

Community of Practice: Choosing Wisely in Paediatrics

Moderator:

Dr. Olivia Ostrow

Staff Physician and Patient Safety Lead

Paediatric Emergency Medicine, The Hospital for Sick Children

Associate Director, SickKids Choosing Wisely Program



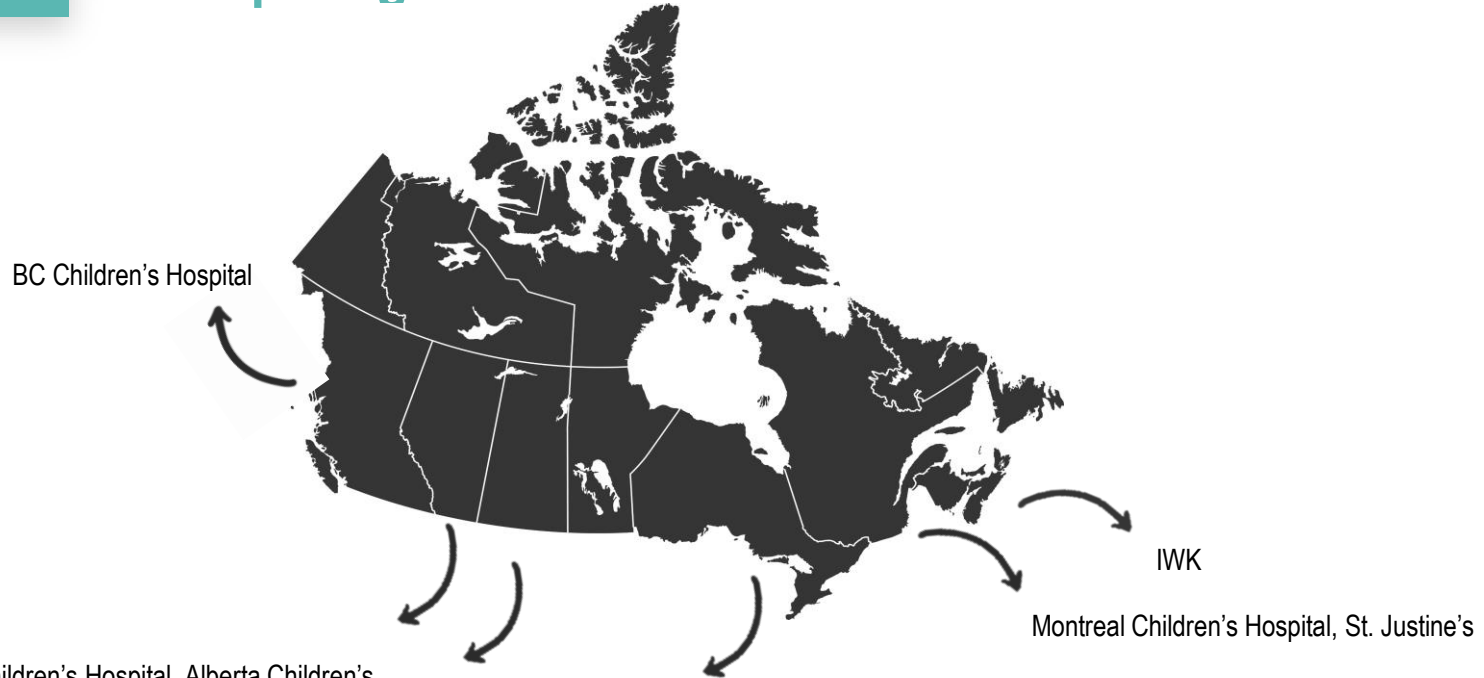
Welcome (and welcome back)!

The Choosing Wisely in Paediatrics Community of Practice (CoP) mandate is to foster knowledge sharing and collaborative learning to promote high-quality, value-added care by focusing on the overutilization of certain tests and therapies.

Since launching in 2019:

- **Reach is national with ~250 members**
- **9 webinars and 21 presentations have been held to date**
- **Presentation topics from both paediatric acute-care centres and community hospitals**

Community of Practice – Participating Sites from Coast to Coast...and more!



