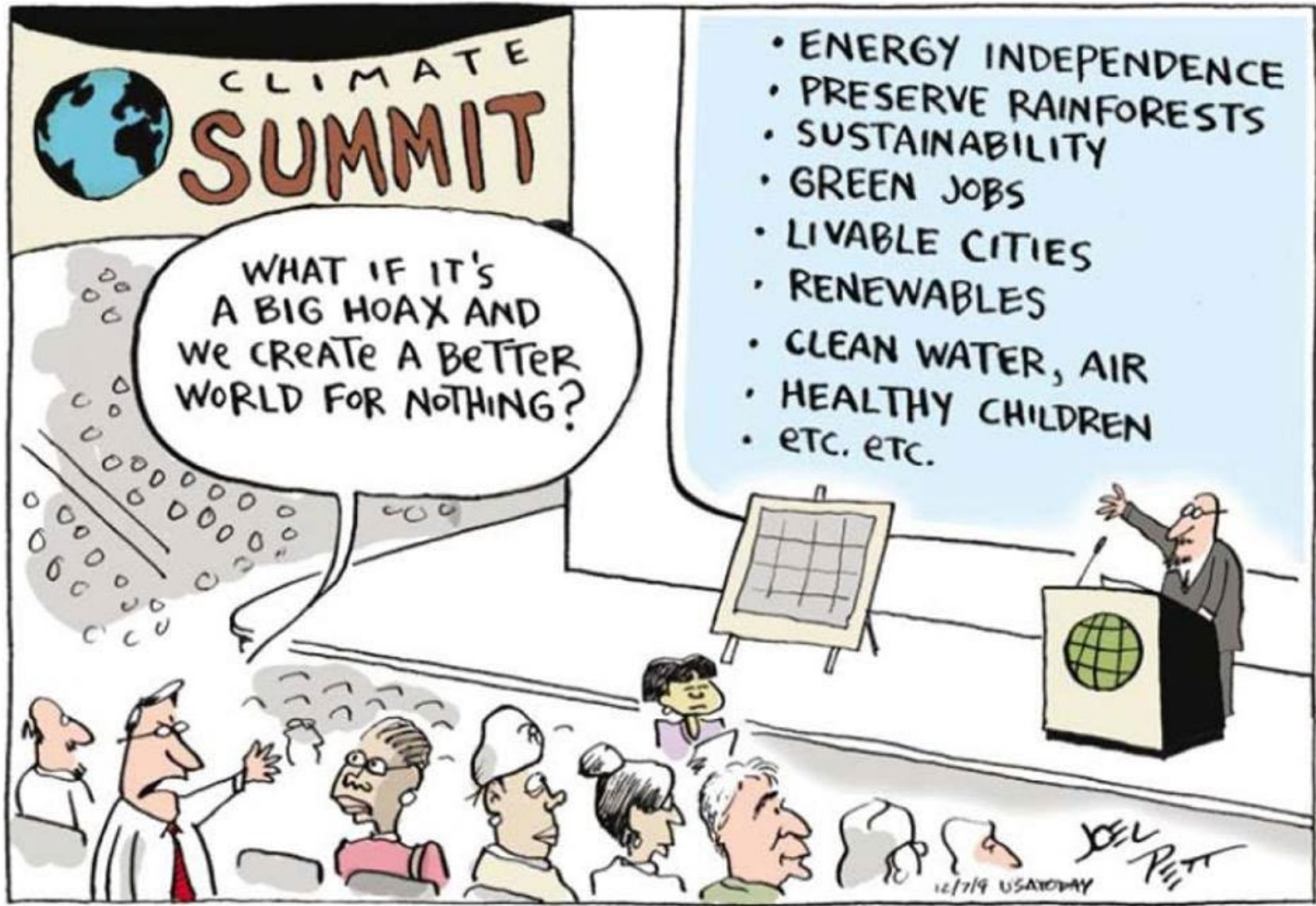
35 yo new patient, requesting refills on COCP, citalopram 10 mg od, Pantoprazole 40 bid, and levo-thyroxine 50 ug od

- Shared decision making, prescribing cascades, legacy medications
- Able to stop all meds, switch to LNG-IUS
- Reduce 1825 pills per year for a single patient!
- Save money, time for patient and providers, reduced risks



