

ADDRESSING MEASLES AND VACCINE HESITANCY IN THE AGE OF MISINFORMATION

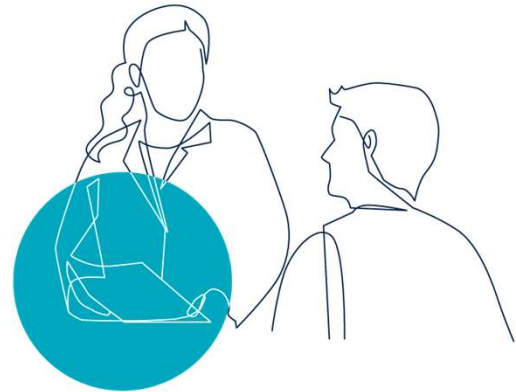
May 27, 2025 | 6:30-8:00pm PT

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of bc**



TERRITORY ACKNOWLEDGMENT

We acknowledge that we work on the traditional, ancestral and unceded territory of the Skwxwú7mesh (Squamish), xʷməθkwəy̓əm (Musqueam), and Səlílwətaʔ/Selilwitulh (Tsleil-Waututh) Nations.



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FUNDING ACKNOWLEDGEMENT

We thank the BC Centre for Disease Control for providing funding to support the delivery of this webinar



LEARNING OBJECTIVES

1. Describe the epidemiological status and implications of the current measles outbreak
2. Explain the landscape of misinformation, including the psychological and behavioral impacts on patients
3. Apply practical recommendations for communicating in the clinical context of vaccine hesitancy and misinformation
4. Access resources to address patient misinformation and vaccine hesitancy



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DISCLOSURES

Panelists

- Dr. Alastair McAlpine: received honoraria from UBC for presentation to pre-medical students on infectious disease; holds unpaid position on board of Clarity Foundation; has received funds from BCCH Vaccine Evaluation Center for KT project on vaccine awareness. There is **no potential conflict of interest** between this funding and this webinar.
- Dr. Jia Hu: received payment from Cleveland Clinic Canada Work as Medical Director advising companies on health & wellness issues and CCRN as Member of planning committee and speaker; is on Advisory Boards for Merck, Sanofi, Seqirus; has received funding for grants from Public Health Agency of Canada, CIHR to conduct vaccine uptake and research work. There is **no potential conflict of interest** between this funding and this webinar.
- Dr. Devon Greyson: member of the Project Reference Group for the BRAID Project, Health Quality BC Member of Community Reference Group on Mpox, Community Readiness and Resilience Unit, WHO Health Emergency Program, World Health Organization; received funding for grants from CIHR, SSHRC, Michael Smith Health Research BC, Canadian Immunization Research Network, BC Immunization Committee. There is **no potential conflict of interest** between this funding and this webinar.



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DISCLOSURES

Panelists & Moderator

- Michelle Takeuchi: Nothing to disclose
- Brittany Deeter: Nothing to disclose
- Dr. Christie Newton: has received Honoraria from CFPC, HDC, Divisions of Family Practice, UBC CPD for Board work and webinar moderation; received funding for grants from UBC FoM Strategic Initiatives Fund to implement IPE. There is **no potential conflict of interest** between this funding and this webinar.



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Planning Team

- Stephanie Ameyaw (UBC CPD): Nothing to disclose
- Caldon Saunders (UBC CPD): Nothing to disclose
- Dr. Bob Bluman (UBC CPD): Nothing to disclose

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DR. JIA HU

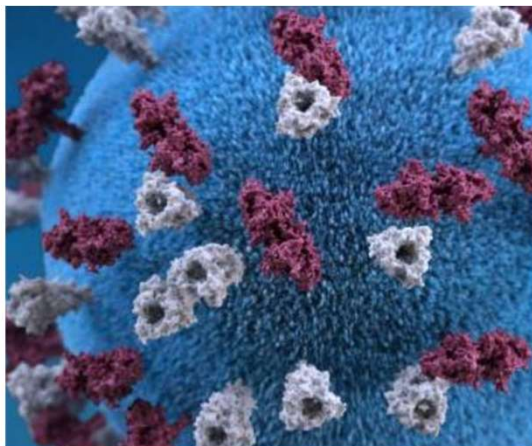
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Measles 101