Stollery Children's Hospital, Alberta Children's Hospital

Jim Pattison Children's Hospital

SickKids, CHEO, OSMH, Markham-Stouffville Hospital, Halton Healthcare, NYGH, Michael Garron Hospital, William Osler, LHSC, Community Paediatricians, Unity Health

Webinar Topics to Date

Bronchiolitis	UTIs	<i>Antibiotics Wisely</i>	Choosing Wisely Canada and roles for paediatrics
Opioids	Respiratory infections	Iron deficiency	Pneumonia & CXRs
Engaging trainees in stewardship	Febrile neutropenia	<i>Blood Wisely</i>	HHFNC
Urine collection methods	Peripheral IVs (saline vs TKO)	Family partnerships in Choosing Wisely	Allergy De-labelling

Moving the needle...Implementation

National Choosing Wisely Bronchiolitis Toolkit:

- Working group: Pan-Canadian group of paediatricians, PEM, family medicine & family partners
- Part I-Outpatient and ED-focused (to be released this Fall)
- Part II-Inpatient
- Include local measurement strategy

Children's Healthcare Canada

- **Established the Choosing Wisely in Paediatrics Health Hub**
 - Leveraged existing CHC online network
 - Goal – to connect individuals with “like” peers across Canada to share information and exchange resources
 - Currently houses materials and recordings from past webinars and relevant publications

Children's Healthcare Canada
Health Hub

Choosing Wisely

Future Webinars

October 2023 - TBC

Suggested topics are welcome!

If you are interested in presenting, have resources you wish to share, or would like to be added to the mailing list, please complete the webinar feedback survey or email lauren.whitney@sickkids.ca



Agenda

3:00 – 3:05 PM	Welcome and Introductions
3:05 – 3:45 PM	<p><i>Choosing Wisely for the Planet</i> Samantha A. House, DO, MPH Section Chief, Pediatric Hospital Medicine & Medical Director Quality and Safety, Dartmouth Health Assistant Professor of Pediatrics & Associate Professor of The Dartmouth Institute, Geisel School of Medicine, Dartmouth</p> <p><i>Resource Stewardship and Planetary Health</i> Katie Gardner, MSc, MD, FRCPC Staff Physician, Paediatric Emergency Medicine & Director of Quality and Patient Safety, Division of Emergency Medicine, IWK Health Centre Assistant Professor, Dalhousie University</p>
3:45 – 4:00 PM	Q&A

Choosing Wisely for the Patient, and the Planet



Choosing Wisely Canada Strategic Pillars

3

Advocacy & Patient Engagement

Influence societal and systematic dimensions of overuse through public awareness and policy change.

BMJ Quality & Safety

Viewpoint

Choosing Wisely and the climate crisis: a role for clinicians

 Karen B Born¹, Wendy Levinson², Emma Vaux³

Correspondence to Dr Karen B Born, Institute of Health Policy, Management and Evaluation, University of Toronto, Toronto, ON M5T3M6, Canada; karen.born@utoronto.ca



Choosing Wisely For Our Climate

Pediatric Resource Stewardship Community of Practice Webinar

Samantha A. House

Section Chief, Pediatric Hospital Medicine

Dartmouth Health Children's

June 19, 2023

About Me...



About Me...



Original Investigation | Pediatrics

Development and Use of a Calculator to Measure Pediatric Low-Value Care Delivered in US Children's Hospitals

Samantha A. House, DO, MPH; Matthew Hall, PhD; Shawn L. Ralston, MD, MS; Jennifer R. Marin, MD, MSc; Eric R. Coon, MD, MS; Alan R. Schroeder, MD; Heidi Gruhler De Souza, MPH; Amber Davidson, RHIT, CCS, CCS-P; Patti Duda, BS; Timmy Ho, MD, MPH; Marquita C. Genies, MD, MPH; Marcos Mestre, MD; Mario A. Reyes, MD

Impact of Low-Value Care

- Costs
- Harms



"New" Implications of LVC

COVID
Effects

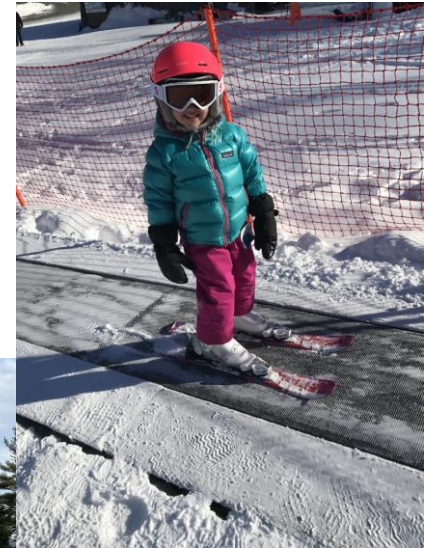
Increased
Financial
Strain

Resource
Constraints

Health
Equity

Climate

About Me...



