



An Update on Post-COVID19 Syndrome

December 6, 2022

VCH FCP Rounds

Post COVID-19

Interdisciplinary Clinical Care Network

Recovery | Care | Research | Education

We would like to acknowledge that we are gathered today on the traditional territories of the Musqueam, Squamish and Tsleil-Waututh peoples.

Source: www.johomaps.net/na/canada/bc/vancouver/firstnations/firstnations.html



By the end of this talk...

- Define Post-COVID19 Syndrome
- Frequency and prevalence of the disease
- Insight into common symptoms
- Pathophysiology
- Potential consequences of COVID19
- Treatments?

Definition

Post COVID-19
Interdisciplinary Clinical Care Network
Recovery | Care | Research | Education

WHO Definition

Delphi Consensus - 2021

Post COVID-19
Interdisciplinary Clinical Care Network
Recovery | Care | Research | Education

- *Post COVID-19 condition occurs in individuals with a history of probable or confirmed SARS CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms and that last for at least 2 months and cannot be explained by an alternative diagnosis*



- Post-Acute Sequelae of SARS-CoV-2 infection (PASC)
 - Symptoms > 12 weeks from infection with no other explanation

Limitations

- Any “unexplained symptom” lasting 2 months after a COVID19 infection
- Severity of infection not included (i.e. minor change in smell vs pasrasthesias vs bedbound)



Frequency

Post COVID-19
Interdisciplinary Clinical Care Network
Recovery | Care | Research | Education



Wide range of estimates

*****PRE-OMICRON*****

- PHAC: 30-40%
- WHO: 10-20%
- CDC (May 2022): 20-30%

My thoughts

- We need to define categories of severity
- True incidence likely <5-10% and “severe” Post COVID19 syndrome much less
- Given the population seropositivity from natural infection, may never know true incidence

Do Variants Matter?

- Short answer is probably
- UK NHS found that incidence of fatigue, SOB, “brain fog” were about 50% lower with BA1 compared to Delta
 - However, only amongst those that were doubly vaccinated...But
 - More symptoms with BA2 than with BA1

