Coronavirus Update

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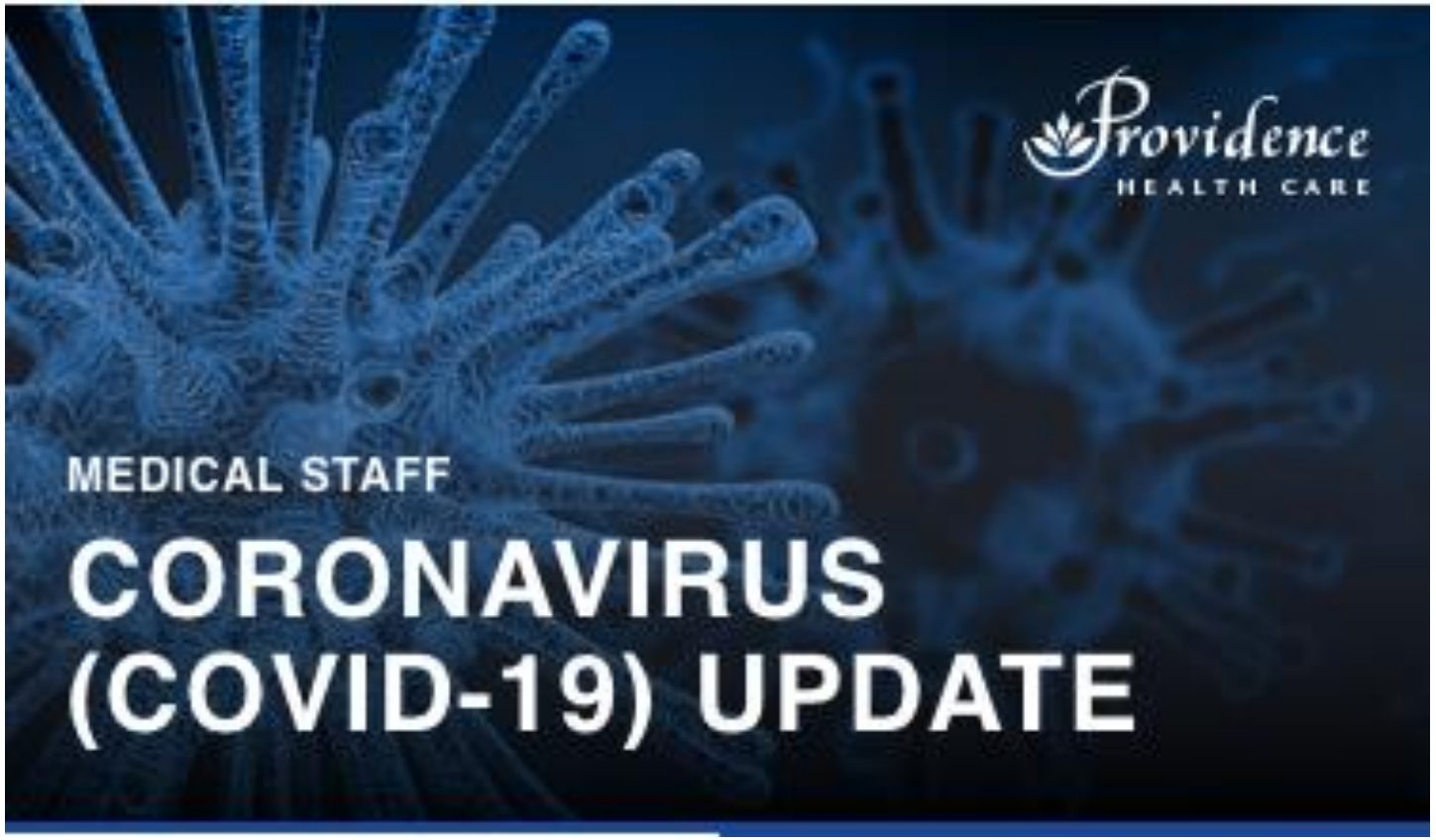
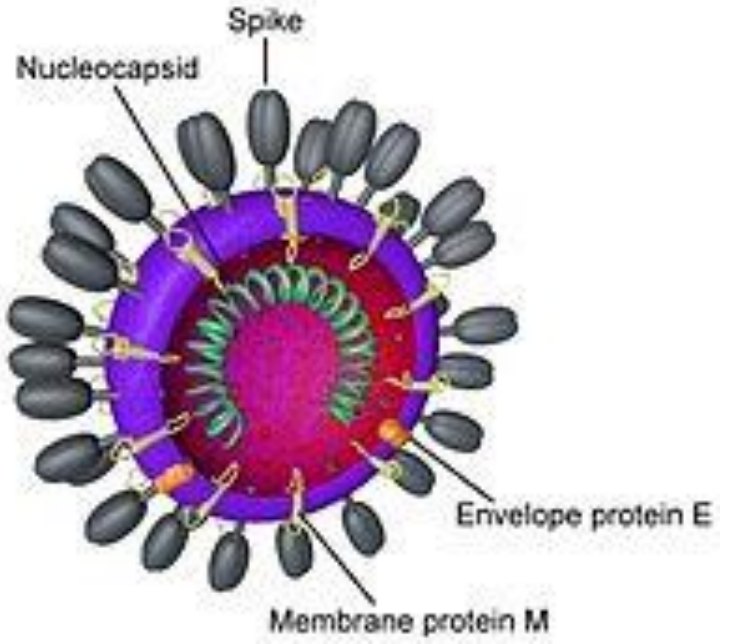
AAMAC