Planetary Impact of Healthcare

- If the US healthcare system was a country, it would be ranked 13th in the world in greenhouse gas emissions.

NEWS

Canada's health system is among the least green

■ Cite as: *CMAJ* 2019 December 2;191:E1342-3. doi: 10.1503/cmaj.1095834

Posted on cmajnews.com on November 13, 2019

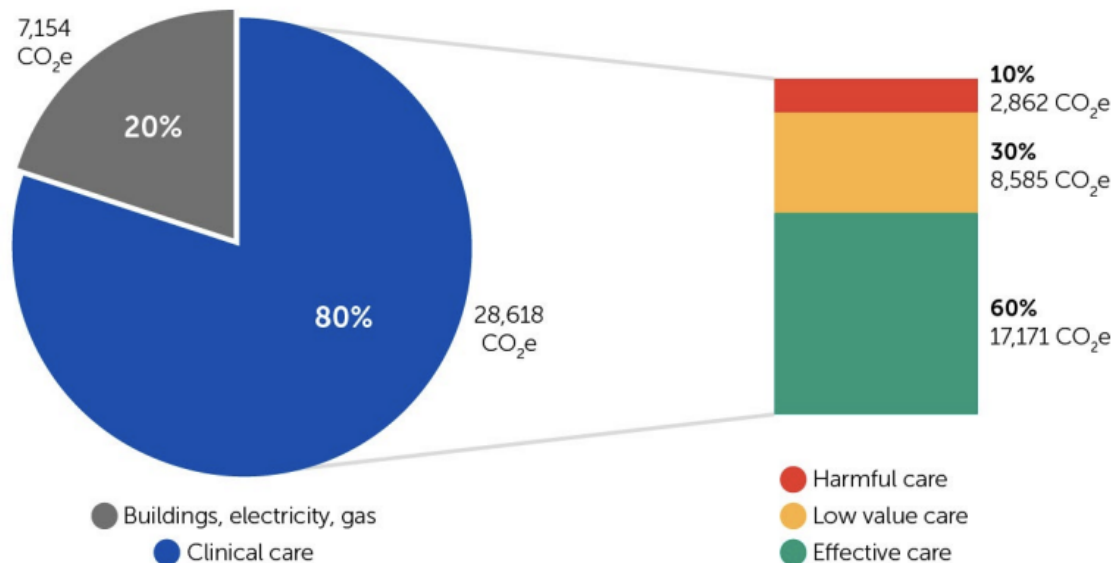
High value health care is low carbon health care

Culling low value care will cut health care carbon emissions

The carbon footprint of Australian health care and the share of its carbon emissions attributable to harmful, low value and effective care

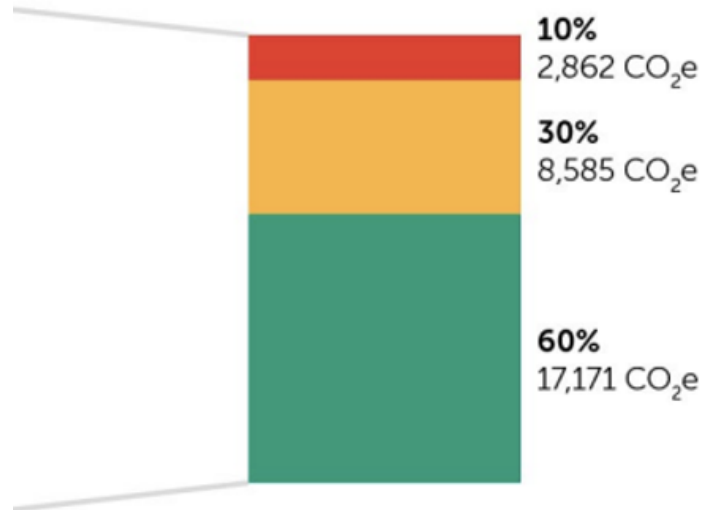
Carbon footprint of health care
35,772 kilotonnes CO₂e emissions