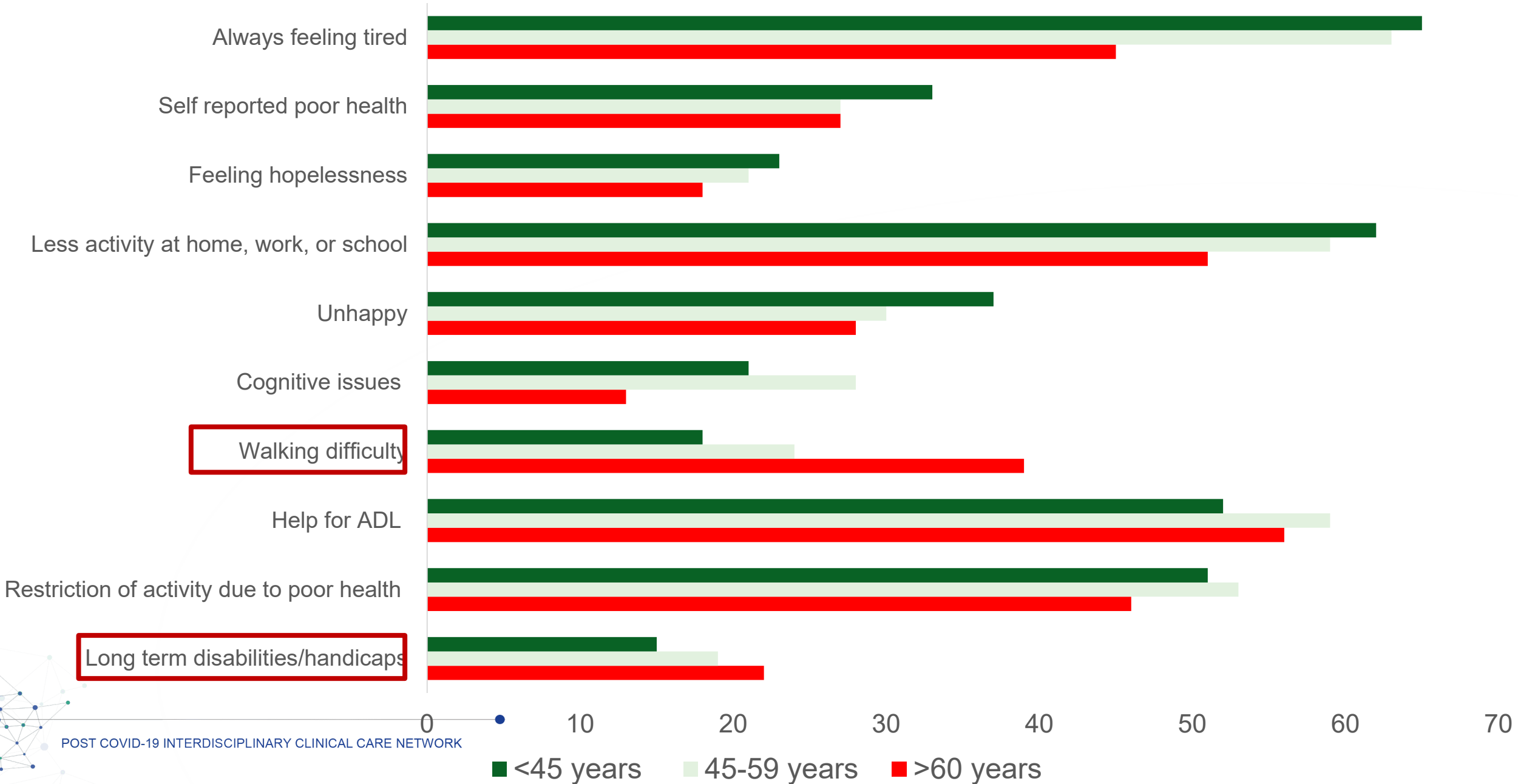
Symptoms

Post COVID-19
Interdisciplinary Clinical Care Network
Recovery | Care | Research | Education

