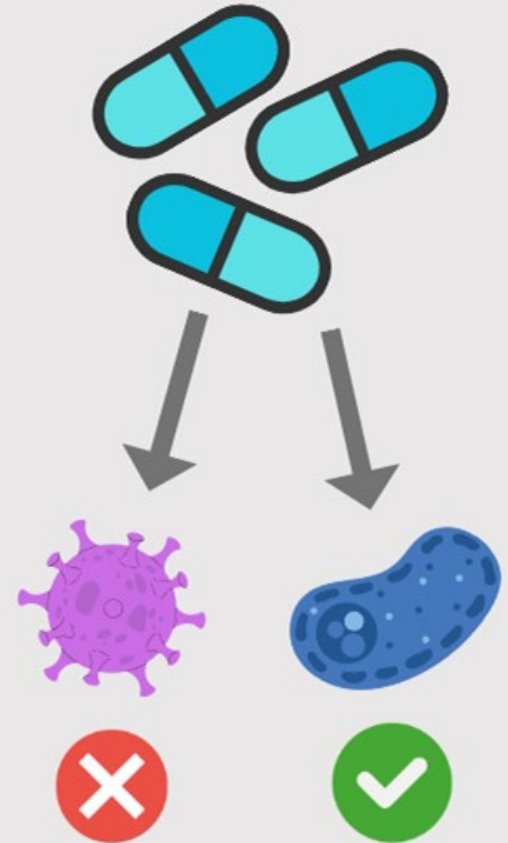


Exploring Lifestyle and Microbiome Factors Associated with Antibiotic Misuse

Brenna Lee
Brinkman Lab
MBB Department

Note that these are preliminary findings (not for public release at this time pending further validation)

We respectfully acknowledge that this work was conducted on unceded, ancestral land sovereign to the coast salish peoples, including, but not limited to, the x̣ẉməθḳʷəỵəm (Musqueam), Skwxwú7mesh (Squamish), Tseil-Waututh (tSLAY-wah-tooth), Kwikwetlem (Coquitlam), Katzie, and Tsawwassen Nations. We recognize that these lands were taken unfairly by force and we keep in mind the struggles these groups face everyday.



In 2018,

5,400 deaths

in Canada were related to antibiotic resistance.

That's almost



(Council of Canadian Academies 2019)

BC Centre for Disease Control. (n.d.). *Antibiotic Facts: Canada*. Antibiotic Wise - Antibiotic Facts. Retrieved March 29, 2024, from <https://antibioticwise.ca/antibiotic-facts/>.

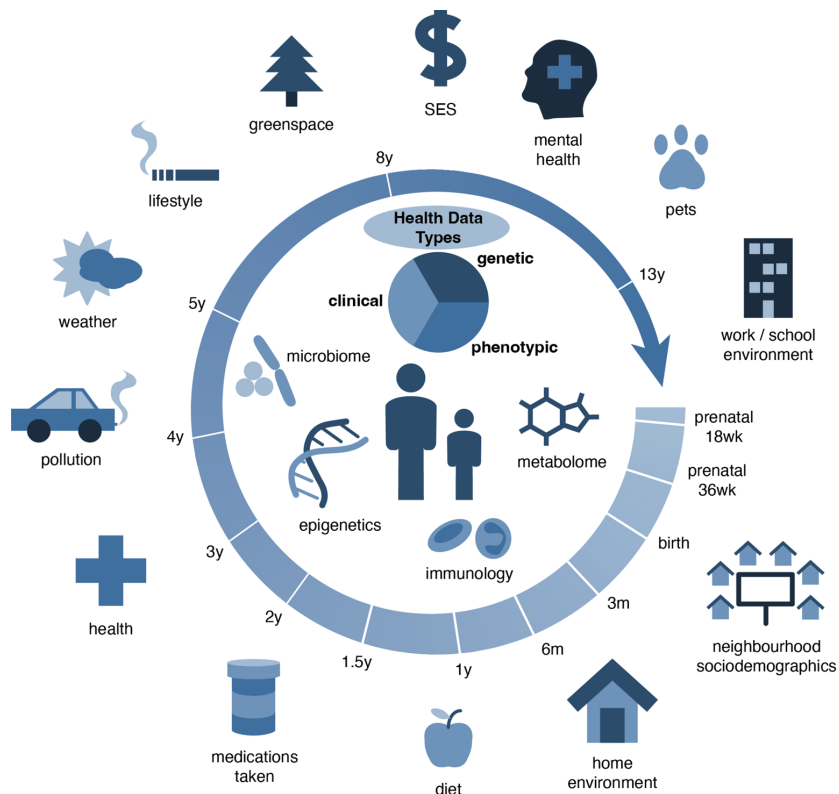
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- Bacteria grow resistant to antibiotic drugs after being exposed to them
- Misusing antibiotics accelerates bacterial AMR evolution