Carbon footprint of clinical care
28,618 kilotonnes CO₂e emissions



CO₂e = carbon dioxide equivalent. Data sources: Malik et al,³ Tennison et al 2021,⁴ and Braithwaite et al.⁶ ◆

Carbon footprint of clinical care 28,618 kilotonnes CO₂e emissions



- Harmful care
- Low value care
- Effective care

Take-homes from Australia

- Hospitals and pharmaceuticals represent a majority of healthcare emissions
- A vast majority of emissions are indirect (scopes 2 and 3) stemming from the “goods and services” of patient care
- LVC reduction could save 10,000 kilotonnes of CO2 emissions

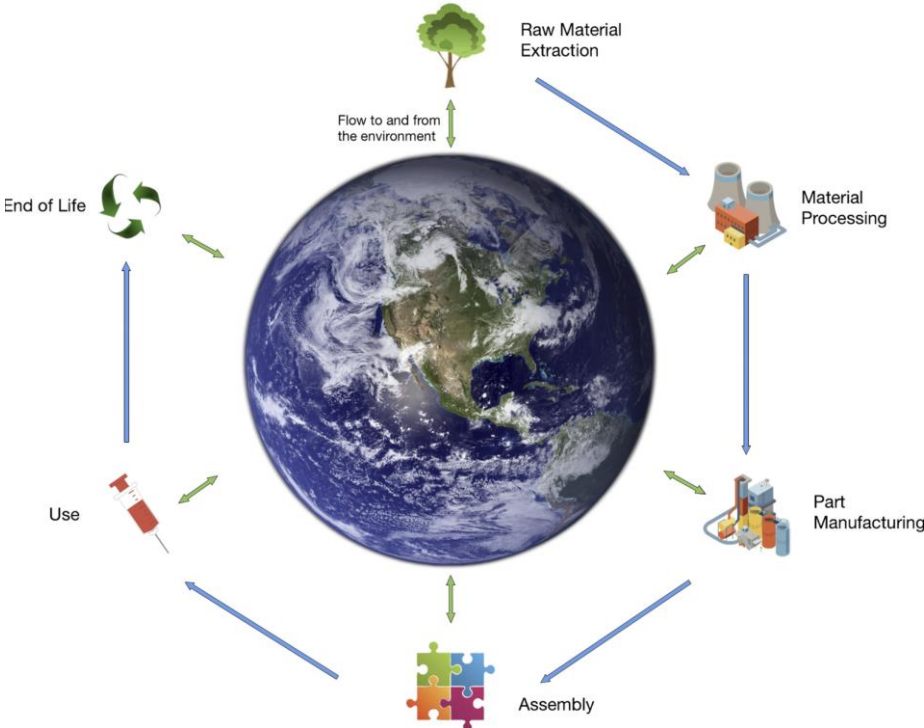
2,225,303 gasoline-powered passenger vehicles
driven for one year (?)



How do we bring climate into the LVC discussion?

- Measure!
- Life Cycle Assessment = the systematic analysis of the potential impacts of products or services during their entire life cycle

Life Cycle Assessment



How do we bring climate into the LVC discussion?

- Measure

Wiser Carbon Neutral

We aim to develop an evidence base that can assist clinicians and policy makers to safely decarbonise healthcare, while maintaining high quality patient care.



WISER
HEALTHCARE
A RESEARCH COLLABORATION FOR REDUCING
OVERDIAGNOSIS AND OVERTREATMENT

How do we bring climate into the LVC discussion?

- Measure



Letters

The carbon footprint of pathology testing

Scott McAlister ✉, Alexandra L Barratt, Forbes McGain

First published: 23 October 2020 | <https://doi.org/10.5694/mja2.50839> | Citations: 6

How do we bring climate into the LVC discussion?

- Consider environmental impact as an outcome of low-value services
- Collaborate

PHIS Low-Value Care Calculator

- Research and performance improvement tool
- 30 included services (labs, imaging, procedures, medications)
- Work thus far has revealed:
 - Overall prevalence and costs of services
 - Temporal trends
 - Inequities
 - Hospital level variation

PHIS Low-Value Care Calculator

- Next steps = CLIMATE



Sustainable
asthma care in
pediatrics





Have you modified your asthma prescribing practices based on environmental impact?