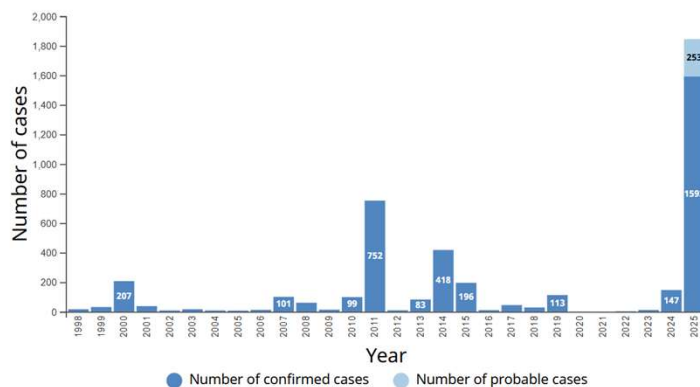


- Measles is the most infectious diseases we know of and is one of the few pathogens that has primary airborne transmission. **R_0 is estimated to be 12-18.**
- Measles is a serious illness, with complications including pneumonia, encephalitis, and death. About **10% of people with measles are hospitalized** and **~1 in 1000 people with die**
- Vaccine is given in a 2-dose series at 12 months and 4-6 years – **one-dose efficacy is 85-95%, two-dose efficacy is ~97%** and **confers lifelong immunity**
- Canada **eliminated measles in 1998** (absence of endemic transmission for more than 12 months)

Globally, cases are increasing and vaccine confidence is waning

- WHO European Region had >127,000 cases in 2024, double the number of cases in 2023 (there were only 4440 cases in 2016)
- The United States has had >1,000 cases in 2025 so far (mostly in Texas), a 4x increase from 2024
- A 2023 UNICEF report indicated that childhood vaccination coverage decreased in 112 countries during the pandemic, the largest backslide in childhood immunization in 30 years. This report found that confidence in childhood vaccines in Canada decline by 8.2% during the pandemic (although ~80% of Canadians still view them as important)
- Increasing measles cases globally (and in parts of Canada) increase the risk of importation of measles to British Columbia

In 2025, Canada recorded its highest (>1800) measles cases since its elimination

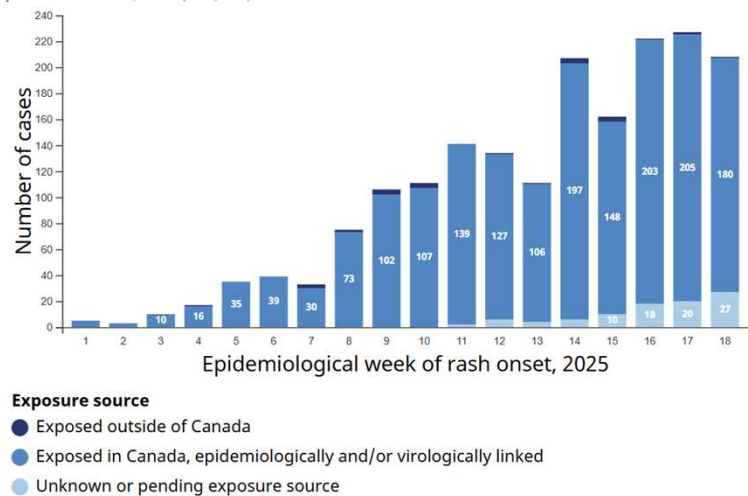


- Average of 91 cases/year between 1998 and 2024
- Most cases in Ontario (1646 as of May 15) and Alberta (505 as of May 21)
- MB, PEI, QC, SK and BC have also reported measles cases in 2025

Canada's increase has been driven by domestic outbreaks in under-immunized communities

Of the cases in Canada so far:

- 87% were exposed in Canada (largely in very under-immunized communities) while 1% were travel-related
- 95% of cases were unvaccinated or had unknown vaccination history
- 7% of cases have been hospitalized



British Columbia - only 11 cases so far but lower coverage due to pandemic effects

In 2025, BC has 11 cases so far (most travel-related, limited secondary transmission) - 6 in VCH and 4 in Fraser Health. There was 1 out-of-province case (also-travel-related). There was 1 case in 2024 and no other cases since 2019

Immunization coverage in the Provincial Immunization Registry has been declining. 7-year-olds with **2-doses decreased from 80% in 2021 to 70% in 2024**. One-dose coverage in this population is higher at 86%. Of the 30% who are not fully immunized:

- 16% had one dose of measles-containing vaccine – *indicates willingness to be vaccinated and catch-up opportunity, declines due to missed pandemic vaccines*
- 13% were unimmunized due to unknown reasons (i.e., we have no record) - *indicates gaps in our records*
- 1.5% had a documented refusal – *indicates very few people refuse measles vaccine*

1-dose coverage is higher than 2-dose coverage

	2-dose coverage @ 7 years of age	1-dose coverage @ 2 years of age
2018	82%	87%
2019	78%	88%
2020	80%	86%
2021	80%	83%
2022	77%	83%
2023	72%	82%