May 22, 2020



What is Corona virus?

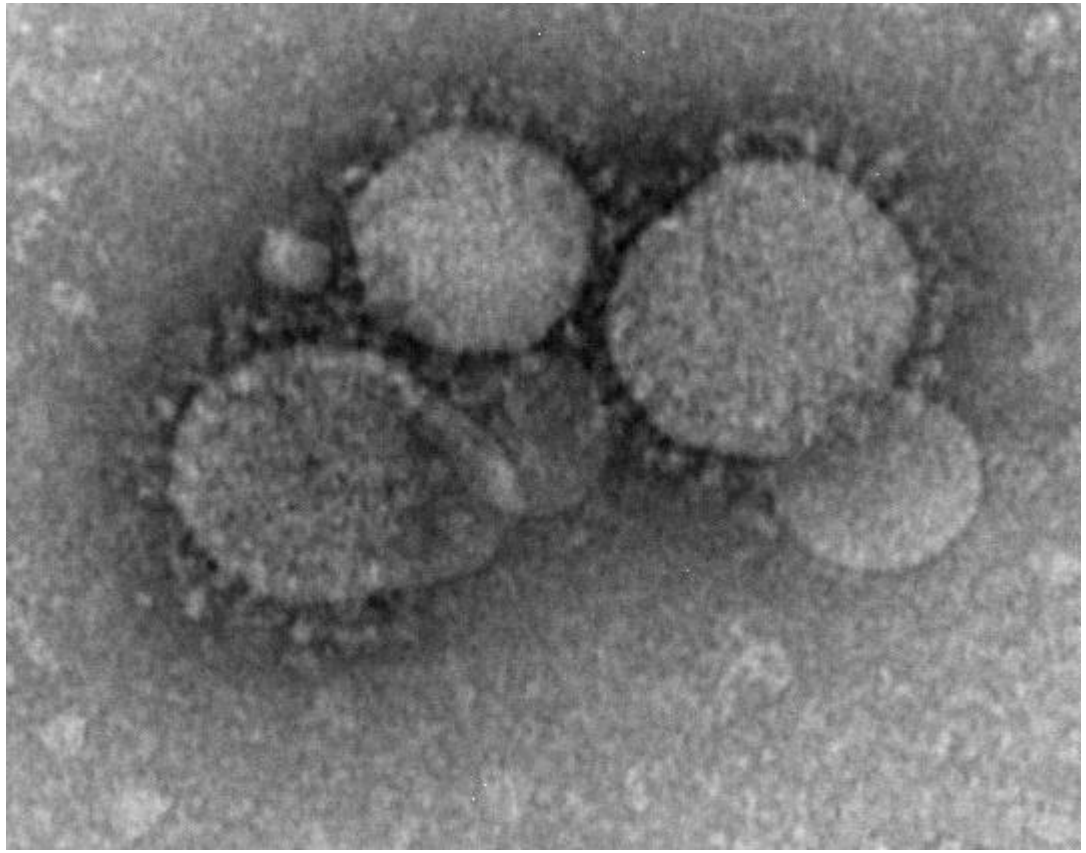
- Betacoronaviruses (β-CoVs) are one of four genera of coronaviruses of the subfamily Orthocoronavirinae in the family Coronaviridae, of the order Nidovirales.
- They are enveloped, positive-sense, single-stranded RNA viruses of zoonotic origin.
- In older literature, this genus is also known as group 2 coronaviruses.