At this rate, amr bacteria could cause 10 million annual deaths by 2050 (WHO, 2019)

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Research Question

How do people who report using antibiotics for 'incorrect' reasons differ from those who report 'correct' uses?

Research Aims

- 1) Standardize and categorize reasons for taking antibiotics.
- 2) Examine associations (5233 diverse variables) between those who reported correct, versus incorrect, antibiotic use.
- 3) Explore any differences in gut microbiome diversity between those groups.

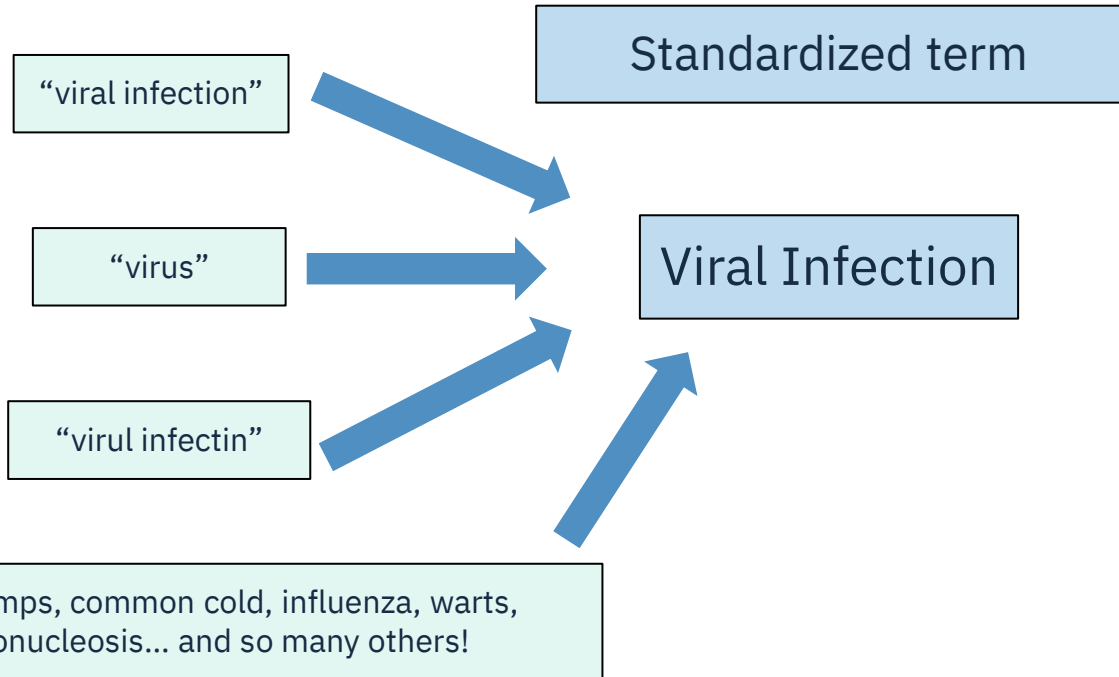
Aim 1: Standardize and categorize reasons for taking antibiotics

Examples of non-standardized terms:

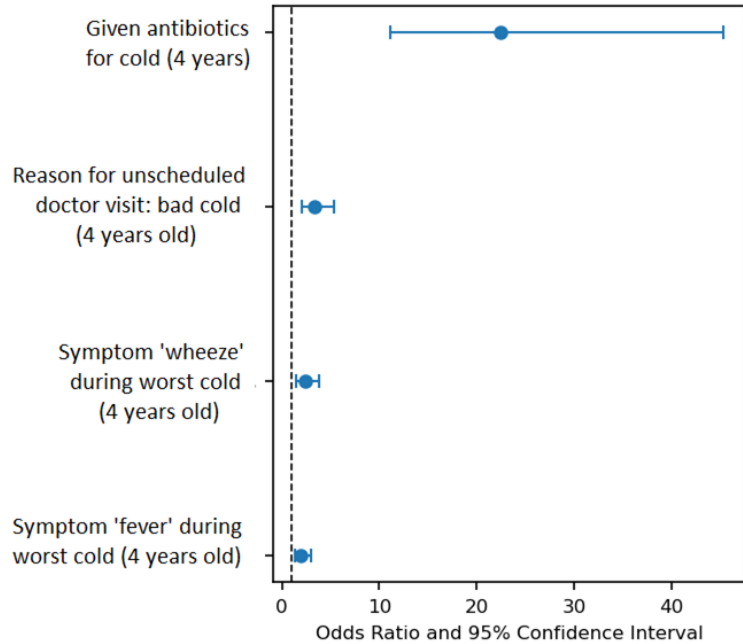
- Spelling errors
- Synonyms
- Ambiguity

STANDARDIZED REASONS

- Consistency
- Reduced ambiguity
- Easier to pull and categorize reasons of interest



Exposure and Health Variables Showing Expected Associations with Taking an Antibiotic for a Viral Infection



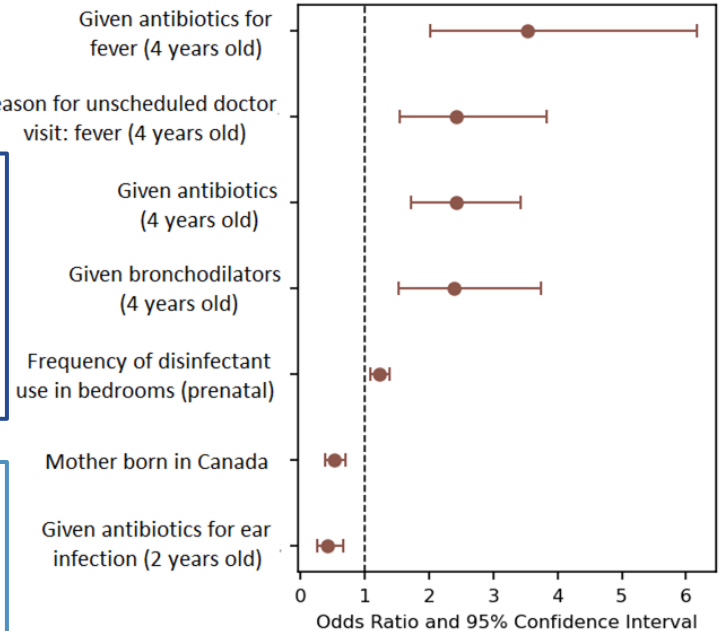
Logistic regression with correction for multiple testing with $p < 0.05$

- Covariate: study site
- Education and income level not significant
- Significant results at age 4 were also seen at ages 3 and 5

Impact

- Potential to inform policies and educational materials about correct antibiotic use

Exposure and Health Variables Associated with Taking an Antibiotic for a Viral Infection



References

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- BC Centre for Disease Control. (n.d.). *Antibiotic Facts: Canada*. Antibiotic Wise - Antibiotic Facts. Retrieved March 29, 2024, from <https://antibioticwise.ca/antibiotic-facts/>.
- CHILD Cohort Study. (2020, November 27). *Logos & branding - child cohort study*. CHILD Cohort Study - Helping children grow up healthy. <https://childstudy.ca/logos-branding/>
- World Health Organization. (2019). New report calls for urgent action to avert antimicrobial resistance crisis. <https://www.who.int/news/item/29-04-2019-new-report-calls-for-urgent-action-to-avert-antimicrobial-resistance-crisis#:~:text=If%20no%20action%20is%20taken,2008%2D2009%20global%20financial%20crisis.>

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- Fiona Brinkman, Geoff Winsor, Justin Jia, Justin Cook, Joud Albeishawish, Janet Wang, Luisa Mercado, Erin Gill, and the rest of the Brinkman Lab
- CHILD Cohort Study participants and investigators