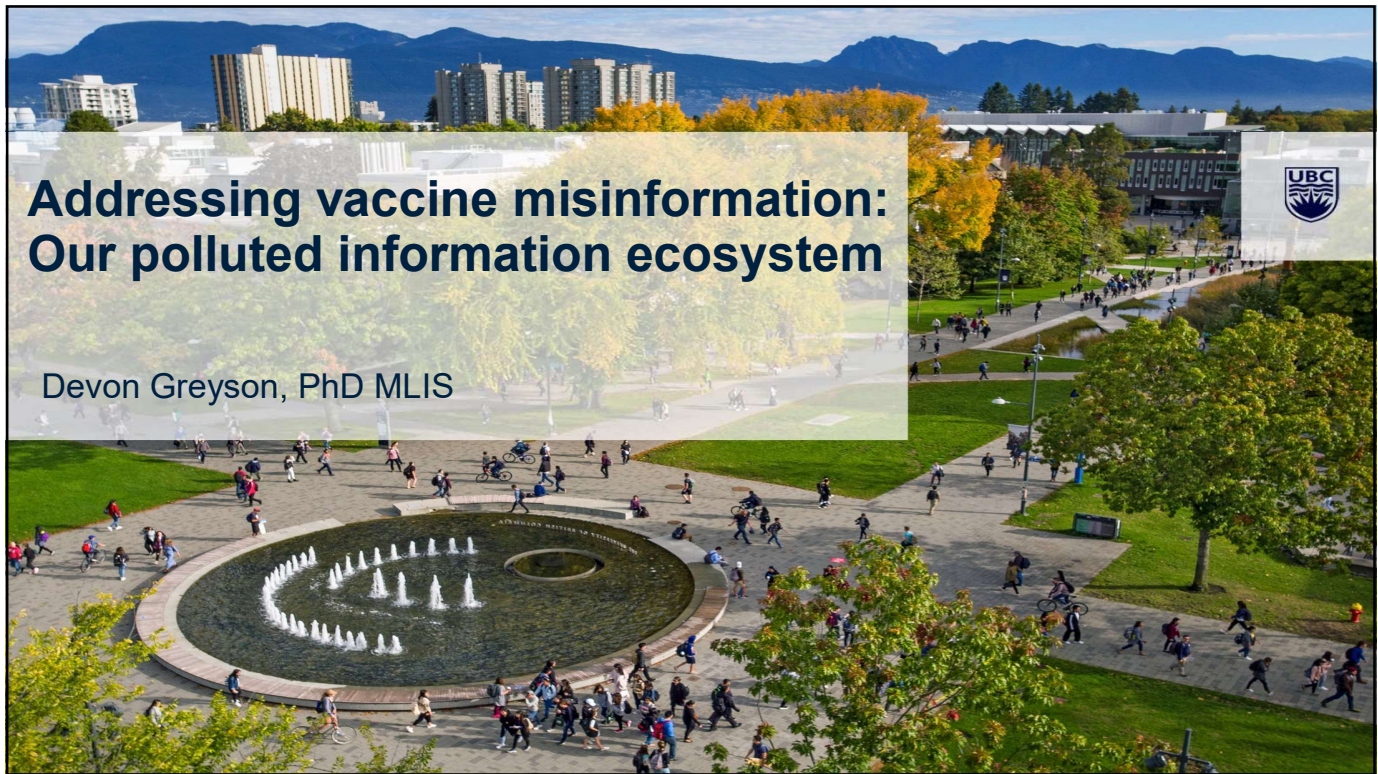
Larger decline, thought
due to missing 2nd doses
during pandemic

Smaller decline and higher
overall coverage than for
2-doses

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Measles epidemiology and vaccine coverage takeaways

- Increasing measles cases + declining immunization rates increases the risk of importation to British Columbia.
- If cases 'land' in an immunized population (most of BC) low risk of spread;
- If cases 'land' in an under immunized population there is significant risk of large outbreaks (and this is what has driven the large outbreaks in other provinces so far)
- Measles vaccine coverage (as recorded in immunization registry) declined for some ages due to the pandemic. However, the true immunity rate (as measured by serosurveys) is higher and there is not necessarily a significant increase in hesitancy (as measured by vaccine refusals)



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ORDER TODAY: Robert F. Kennedy, Jr.'s New Book — 'The Real Anthony Fauci'

UPDATED 08/23/21 • COVID - VIEWS

Study: Fully Vaccinated Healthcare Workers Carry 251 Times Viral Load, Pose Threat to Unvaccinated Patients, Co-Workers

A preprint paper by the prestigious Oxford University Clinical Research Group, published Aug. 10 in The Lancet, found vaccinated individuals carry 251 times the load of COVID-19 viruses in their nostrils compared to the unvaccinated.

By Peter A. McCullough, M.D., MPH

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lan Smith @iansmithfitness

New England Journal of Medicine finds that women who got 14x3d - within 30 days of becoming pregnant and up to 20 weeks pregnant - had a miscarriage rate of 82%.

nejm.org/doi/full/10.10...