What is your experience with dry powder inhalers in children?

MDIs

- Hydrofluorocarbons
 - Use phase
 - Disposal

Thinking about how you can be
more climate friendly?



Did you know that

100 doses
of an aerosol puffer

can have a carbon footprint up to a **290*** km gas car journey?

However, there are
greener inhaler options!

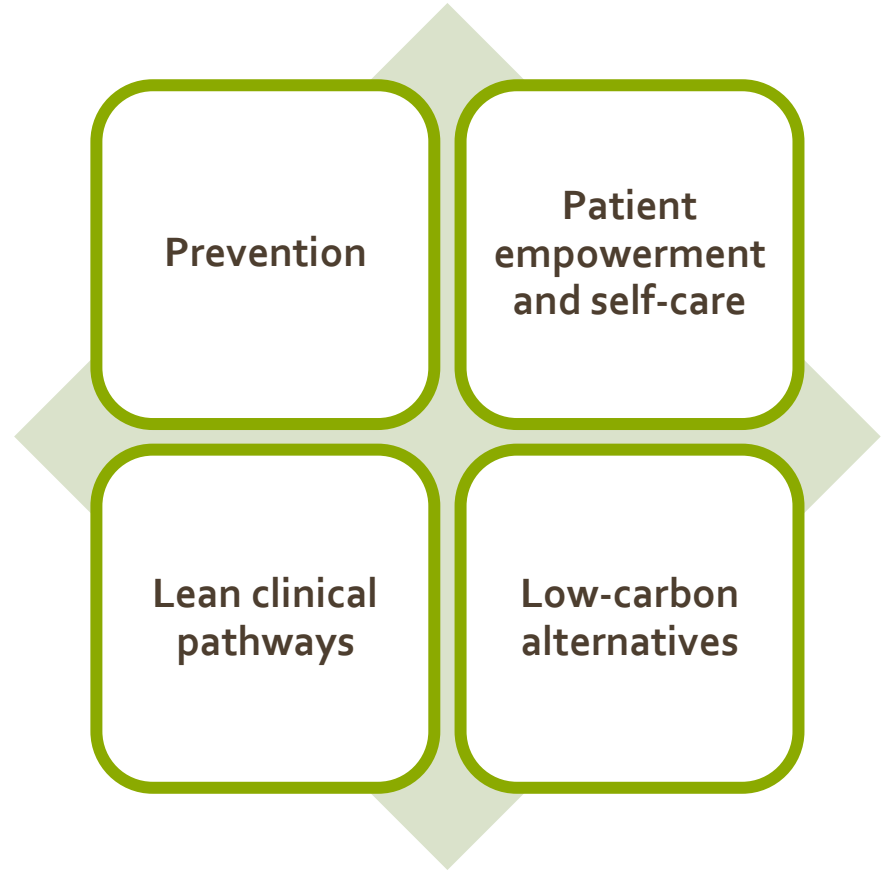
Talk to your provider

about whether any of these **greener options** might be right for you!

To learn more, visit
cascadescanada.ca/yourinhaler

*This is one way of calculating average inhaler emissions that considers the global warming potentials of both HFC-134a and HFC-227 inhaler propellants. There may be other estimates. Emissions data was retrieved from the 2018 Report of the Medical and Chemical Technical Options Committee from the United Nations Environment Programme.

Principles of Sustainable Practice



Diagnosis, appropriate treatment

- Early diagnosis
 - avoid treatment delay
 - reduce morbidity
 - maximize lung function
 - **Environmental benefit: less medication used over lifetime**
- Clinical Diagnosis (1-5 years)
 - Documented airflow obstruction
 - Documented reversibility
 - No evidence of alternative
- Written self-management plan
- Appropriate use of ICS



Prevention

Acute asthma management

- Clinical order sets
 - Standardized care
 - Based on PRAM, avoid overuse in ED (steroid, atrovent)
- Nursing care directives
 - Reduce door to steroid time
 - Reduced length of stay
 - Reduced frequency of salbutamol
- Eliminating low value care
 - X-rays
 - Antibiotics

