



# WHAT DOES IT MEAN WHEN THERE'S A NEW VARIANT CoP MEETING – RVH IPAC HUB

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# VARIANT OF CONCERN (VOC)

- SARS-CoV-2 virus is constantly changing through mutations.
- As virus mutates, new **variants** emerge.
- Some variants can *escape* or *evade* our immune system and available treatments.
- When the changes have clinical or public health significance, a variant is designated as a VOC.
- Other classifications include variants being monitored (VBM), variant of interest (VOI), and variant of high consequences (VOHC).

# TRANSMISSIBILITY OF A VARIANT

- Transmissibility is how effective a variant is in **spreading** from one person to another.
- Mutations in key regions could affect the ability to attach to the human ACE2 receptor.
- Increase in binding affinity could result in rapid spread and increase in number of cases.
- Increase in transmissibility does not necessary translate into increase in severity.

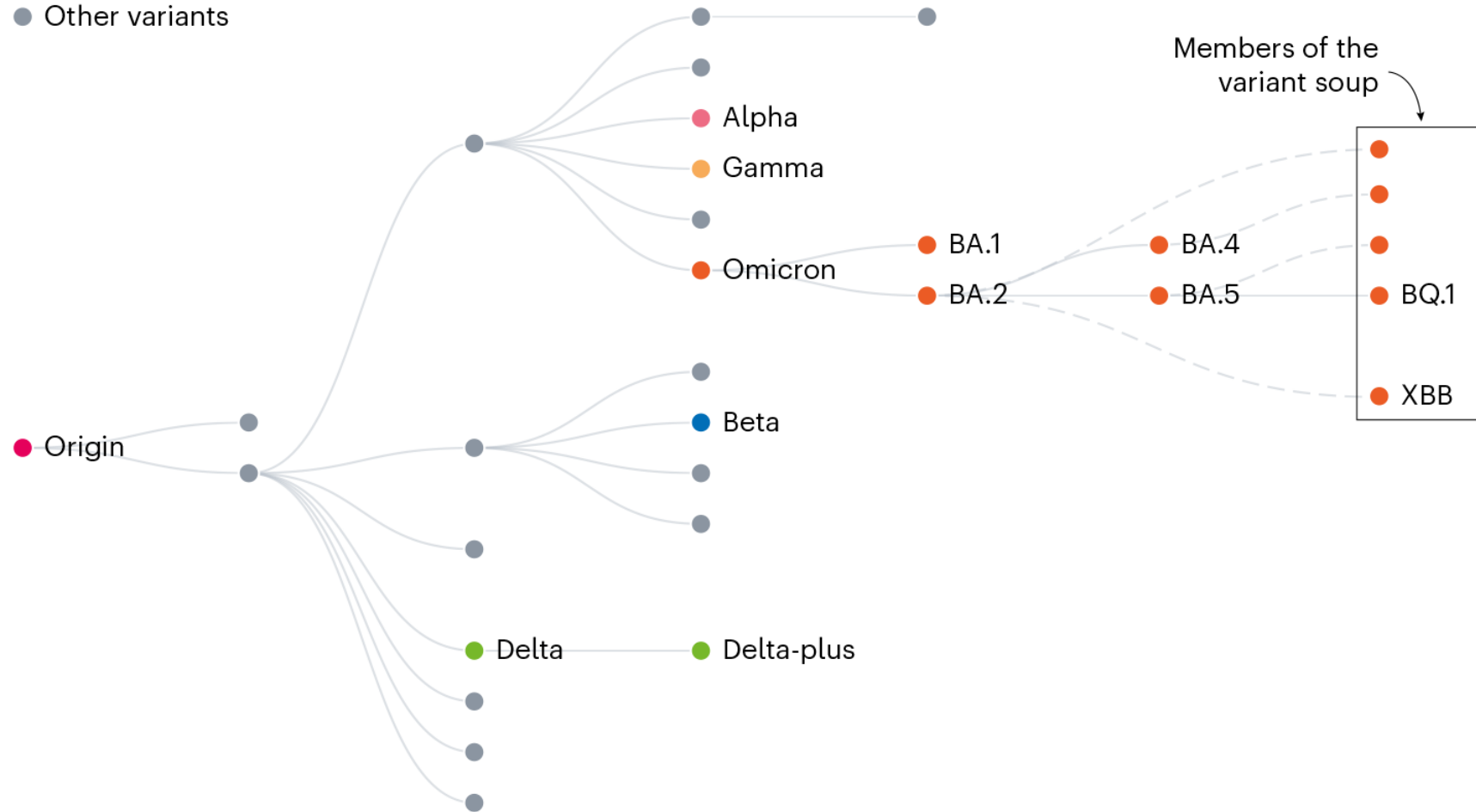
# IMMUNE EVASION/ESCAPE

- Occurs when a host's immune system is unable or less efficient in recognizing and eliminating a pathogen.
- Mutations in a variant can blunt the potency of antibodies raised by vaccination or infection.
- Omicron lineages have accumulated a succession of antibody-evading mutations.
- As before, emerging subvariants could lead to re-infections.

# GROWING FAMILY

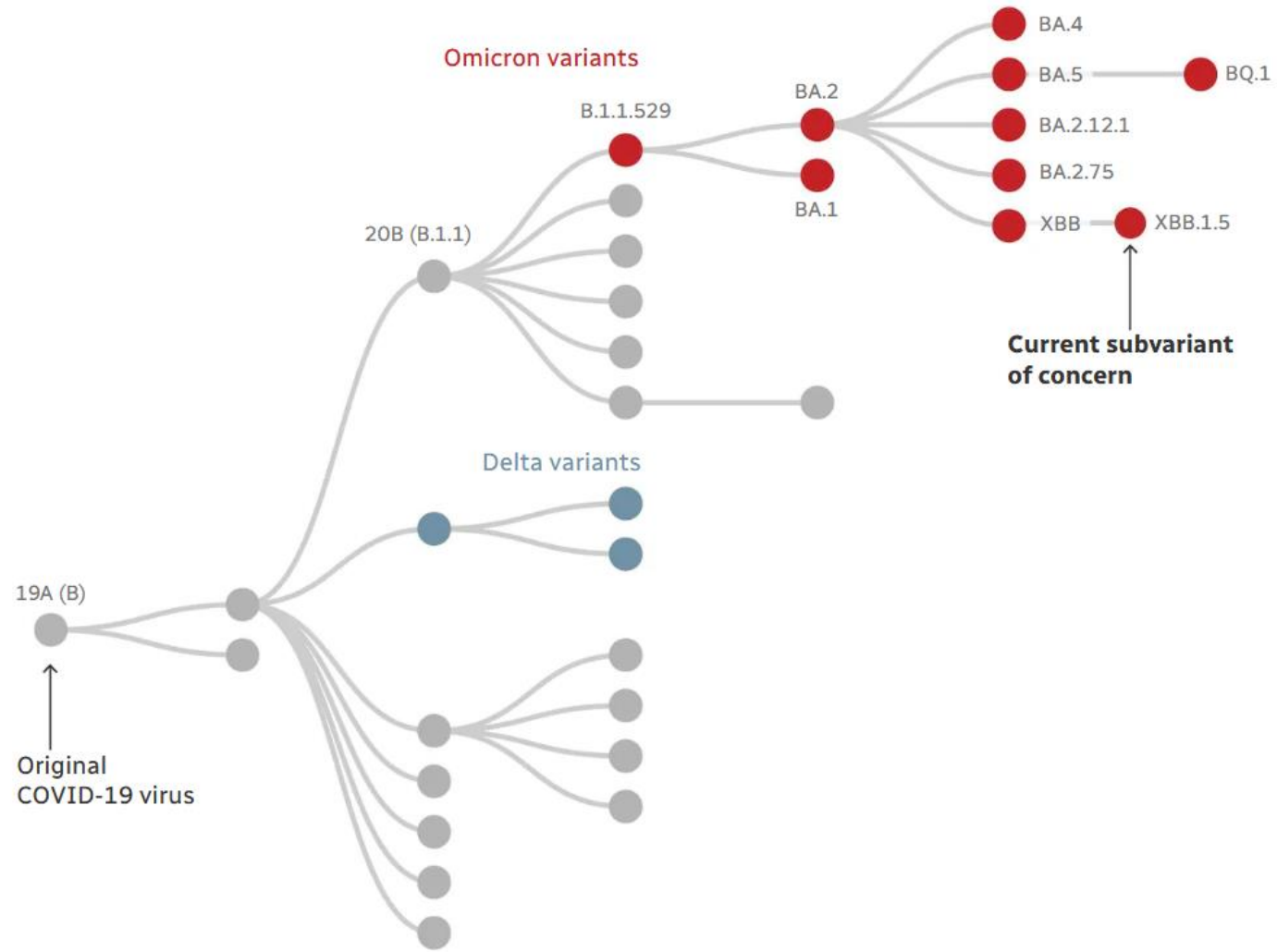
Omicron sublineages come from a single part of the SARS-CoV-2 family tree, unlike earlier variants of concern such as Alpha and Delta.