ORIGINAL ARTICLE

Preliminary Findings of mRNA Covid-19 Vaccine Safety in Pregnant Persons

Tom T. Shimabukuro, M.D., Shin Y. Kim, M.P.H., Tanya R. Myers, Ph.D., Pedro L. Moro, M.D., et al., for the CDC v-safe COVID-19 Pregnancy Registry Team

10:03 AM · Jul 5, 2021 · Twitter for iPhone

While you were distracted by the Nicola Bulley Tragedy, the UK Gov. quietly published a report confirming the Vaccinated account for 9 in every 10 COVID Deaths over the past TWO Years

BY THE EXPOSE ON FEBRUARY 22, 2023 • (55 COMMENTS)

UBC

Some basic terminology

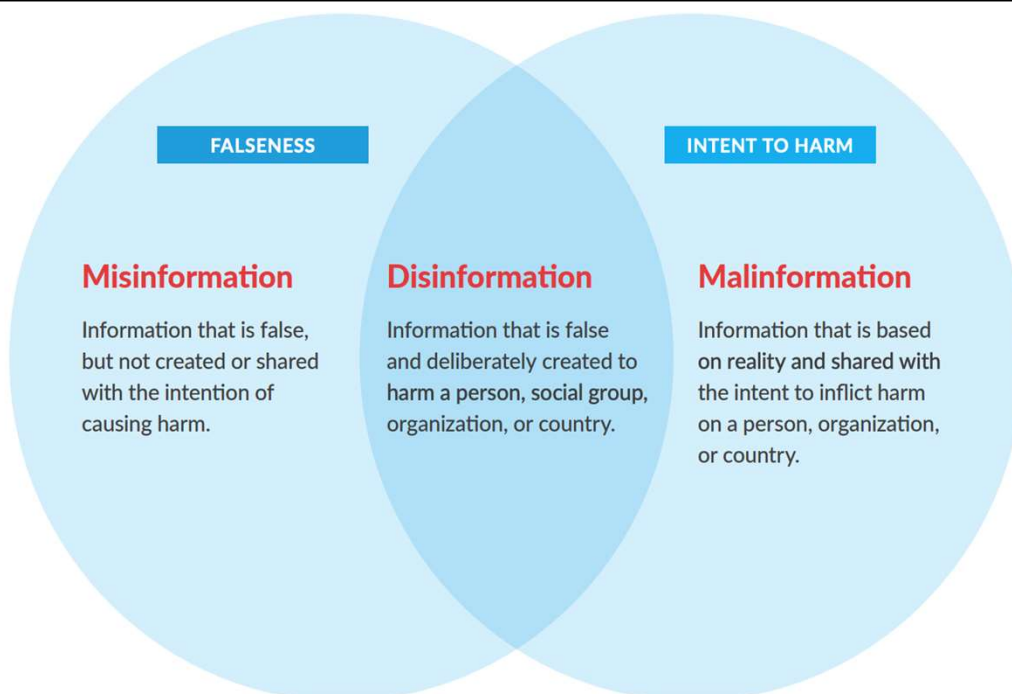
Information – data someone has interpreted/made sense out of; often thought of as an intermediate step between data and knowledge

Misinformation – inaccurate information (sometimes an umbrella term including dis- ; sometimes referring to lack of harmful intent)

Disinformation – deliberately shared inaccurate information (often for profit and/ public harm)

Malinformation – information that is at least partly true but used out of context in order to misrepresent something

Propaganda – information (often but not necessarily biased) that is used to persuade or promote a particular political view



Pasquetto, I.V., Shajahan, A., Winner, D. & Testa, L.V. (2022). MisinfoRX: A Toolkit for Healthcare Providers. <https://mediamanipulation.org/sites/default/files/media-files/MisinfoRx-August-2022.pdf>

7 TYPES OF MIS- & DISINFORMATION



Satire or parody

No intention to cause harm but has potential to fool.



Misleading content

Misleading use of information to frame an issue or individual.



Imposter content

When genuine sources are impersonated.



Fabricated content

New content that is 100% false, made to deceive and do harm.



False connection

When headlines, visuals or captions don't support the content.



False context

When genuine content is shared with false contextual information.



Manipulated content

When genuine information or imagery is manipulated to deceive.

LOW ← —————→ HIGH

Wardle, C. (2019). Understanding Information disorder. First Draft.