**Lean clinical
pathways**

Acute asthma management

- Dry powder inhalers
- Inhaled corticosteroid choice
- Ipratropium bromide neb vs MDI

**Low-carbon
alternatives**

SUSTAINABLE INHALER ALTERNATIVES



Cost and coverage for asthma and COPD inhalers in Ontario

← Least Environmentally Preferable Less Environmentally Preferable More Environmentally Preferable →

Dry powder inhalers

- Age
 - Readiness assessment
- Technique
 - Teaching
 - Follow-up
- Specialist buy-in
- Cost

Do not FORCE inhaler switches

Can result in lack of control, exacerbations, and further emissions.

Reliever Therapy

Ventolin salbutamol 100mcg: ~\$6 MDI	Teva salbutamol 100mcg: ~\$5 Low Volume MDI	Airomir salbutamol 100mcg: ~\$6 Low Volume MDI	Bricanyl Turbuhaler terbutaline 0.5mg: ~\$8 Dry-Powder Inhalers (DPIs)	Ventolin Diskus salbutamol 200mcg: ~\$25* Dry-Powder Inhalers (DPIs)	Symbicort Turbuhaler budesonide/formoterol 200/6: ~\$95 Dry-Powder Inhalers (DPIs)
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ICS Maintenance

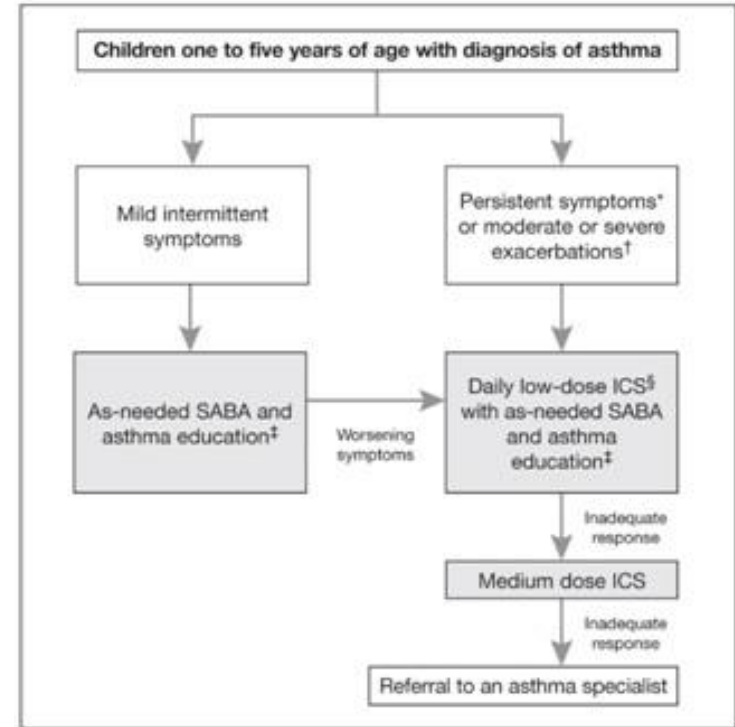
Qvar beclomethasone 50mcg: ~\$40 100mcg: ~\$80 Metered Dose Inhalers (MDIs)	Flovent fluticasone 125mcg: ~\$50 250mcg: ~\$105 Metered Dose Inhalers (MDIs)	Alvesco ciclesonide 100mcg: ~\$50 200mcg: ~\$80 Metered Dose Inhalers (MDIs)	Pulmicort Turbuhaler budesonide 100mcg: ~\$35 200mcg: ~\$70 400mcg: ~\$105 Dry-Powder Inhalers (DPIs)	Aermony Resplick fluticasone propionate 113mcg: ~\$30 232mcg: ~\$50 Dry-Powder Inhalers (DPIs)	Asmanex Twisthaler mometasone 200mcg: ~\$40 400mcg: ~\$80 Dry-Powder Inhalers (DPIs)	Flovent Diskus fluticasone propionate 250mcg: ~\$50 500mcg: ~\$80 Dry-Powder Inhalers (DPIs)	Arnuity Ellipta fluticasone furoate 100mcg: ~\$45 200mcg: ~\$90 Dry-Powder Inhalers (DPIs)
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ICS/LABA