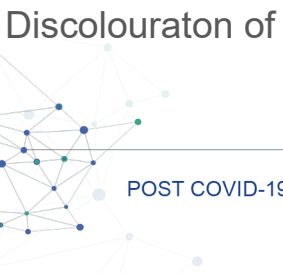
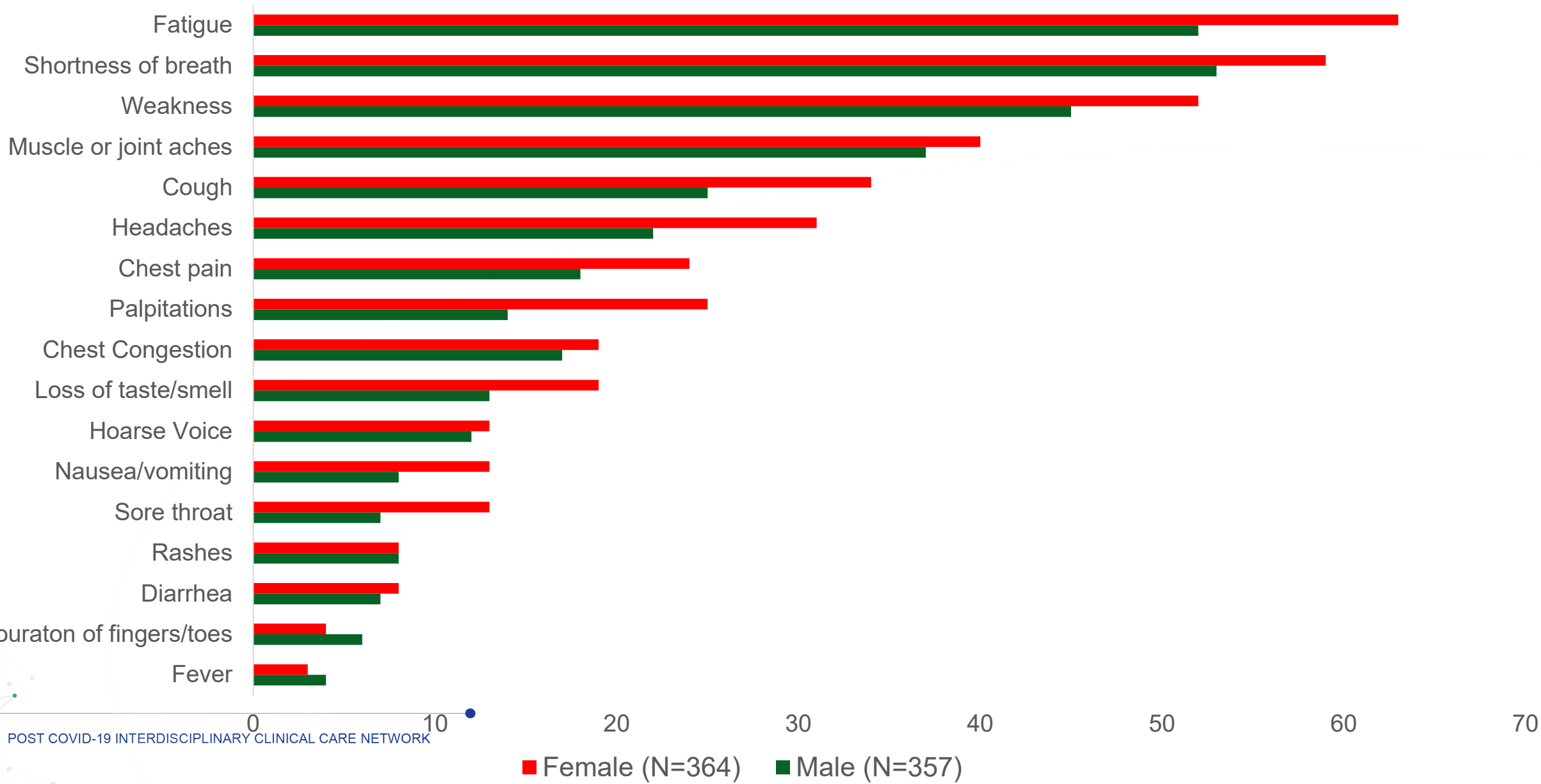
Ongoing Patient Reported Symptoms at 3 Month Post COVID Recovery Clinic (PCRC) visits

Symptom	% reported
Fatigue interferes with life	60%
Shortness of breath with walking up hills or stairs	40-50%
Problem Solving “brain fog”	25%
Q of L: Problems doing “normal” activities	25%
Mood disorders	15-20%
Shortness of breath with minimal activity	15%