<https://firstdraftnews.org/long-form-article/understanding-information-disorder/>

COSTS OF COVID-19 MISINFORMATION

Between March and November 2021, **misinformation contributed to vaccine hesitancy for an estimated 2.35 million people in Canada**. If those people who believed COVID-19 to be a hoax or exaggerated had not delayed or refused vaccination, then, by the end of November 2021, there could have been:



198,000

fewer COVID-19 cases



13,000

fewer hospitalizations



3,500

fewer ICU patients

2,800

fewer deaths



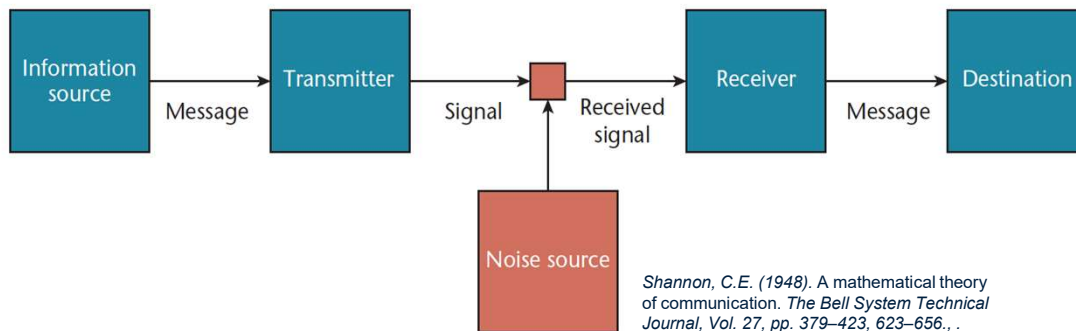
\$299 million

saved in hospital costs

Estimates are conservative; cost-savings estimate does not account for costs associated with physician fees, outpatient treatment, or long-COVID cases, nor does it consider broader societal costs, such as lost wages. The panel's methodology is available at cca-reports.ca.

Council of Canadian Academies. (2023). Fault Lines. Ottawa (ON): Expert Panel on the Socioeconomic Impacts of Science and Health Misinformation, CCA. <https://cca-reports.ca/reports/the-socioeconomic-impacts-of-health-and-science-misinformation/>

How does information get transmitted?



“Noise” may be inserting misinformation, disinformation, malinformation, or other decoys and distractions.

These can be considered pollutants into a dynamic information ecosystem.

What provides fertile ground for spread of mis/dis/mal?

- Constricted information flows & echo chambers
- Information overload & too much information volume
- Uncertainty, fear & doubt
- Lack of trust of authorities; conspiracy theories

MANY strategies for polluting

1. **Altering existing messages** by redaction or airbrushing
2. **Basic propaganda strategies** including repetition, harassment, flooding, butterfly attacks (imposter insiders spreading message), distributed amplification
3. **Social media/online strategies** such as trial-balloons, influence bots, algorithmic manipulation & keyword squatting, meme wars & misinfographics, cheap fakes, evidence collages, & recontextualized media
4. **False authority**, whether counterfeit science, astroturfing, buying credibility, or partnering with state spokespeople
5. **Media manipulation** including “trading up the chain”, corrupting the message, and manufacturing doubt



What can clinicians do?

1. **Build Trust:** Trusted clinician is the most influential voice to counter vaccine misinfo
2. **Use Communication Strategies:** No “one-size fits all” but several general & tailored strategies
3. **Legal & policy advocacy**



DR. ALASTAIR MCALPINE

MD

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The Situation



NEWS

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Toronto

More than 170 new measles cases reported in Ontario, bringing total to nearly 1,800

Public Health Ontario says virus continues to spread primarily among non-immunized

Ontario's first measles death in decades offers grim reminder that unvaccinated kids are at risk

Vaccines Are Under Attack

**RFK Jr and health agency falsely claim
MMR vaccine includes 'aborted fetus
debris'**

**Under RFK Jr. 's Leadership, CDC Launches Large Study on
Vaccines and Autism**

Published Mar 07, 2025 at 11:40 AM EST | Updated Mar 07, 2025 at 4:31 PM EST

**Robert F. Kennedy Jr. falsely claims measles
vaccine protection 'waned very quickly'**

Though he endorsed measles vaccines, Health and Human Services Secretary Robert F. Kennedy Jr. continues to sow doubt about vaccine safety.

The next US health secretary has suggested erecting a statue of the disgraced British doctor who claimed the MMR vaccine causes autism

In BC...

British Columbia

**Concern grows over low measles vaccination
rates in parts of B.C.**

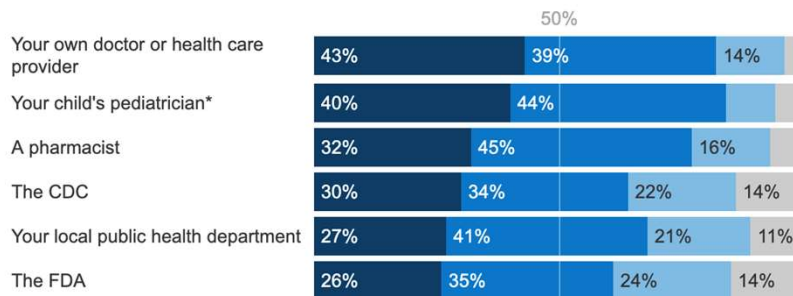
Some regions had less than two-thirds of 7-year-olds fully vaccinated against measles in 2023

- Research poll in October 2024:
- "Do vaccines cause autism?" – 31% of Canadians say "definitely" or "probably" correct, up 12 points.
- 26% of 18-34 year-olds believe the link is real

Our role

In general, how much do you trust each of the following to provide reliable information about vaccines?