Zenhale mometasone/formoterol 100/5: ~\$110 200/5: ~\$135 MDIs	Advair fluticasone propionate/salmeterol 125/25: ~\$120 250/25: ~\$175 MDIs	Wixela InHub fluticasone propionate/salmeterol 100/50: ~\$40 250/50: ~\$50 500/50: ~\$70 Dry-Powder Inhalers (DPIs)	Advair Diskus fluticasone propionate/salmeterol 100/50: ~\$100 250/50: ~\$120 500/50: ~\$175 Dry-Powder Inhalers (DPIs)	Symbicort Turbuhaler budesonide/formoterol 100/6: ~\$75 200/6: ~\$95 Dry-Powder Inhalers (DPIs)	Breo Ellipta fluticasone furoate/vilanterol 100/25: ~\$100 200/25: ~\$155 Dry-Powder Inhalers (DPIs)	Ateectura Breezhaler mometasone/indacaterol 80/150: ~\$30 160/150: ~\$40 320/150: ~\$55 Dry-Powder Inhalers (DPIs)
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Inhaled corticosteroid choice

- “Children one to five years of age with recurrent (≥ 2) episodes of asthma-like symptoms, **no wheezing** on presentation, **frequent symptoms** or any **moderate or severe exacerbation** warrant a three-month therapeutic trial with a medium daily dose of ICS (with as-needed SABA). ”
- Follow-up every 3-4 months to assess control*
- Downward titrating when good control



Inhaled corticosteroid choice

Drug	Device type	Dose/inh	Low dose (mcg/day)	Medium dose (mcg/day)	High dose (mcg/day)	Cost per device	Cost per month (medium dose)	Product carbon footprint (gCO2e)	Yearly carbon footprint (moderate dose)
Fluticasone propionate (Flovent)	MDI (120 doses)		100	200-250	> 400	-	-	18,960	
		50 mcg	1 puff BID	2 puffs BID	-	\$28.42	\$28.42		230,680 (923 km)
		125 mcg	-	1 puff BID	2 puffs BID	\$23.41	\$11.71		115,340 (461 km)
	250 mcg	-	-	1 puff BID	\$45.02	-			
	Diskus (60 doses)	100 mcg	-	1 puff BID	2 puffs BID	\$28.42	\$28.42	840	10,220 (40 km)
		250 mcg	-	-	2 puffs BID	\$49.02	-		
Ciclesonide (Alvesco)	MDI (120 doses)		100	200-400	>400			12,210	
		100 mcg	1 puff OD	2 puffs OD	-	\$47.86	\$47.86		74,277 (297 km)
		200 mcg	-	1 puff OD	2 puffs OD	\$79.19	\$39.59		37,138 (148 km)
Beclomethasone (QVAR)	MDI (200 doses)		100	200	>200			20,350	
		50 mcg	1 puff BID	2 puffs BID	-	\$37.12	\$22.27		148,555 (594 km)
		100 mcg	-	1 puff BID	2 puffs BID	\$74.02	\$22.21		74,277 (297 km)



Asthma Action Plan Discharge Instructions

Emergency Department

PHYSICIAN: Complete and initial beside selected orders.

WEIGHT _____ kg

GREEN ZONE

Asthma under control



Breathing is good.
Run & play normally.
Cough or wheeze less than 4
times a week.

CONTROLLER Medicine:

R _____ fluticasone (Flovent) orange puffer, _____ micrograms/inhalation, 1 inhaler,
take _____ inhalations, _____ times per day, for 3 months, Refill 1
____ Other _____

QUICK RELIEF Medicine:

R _____ salbutamol (Ventolin) blue puffer, _____ inhalations every 4 to 6 hours
as needed, 1 inhaler, Refill 1 (Pharmacist: Label Inhaler as "Take as directed as
per Asthma Action Plan")

R _____ SPACER DEVICE: dispense aerochamber _____
_____ Infant with mask _____ Paediatric with mask _____ Adult with mouthpiece

Ipratropium bromide (Atrovent)

- Evidence for improved outcomes as adjunct in severe exacerbations
 - Reduced hospital admission
 - Improved lung function
 - Reduced nausea and tremor (compared to ventolin alone)
- Nebulized or MDI
 - Efficacy (Cochrane review: nebulizers “not significantly better”)
 - Workflow
 - Nursing preference
- MDI discarded after single use (12 out of 120 puffs)
 - Wasted medication, propellant discarded
 - Any way to reuse MDI between patients?