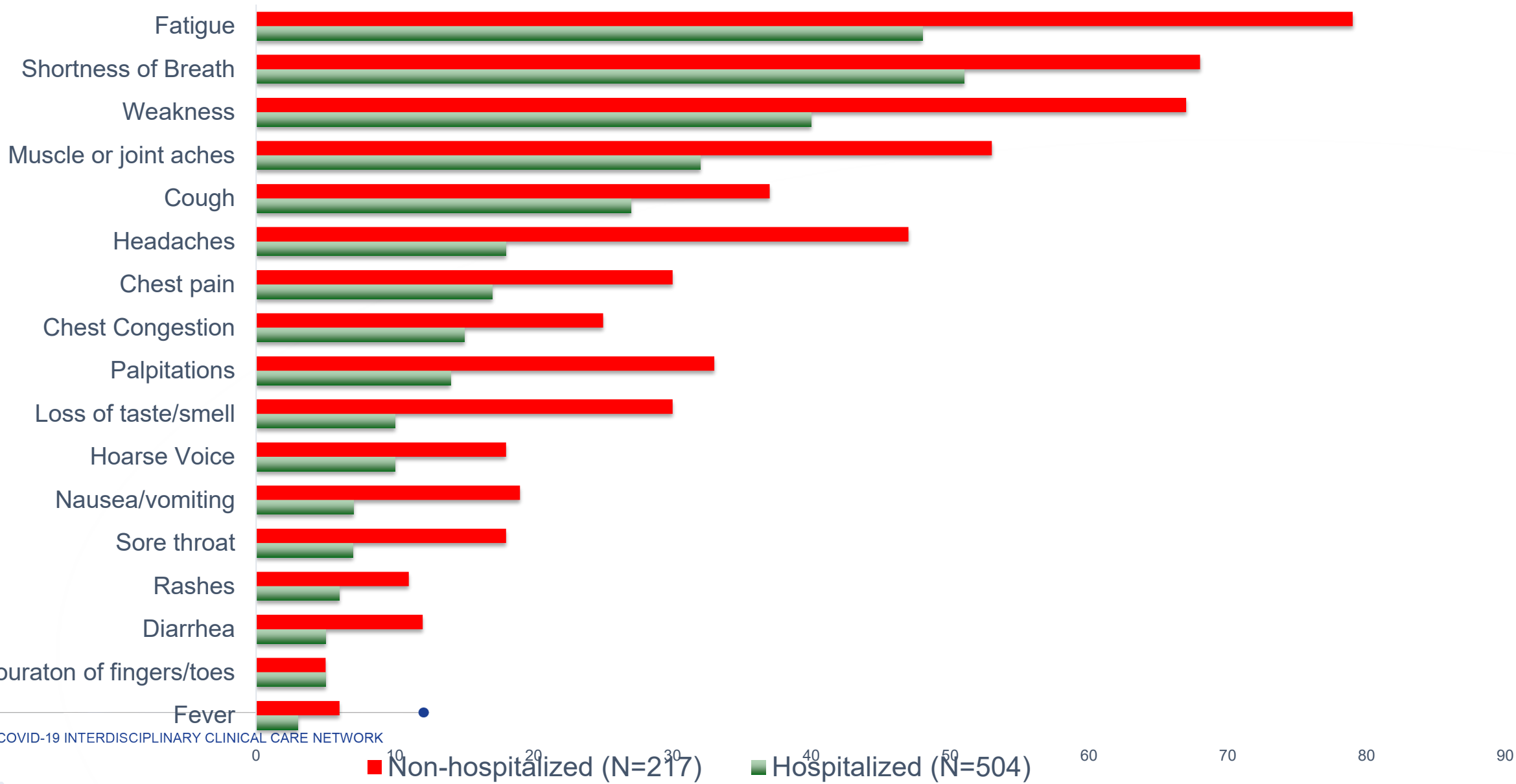
MEDICAL STATUS AT 3 MONTHS STRATIFIED BY AGE



% Patients with Persistent Symptoms at 3 months Stratified by Sex



% Patients with Persistent Symptoms at 3 months Stratified by Hospitalization



Investigating Symptoms

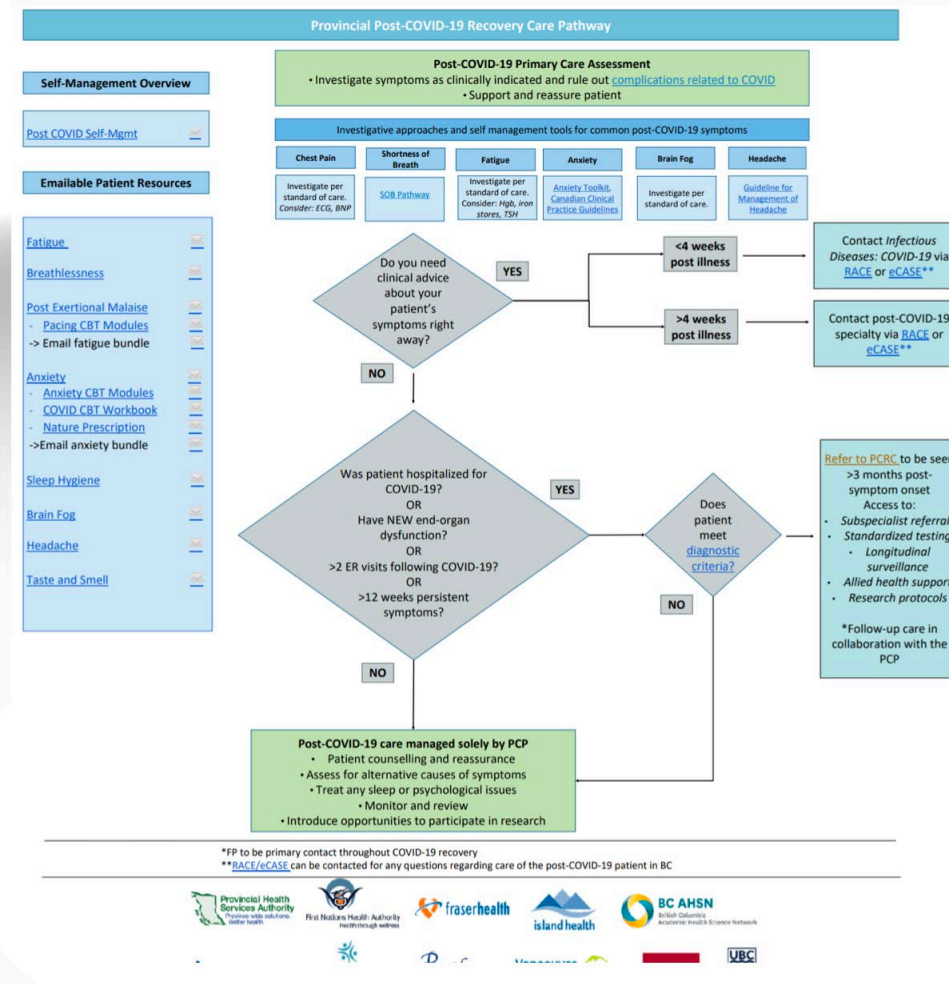
- Given wide variety of presentations and symptoms, there are no guidelines.
 - Investigate as you would if COVID wasn't diagnosed
 - Look for red flags
 - ? Link with autoimmune disorders. Screen if suspicion

Investigating Symptoms

- **Mental health screening**
- **Fatigue:** CBC, TSH, Ferritin, OSA
- **Palpitations:** CBC, TSH, ECG, +/- Holter, orthostatic vitals, POTS
- **Brain fog/neuropsychiatric:** Mental health screening

Investigating symptoms