Amplifying Impacts

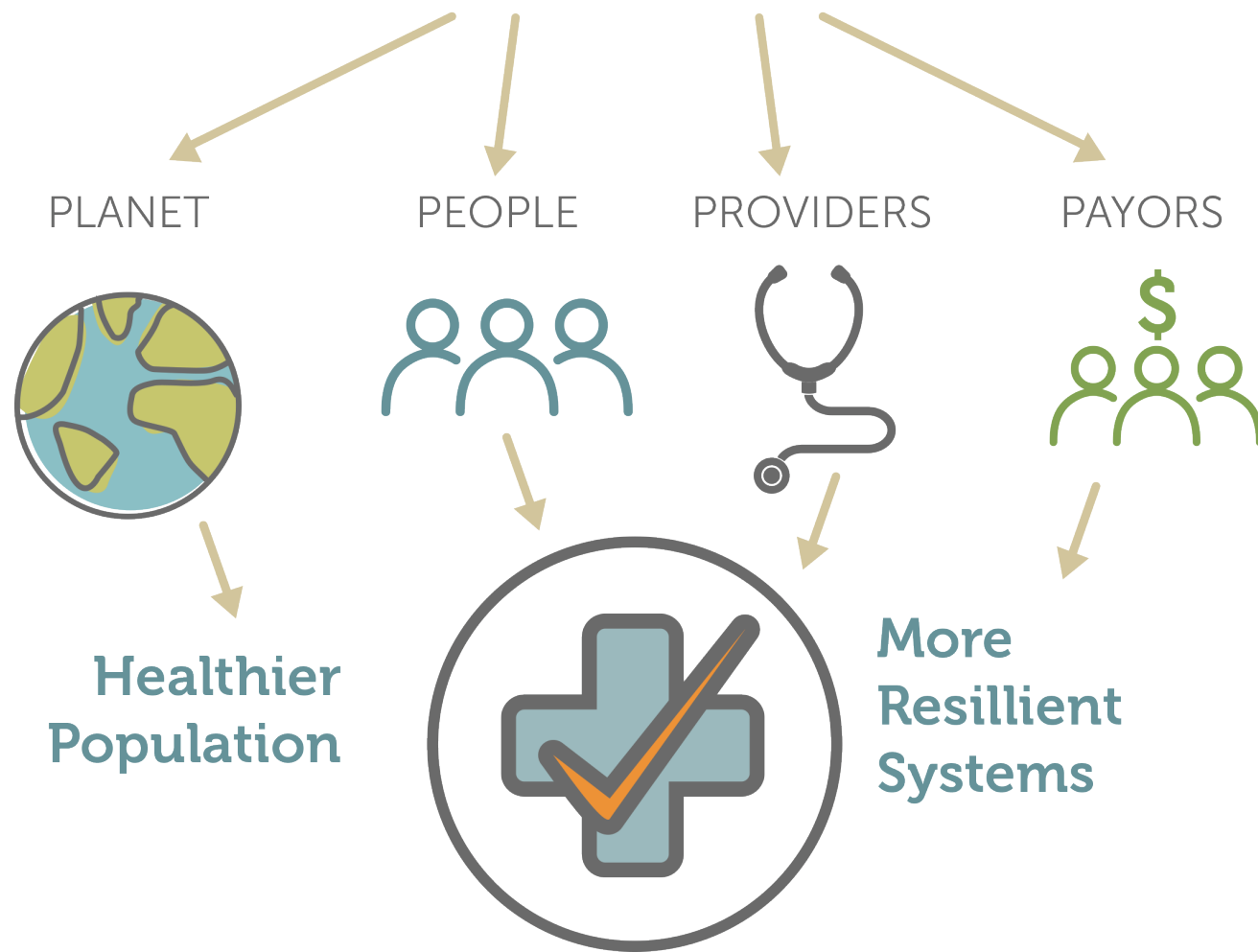




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Sustainable, High Quality Care

Better for...




Do No Harm



Just One Thing

What is just one thing in your clinical practice that you could change tomorrow to make your work more environmentally sustainable?