■ A great deal ■ A fair amount ■ Not much ■ Not at all



What This Means

- Vaccine-hesitancy is growing. Driven by politics and misinformation
- Vaccination rates for measles in BC are well below herd-immunity threshold and dropping
- Outbreaks are therefore inevitable
- Healthcare providers are on the frontlines for answering questions and countering misinformation

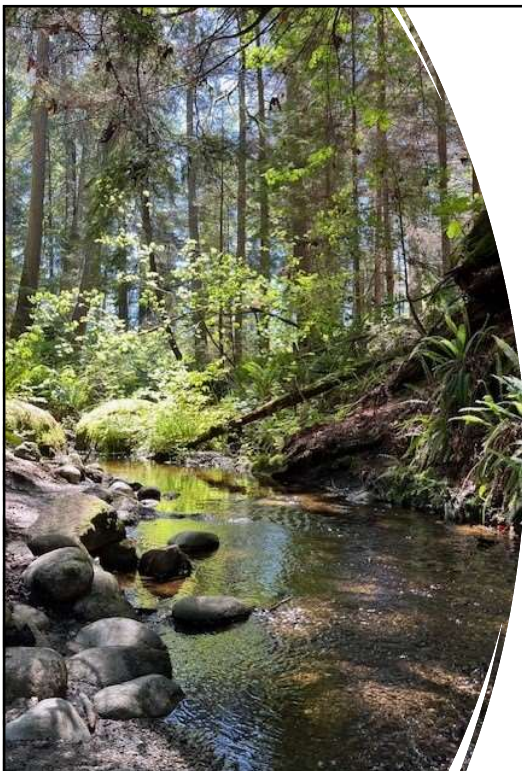
Whether we like it or not!