● Other variants



Source: [www.nature.com](http://www.nature.com)

# The many mutations of the Omicron variant



Source: Nexstrain – Graeme Bruce/[www.cbc.ca](http://www.cbc.ca)

# THE XBB.1.5 SUBVARIANT

- Was first detected in October 2022, and now identified in 38 countries
- Evolved out of Omicron's BA.2 offshoot, XBB
- Has a rare mutation in the spike protein in addition to XBB's mutations
- Improved ability to evade antibodies and attach to human ACE2 receptor
- More transmissible than other circulating variants
- Is already the dominant variant in northeast United States
- Limited number of cases detected in Canada. Proportion of XBB.1.5 cases in Ontario is projected to increase to 22.2% by January 18, 2023.

# SPREAD OF XBB.1.5 IN UNITED STATES

Use the controls to focus on a specific region and/or 1-week interval

HHS Region  
USA

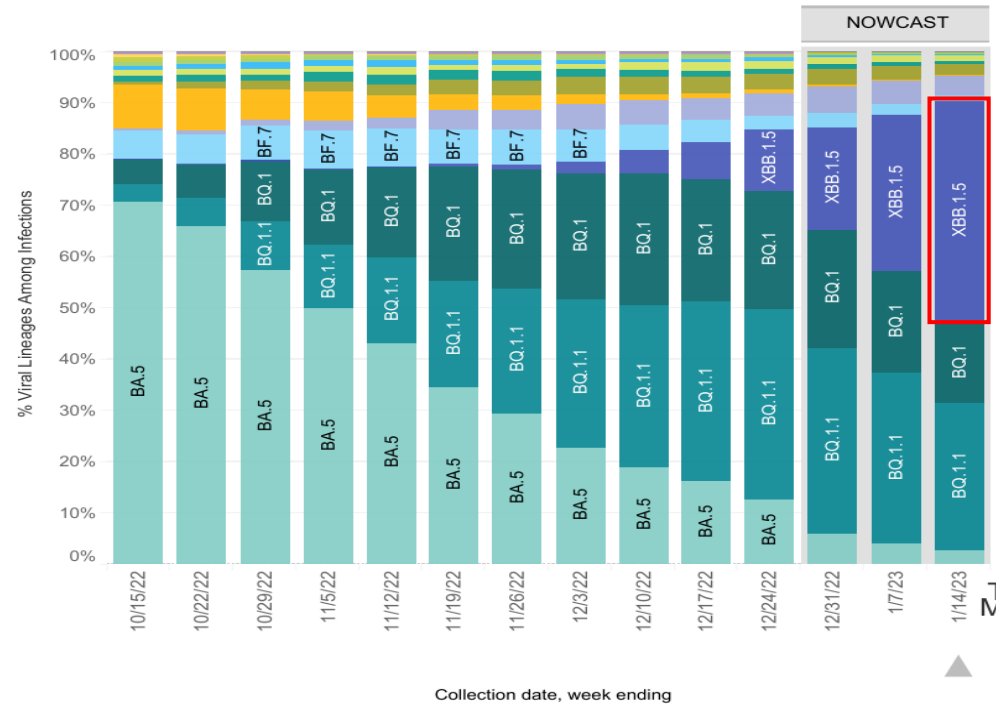
● Nowcast On  
○ Nowcast Off

Week Ending  
1/14/2023

United States: 1/8/2023 – 1/14/2023 NOWCAST

United States: 10/9/2022 – 1/14/2023

USA				
WHO label	Lineage #	US Class	%Total	95%PI
Omicron	XBB.1.5	VOC	43.0%	26.4-61.1%
	BQ.1.1	VOC	28.8%	20.5-38.7%
	BQ.1	VOC	15.9%	11.0-22.2%
	XBB	VOC	3.9%	3.0-5.1%
	BA.5	VOC	2.6%	1.8-3.7%
	BN.1	VOC	2.1%	1.5-3.1%
	BF.7	VOC	1.4%	0.9-2.1%
	BA.2.75	VOC	1.3%	0.8-1.9%
	BA.5.2.6	VOC	0.5%	0.3-0.8%
	BA.2	VOC	0.2%	0.1-0.4%
	BF.11	VOC	0.2%	0.1-0.3%
	BA.4.6	VOC	0.1%	0.1-0.2%
	BA.2.75.2	VOC	0.1%	0.0-0.1%
	BA.1.1	VOC	0.0%	0.0-0.0%
	BA.4	VOC	0.0%	0.0-0.0%
	B.1.1.529	VOC	0.0%	0.0-0.0%
BA.2.12.1	VOC	0.0%	0.0-0.0%	
Delta	B.1.617.2	VBM	0.0%	0.0-0.0%
Other	Other*		0.0%	0.0-0.0%