- Check out the [Post-COVID-19 Recovery Care Pathway](#) on Pathways for practical approaches to investigating symptoms and self management techniques



PHSA Post-COVID19 Website

Breathlessness	+
Brain Fog and Cognitive Issues	+
Fatigue and Pacing	+
General Recovery	+
Hair Loss	+
Headaches	+
Heart Health	+
Mental Health	+
Post-Exertional Malaise	+
Ringling in the Ears	+
Taste and Smell Changes	+

Summary

- Symptoms do not correlate with diagnostics
- Investigations are to rule out other causes of symptoms
- Care is rooted in self-management and a multidisciplinary approach
- **ALL RESOURCES ON PHSA WEBSITE AND PATHWAYS**



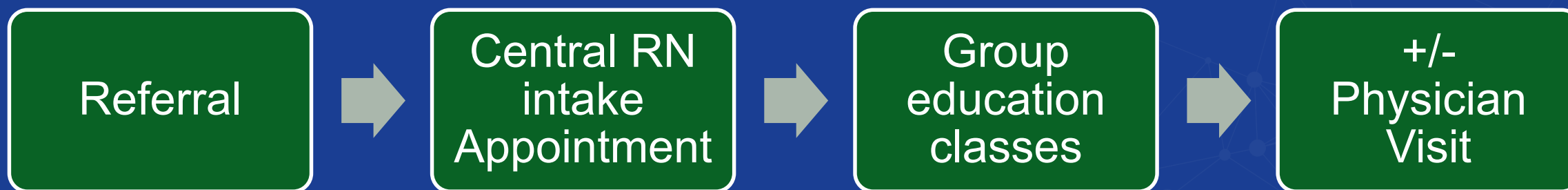
Our Team

Post COVID-19
Interdisciplinary Clinical Care Network
Recovery | Care | Research | Education