BRITTANY DEETER

DIRECTOR, COMMUNICABLE DISEASE, POPULATION AND PUBLIC HEALTH,
FIRST NATIONS HEALTH AUTHORITY

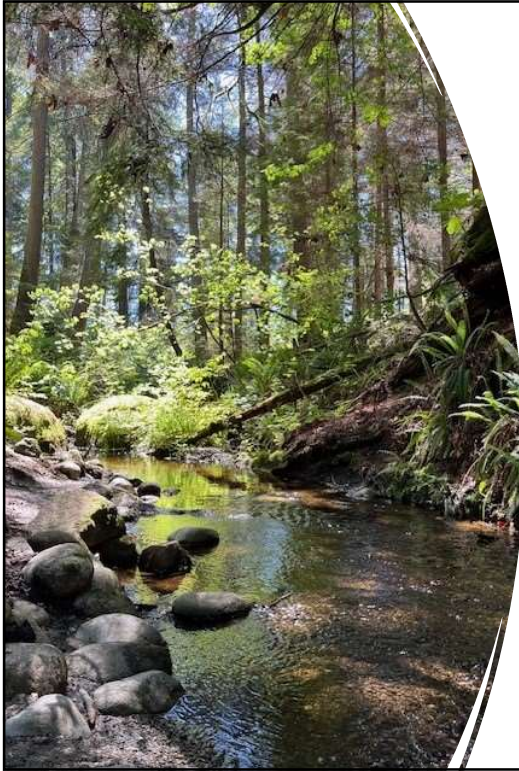


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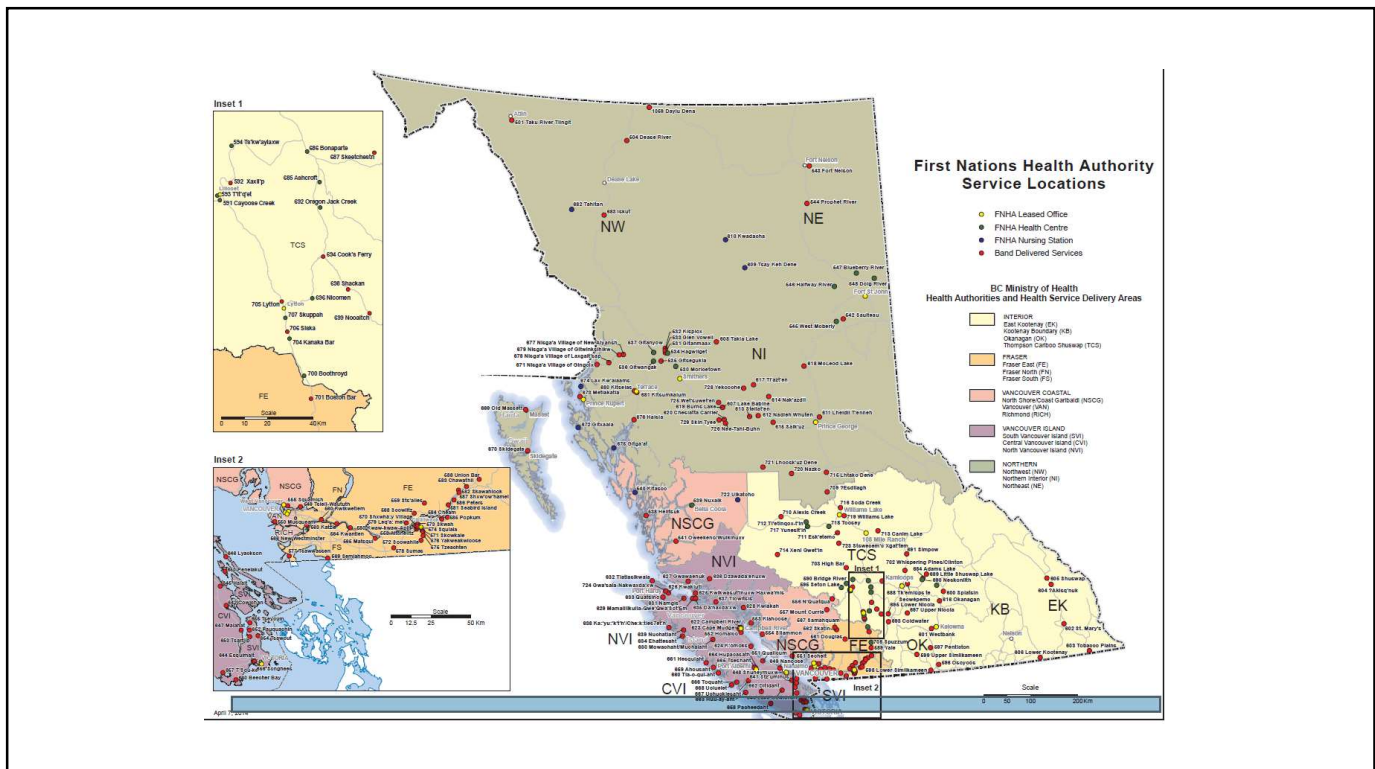
Perspectives on a decade supporting First Nation's Community Immunization services

May 2025



Land Acknowledgment

- would like to acknowledge that we are joining you today from our workplace which is located within the ancestral and unceded territory of the L'heidli T'enneh peoples who have called this land home since time immemorial.



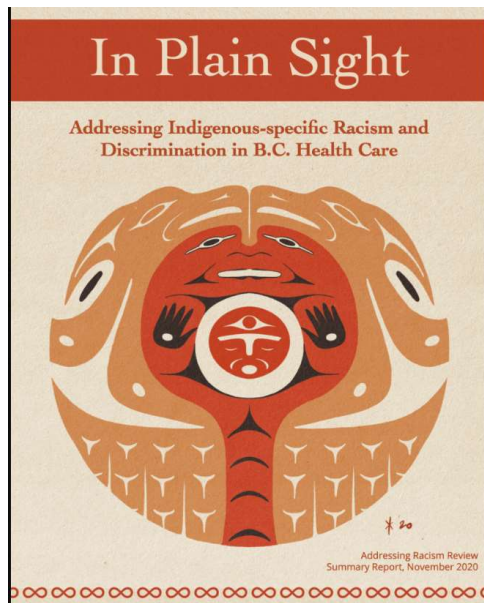
Public Health Practices in Communities Before Colonization



The ruins of the Haida village of Ninintints, abandoned after a smallpox epidemic in the 1880s. When George Vancouver first came to the Strait of Georgia, a 1782 smallpox epidemic had littered the area with abandoned, overgrown villages.

Historical context

- 1) Introduction of Communicable Diseases
- 2) Loss of ways of life which protected Community Health
- reserves, residential schools
- 4) Public Health used to justify and entrench discrimination



Current context:

- 1) Ongoing systemic racism in health care system as documented in “In Plain Sight”,
- 2) Fragmented system creates complexities for delivering health care services in Communities
- 3) First Nations Communities and Community members much more likely to live in rural and remote contexts

Thank you!

Gayaxsixa (Hailhzaqvla)	Kw'as ho:y (Halq'eméyem)	Mussi Cho (Kaska Dena)
Huy tseep q'u (Stz'uminus)	Huy ch q'u (Hul'qumi'num)	Tooyksim niin (Nisga'a)
Haa'wa (Haida)	Kwukwstéyp (Nlaka'pamux)	Kukwstsétsemc (Secwepemc)
Gila'kasla (Kwakwaka'wakw)	HÍSWKE (SenĆoten)	ĆeĆhaθeĆ (Ayajuthem)
Kleco Kleco (Nuu-Chah-Nulth)		Sechanalyagh (Tsilhqot'in)
Snachailya (Dakelh)		T'oyaxsim nisim (Gitxsan)

MICHELLE TAKEUCHI

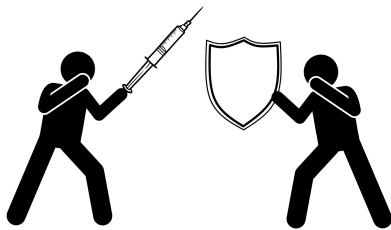
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Vaccine hesitancy is not an “individual problem”



“pro-vax” vs. anti-vax

Media depictions of vaccine hesitancy as an “individual problem”, can be **harmful**.