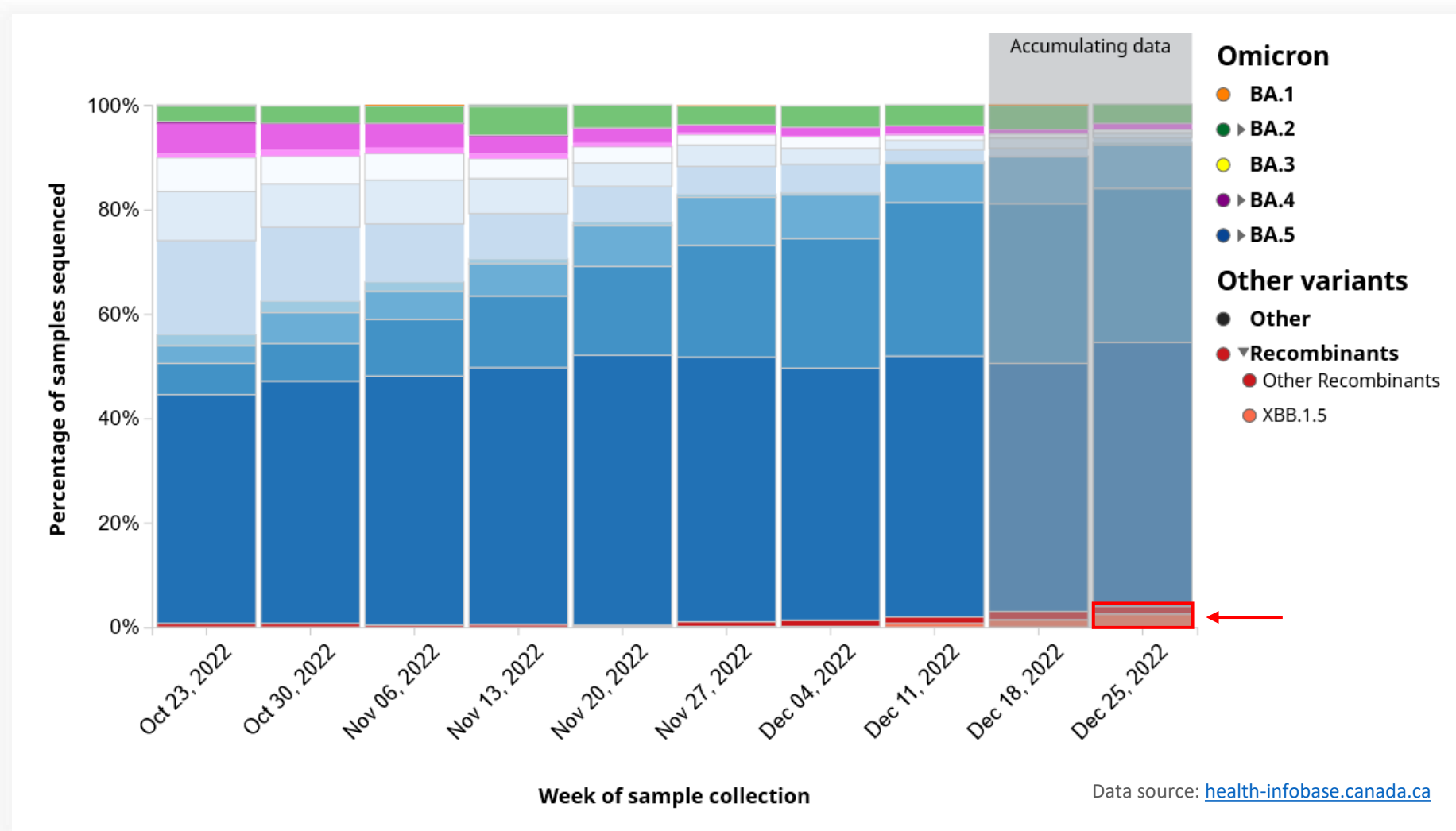


\* Enumerated lineages are US VOC and lineages circulating above 1% nationally in at least one week period. "Other" represents the aggregation of lineages which are circulating <1% nationally during all weeks displayed.  
 \*\* These data include Nowcast estimates, which are modeled projections that may differ from weighted estimates generated at later dates  
 # BA.1, BA.3 and their sublineages (except BA.1.1 and its sublineages) are aggregated with B.1.1.529. Except BA.2.12.1, BA.2.75, BA.2.75.2, BN.1, XBB and their sublineages, BA.2 sublineages are aggregated with BA.2. Except BA.4.6, sublineages of BA.4 are aggregated to BA.4. Except BF.7, BF.11, BA.5.2.6, BQ.1 and BQ.1.1, sublineages of BA.5 are aggregated to BA.5. Except XBB.1.5, sublineages of XBB are aggregated to XBB. For all the lineages listed in the above table, their sublineages are aggregated to the listed parental lineages respectively. Previously, XBB.1.5 was aggregated to XBB. Lineages BA.2.75.2, XBB, XBB.1.5, BN.1, BA.4.6, BF.7, BF.11, BA.5.2.6 and BQ.1.1 contain the spike substitution R346T.

Data source: [covid.cdc.gov](https://covid.cdc.gov)



# SPREAD OF XBB.1.5 IN CANADA



## SO WHAT SHOULD WE DO?

- Nothing different than before. Continue using the same layers of protection:
  - ✓ Get the bivalent booster dose as soon as eligible.
  - ✓ Wear a well-fitted, high-quality mask in crowded settings, closed spaces, and close contact situations.
  - ✓ Improve indoor air quality with better ventilation and air filtration.
  - ✓ Maintain recommended physical distancing when possible.
  - ✓ Not mixing with others when feeling sick