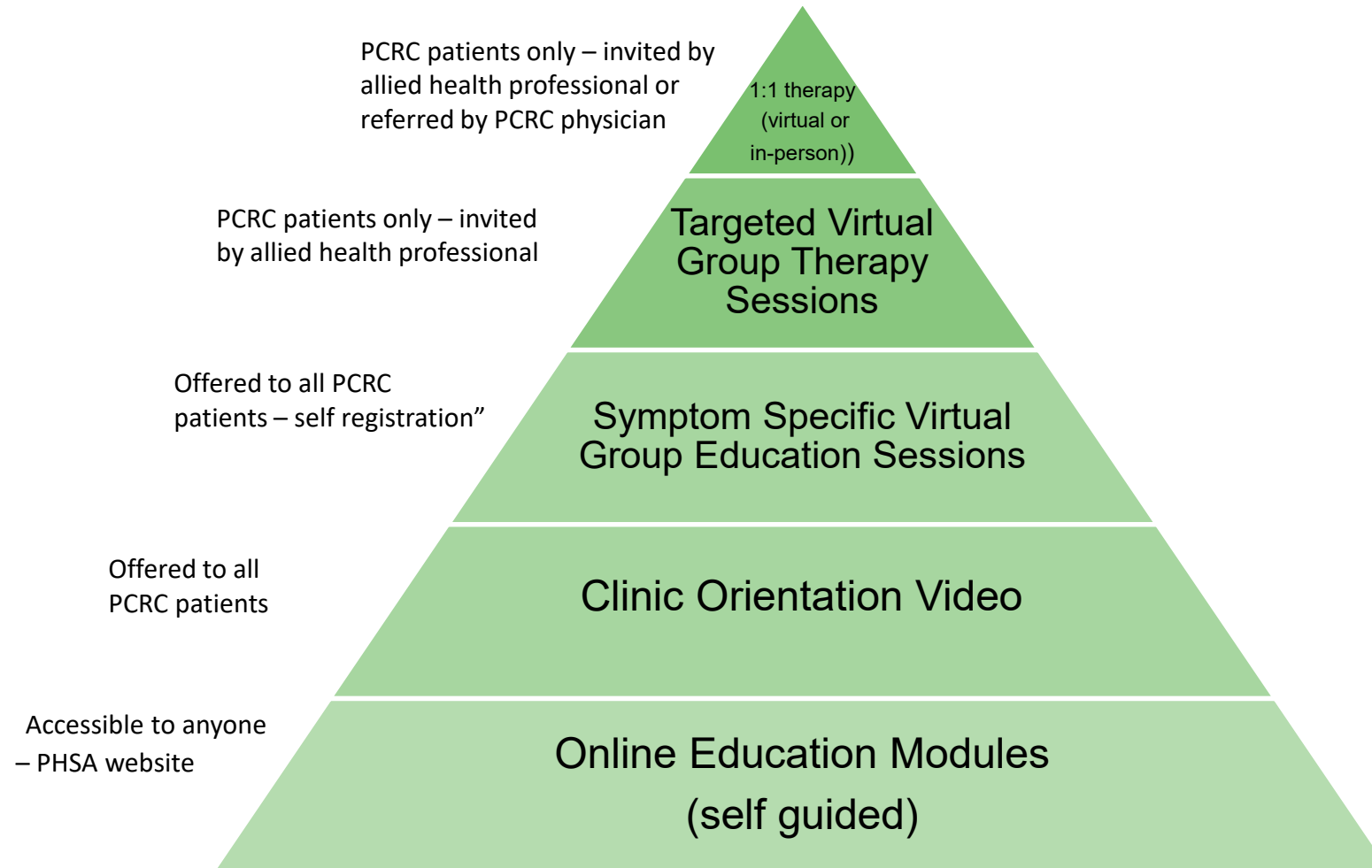
Our team

- Physiotherapy
- Occupational Therapy
- Social Work
- Nurse specialists
- Unit Clerks
- Physicians

Current pathway



Patient Access to Allied Health Facilitated Education and Therapy



Multidisciplinary care and group education

- Brain Fog
- Breathlessness
- Mental Health after COVID-19
- Fatigue and Pacing
- Sleep/Rest and Relaxation