Disposal

- MDIs must be incinerated
- Education for patients and families
- Education for hospital staff

HOW TO DISPOSE OF YOUR INHALER

7 out of 10



inhalers are thrown away before being empty.¹



When thrown into the garbage for landfill, inhalers release harmful greenhouse gases into the environment.²



Ensure that you are using your inhaler correctly and dispose of it when it is empty.



Ask your clinic or pharmacy to see if they have a recycling or disposal program.*



Do NOT throw them in your household garbage or recycling.



Returning your inhaler to be recycled or incinerated can save the equivalent of up to



8 litres of gasoline²

*If you live in British Columbia, Manitoba, Ontario or Prince Edward Island, visit healthsteward.ca to find what local pharmacies take back used inhalers.

1. Roome C, Bush O, Steinbach I, et al. (2021). 562 Reducing the environmental impact of inhaler use and disposal within paediatrics and the local community. Archives of Disease in Childhood. 106: A41-A42.
2. Wilkinson A.J., Braggins R., Steinbach I., Smith J. (2019). Costs of switching to low global warming potential inhalers: An economic and carbon footprint analysis of NHS prescription data in England. BMJ Open. 9(10).

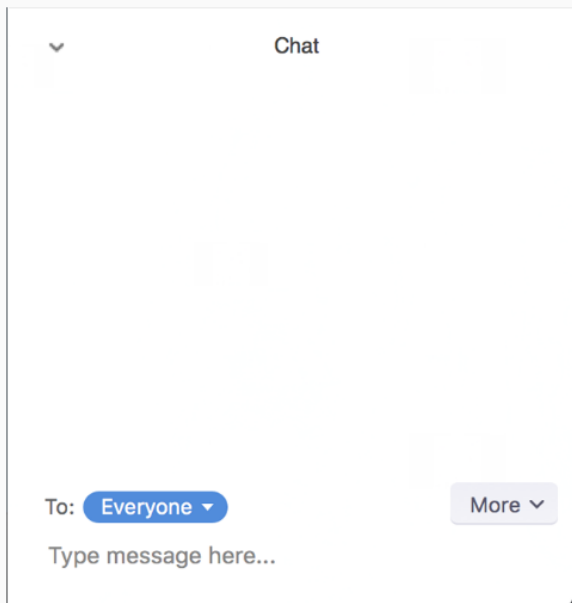
Adapted with permission from Justin O'Connor-Cook, PharmD student, and Brenda Chang, Clinical Pharmacy Coordinator, at Unity Health. This project was undertaken with the financial support of the Government of Canada. Ce projet a été réalisé avec l'appui financier du gouvernement du Canada.

Discussion

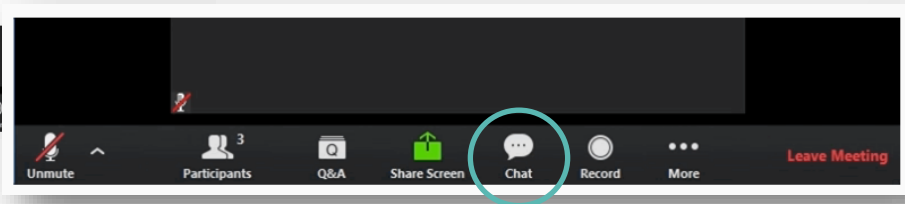
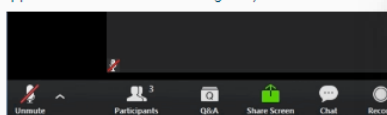
- Have you modified your asthma prescribing practices based on environmental impact?
- What is your experience with dry powder inhalers in children?



2. This will open the chat on the right. You can type a message into the chat box or click on the drop down next to **To:** if you want to send a message to a specific person.



3. When new chat messages are sent to you or everyone, a preview of the message will appear and Chat will flash orange in your host controls.



Q&A

- Please enter your questions using the **chat function**
- If you wish to contribute to the conversation, be sure to **un-mute** on the Zoom dashboard
- Note: *we will moderate the Q&A after all presentations have been completed*