- Masking, ventilation, air filtration, and avoiding high-risk contacts are variant-proof measures.

## Appendix C: Flow Diagram for COVID-19 Fall Booster Vaccination

# When to get a fall COVID-19 booster

Use the chart below if you have completed your primary series and are aged 5 and older.

Start

Has it been at least  
**6 months since:**

- your last COVID-19 vaccine dose, or
- you tested positive for COVID-19?

Yes

**Get your booster now**

Protect yourself during respiratory illness season and before cool weather leads to more time indoors.

No

Do any of the following  
apply to you?

- Aged 65 or older
- Resident of long term care, retirement home, or other congregate care setting
- Aged 12 or older and moderately to severely immunocompromised<sup>1</sup> or with an underlying medical condition<sup>2</sup>
- Health care worker
- Pregnant
- Adult First Nations, Inuit, or Métis individual or household member
- Adult in racialized and/or marginalized community disproportionately affected by COVID-19

Yes

**Get your booster 3 months after your last dose or last COVID-19 infection**

You are at high risk of severe outcomes and are **strongly recommended to get your booster dose at a shorter interval** to protect yourself during respiratory illness season and before cool weather leads to more time indoors.

No

**Get your booster 6 months after your last dose or last COVID-19 infection**

You are not at high risk of severe outcomes. Longer intervals between vaccines may result in a better immune response and higher vaccine effectiveness.

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# QUESTIONS?