Long Term Consequences

Post COVID-19
Interdisciplinary Clinical Care Network
Recovery | Care | Research | Education



OPEN

Long-term cardiovascular outcomes of COVID-19

Yan Xie ^{1,2,3}, Evan Xu ^{1,4}, Benjamin Bowe^{1,2} and Ziyad Al-Aly ^{1,2,5,6,7} 

February 2022



Summary of VA study

- Pre-vaccination era
- Compared 155 thousand COVID19 patients with 5 million contemporary and 5 million historical controls
- They looked at excess burden of disease at 1 year per 1000 people

CVD	A. Fib	Ischemic Heart disease	NICMO	Thrombotic disorders
4.03	10.7	5.35	3.56	5.47

Cardiac complications following respiratory illnesses not “new”

Post COVID-19
Interdisciplinary Clinical Care Network
Recovery | Care | Research | Education

Acute Myocardial Infarction after Laboratory-Confirmed Influenza Infection

Jeffrey C. Kwong, M.D., Kevin L. Schwartz, M.D., Michael A. Campitelli, M.P.H., Hannah Chung, M.P.H., Natasha S. Crowcroft, M.D., Timothy Karnauchow, Ph.D., Kevin Katz, M.D., Dennis T. Ko, M.D., Allison J. McGeer, M.D., Dayre McNally, M.D., Ph.D., David C. Richardson, M.D., Laura C. Rosella, Ph.D., M.H.Sc., et al.

January 2018



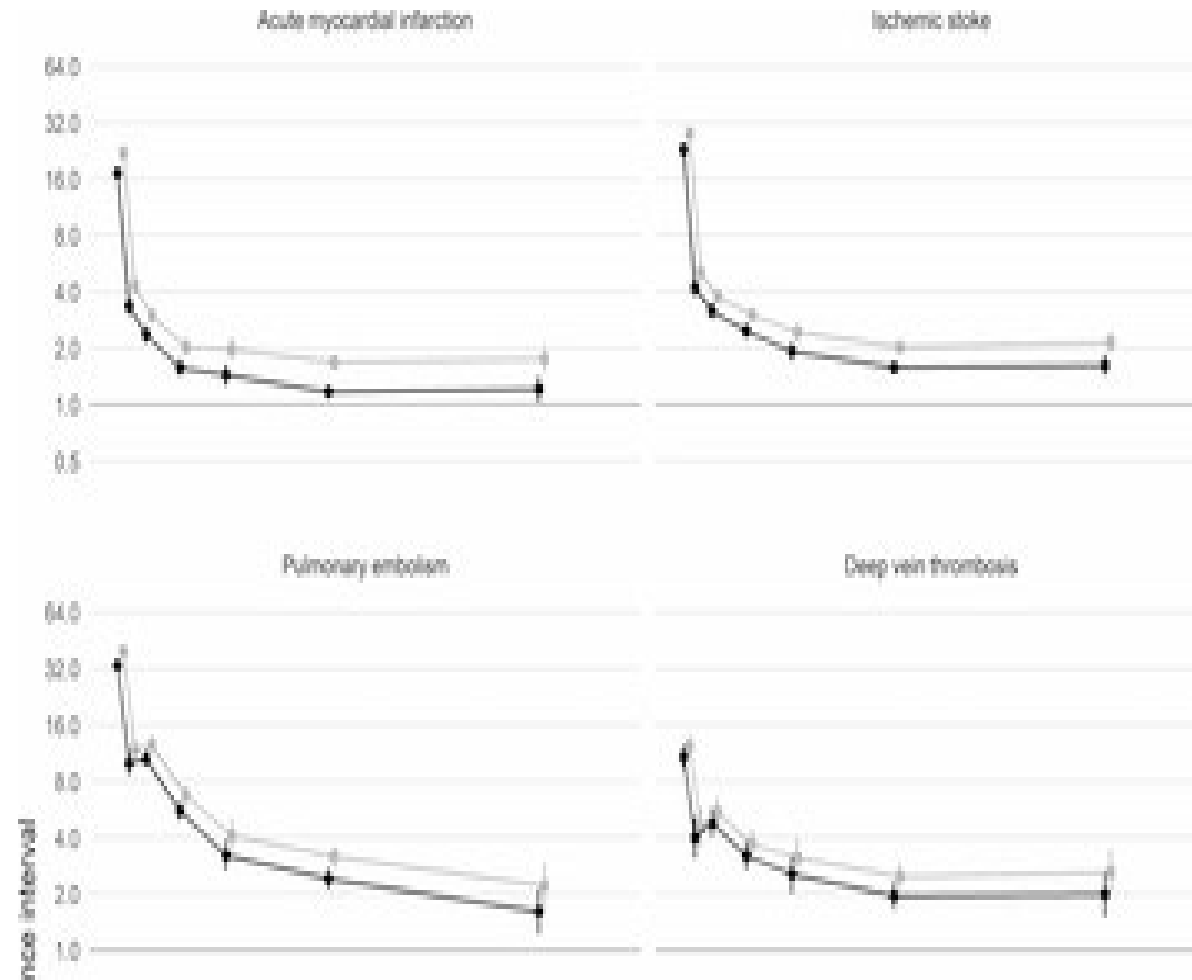
Association of COVID-19 With Major Arterial and Venous Thrombotic Diseases: A Population-Wide Cohort Study of 48 Million Adults in England and Wales