Big Easy Wins for the Planet

- Deprescribe often
- Beware overdiagnosis
- Choose Wisely



Reducing
Unnecessary Care



Empowering
Patients

- Support self-management
- Shared decision-making
- Respect patient preferences

- Switch from MDIs
- Buy re-usables
- Go virtual
- Ditch exam table paper

Environmental
Alternatives



Health
Promotion

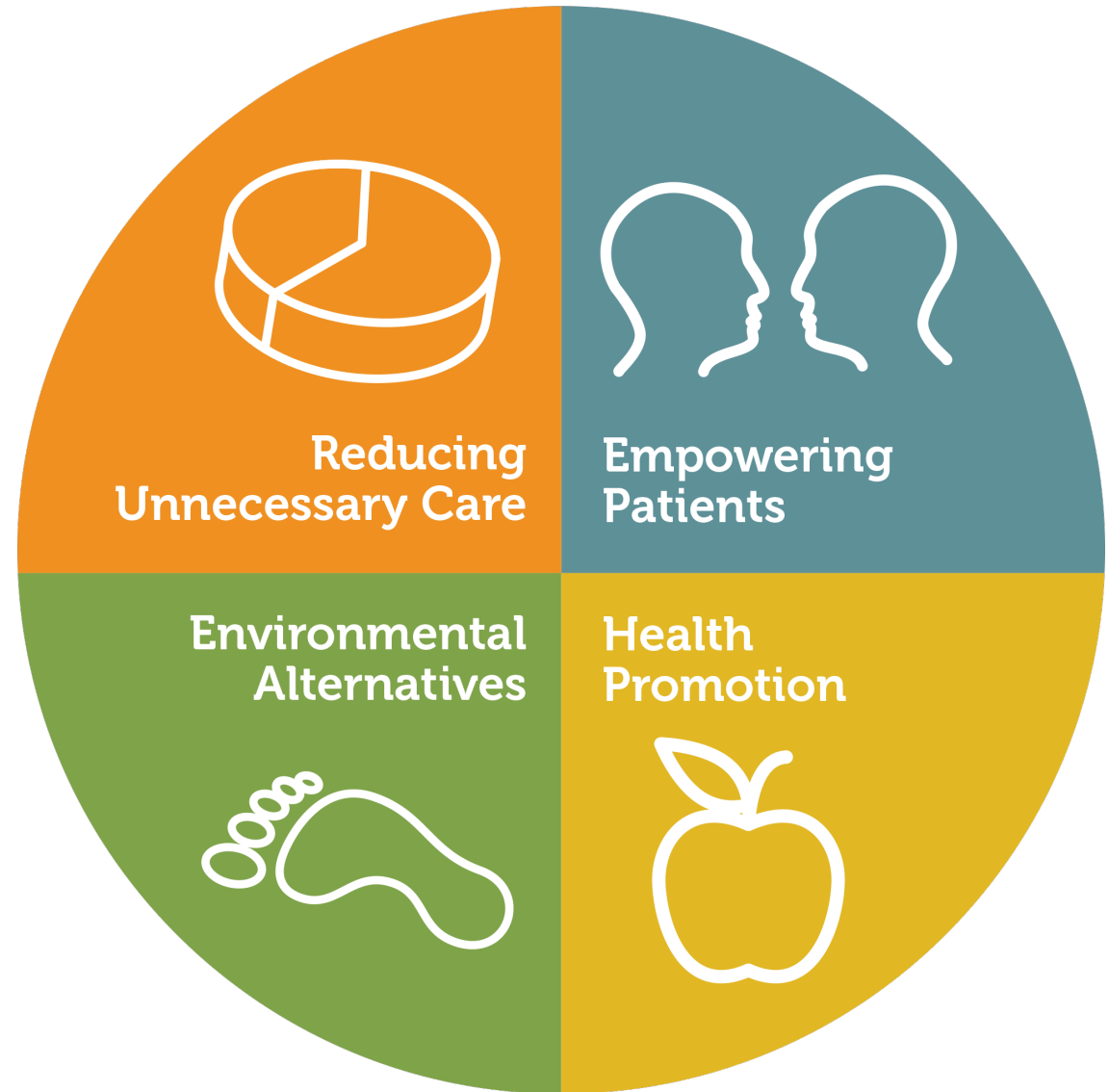


- Vaccinations
- Plant-rich diets
- Screening call-backs

Planetary Health for Primary Care



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Planetary Health
for Primary Care