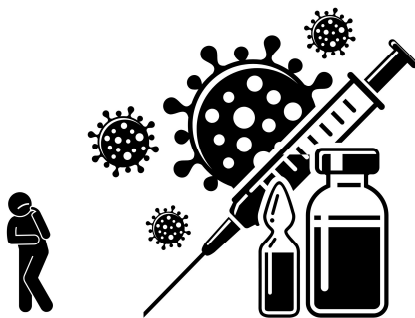
It ignores the context that shapes vaccine attitudes, beliefs, and decisions; and blames individuals, when it could be systemic and structural changes that are needed.

Vaccine hesitancy as existing along a continuum (WHO)



*Adapted from WHO "Communicating about vaccination with caregivers and patients: A communication training module for health workers"

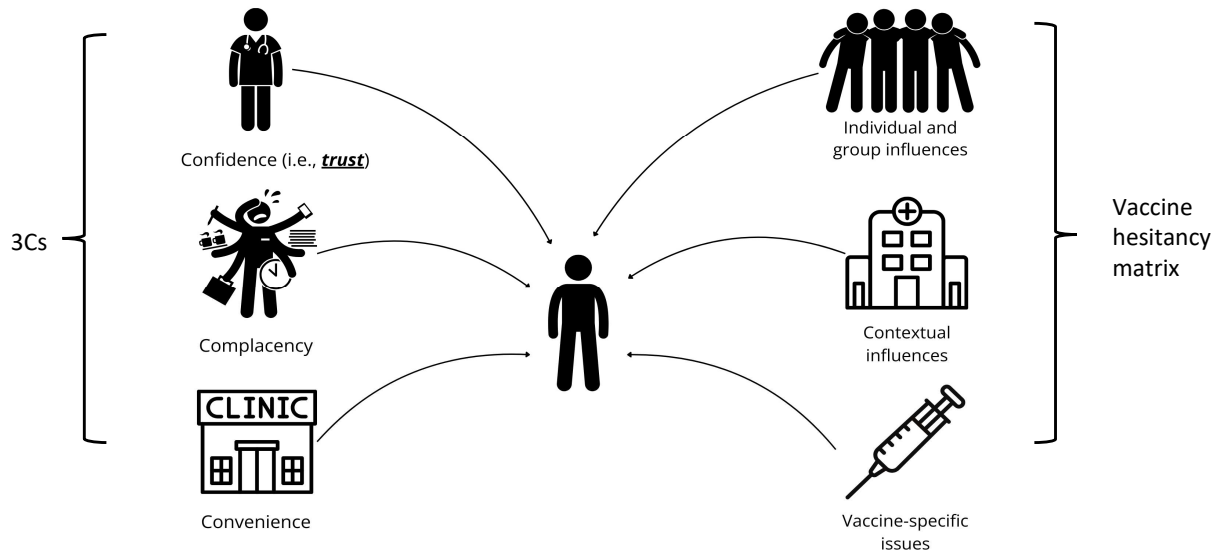
So, what is vaccine hesitancy?



- *The delay in acceptance or refusal of vaccines despite availability of vaccination services.*
- *Complex and context specific, varying across time, place and vaccines.*
- *Influenced by factors such as **confidence, complacency and convenience.***

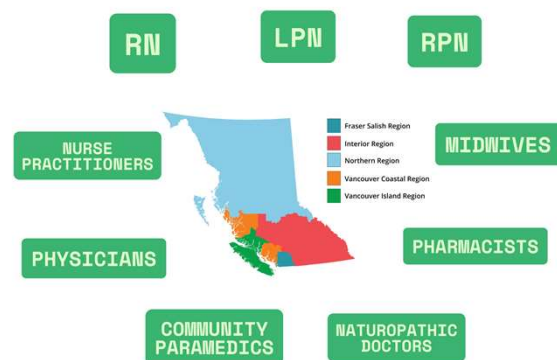
—2014 WHO SAGE Working Group on Vaccine Hesitancy

Factors that influence vaccine acceptance:



What can you do as a health care provider?

- What are the determinants of vaccine hesitancy in the communities/populations you serve (3Cs/hesitancy matrix)?
- Within the unique context of your practice, how can you improve confidence and convenience, while reducing complacency in your communities?



THANK YOU!



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