Circulation, September 2022

- Once again, data collected from January-December 2020
- Hospitalized risk > community risk

	Week 1	Week 27-49
Arterial Thromboses (HR)	21.7	1.34
VTE (HR)	33.2	1.80

7200 additional arterial thromboses and 3500 additional VTE events after 1.4 million COVID-19 diagnoses.



Rochelle Knight. Circulation. Association of COVID-19 With Major Arterial and Venous Thrombotic Diseases: A Population-Wide Cohort Study of 48 Million Adults in England and Wales, Volume: 146, Issue: 12, Pages: 892-906, DOI: (10.1161/CIRCULATIONAHA.122.060785)

© 2022 The Authors. Circulation is published on behalf of the American Heart Association, Inc., by Wolters Kluwer Health, Inc. This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution, and reproduction in any medium, provided that the original work is properly cited.

Alzheimer's risk and COVID19

- Several studies at this point showing a potential increased risk of neurodegenerative disorders in the elderly who have contracted COVID19
- Link is likely no stronger than post Influenza Virus
- Unclear if this population is just more susceptible and presented for medical evaluation at this time



Cause?

Post COVID-19
Interdisciplinary Clinical Care Network
Recovery | Care | Research | Education

Cause

Area of active research

- Autoimmunity
- Dysregulated Immune response/persistent viral antigens
- Resurgence of EBV
- Microthrombi
- Direct organ involvement of virus

Post COVID-19
Interdisciplinary Clinical Care Network
Recovery | Care | Research | Education



Circulating anti-nuclear autoantibodies in COVID-19 survivors predict long-COVID symptoms

Kiho Son, Rameen Jamil, Abhiroop Chowdhury, Manan Mukherjee, Carmen Venegas, Kate Miyasaki, Kayla Zhang, Zil Patel, Brittany Salter, Agnes Che Yan Yuen, Kevin Soon-Keen Lau, Braeden Cowbrough, Katherine Radford, Chynna Huang, Melanie Kjarsgaard, Anna Dvorkin-Gheva, James Smith, Quan-Zhen Li, Susan Wasserman, Christopher J Ryerson, Parameswaran Nair, Terence Ho, Narayanaswamy Balakrishnan, Ishac Nazy, Dawn ME Bowdish, Sarah Svenningsen, Chris Carlsten, Manali Mukherjee

European Respiratory Journal,
September 2022



Treatments

Post COVID-19
Interdisciplinary Clinical Care Network
Recovery | Care | Research | Education

Trials just getting going...

Post COVID-19
Interdisciplinary Clinical Care Network
Recovery | Care | Research | Education

- Colchicine
- Paxlovid
- LDN
- Steroids/Immunosuppressants
- Antihistamines
- Vortioxetine
- Antiplatelets/Anticoagulants