https://upload.wikimedia.org/wikipedia/commons/thumb/7/73/Coronavirus_virion.jpg/220px-Coronavirus_virion.jpg

Why is it called Corona?

- “solar crown”
- King of all viruses?
- Queen?



Why are we susceptible to SARS-CoV-2?

- Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a novel virus.
- All features of the novel SARS-CoV-2 virus occur in related coronaviruses in nature.

- SARS-CoV-2 is thought to have a zoonotic origin.
- It is new to humans, therefore we have no immunity.

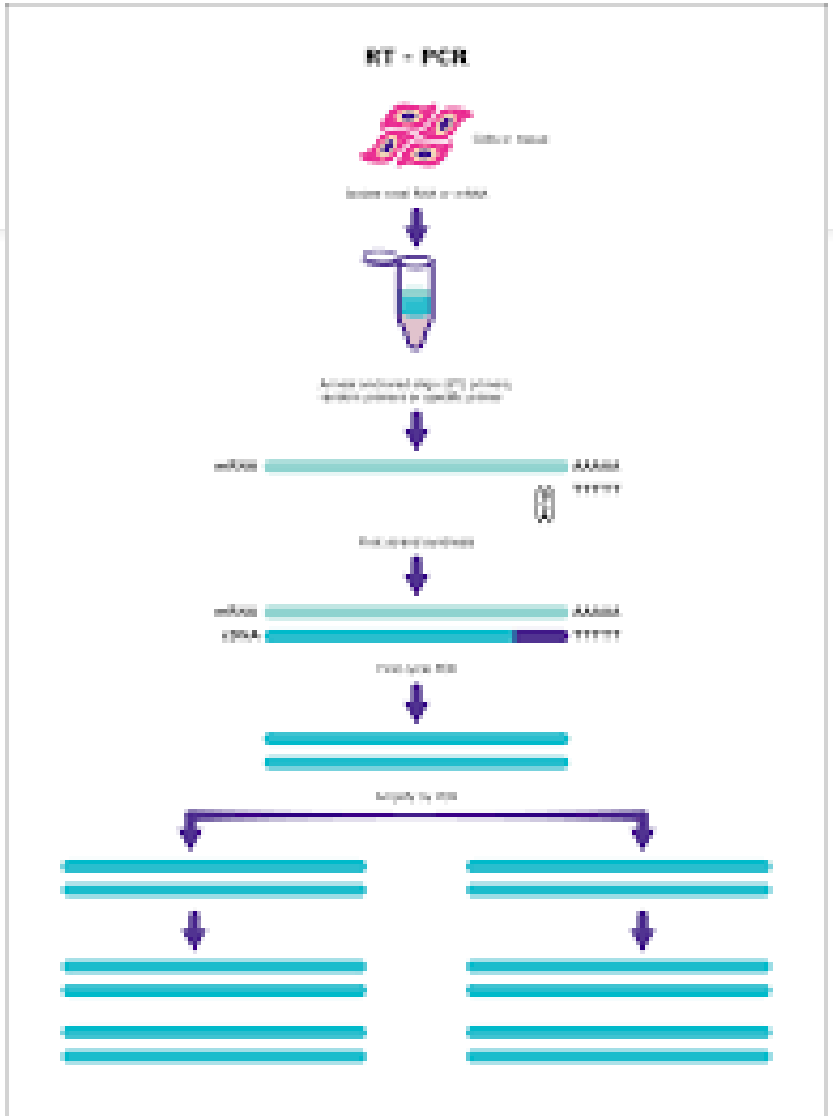

#OUR GASTOWN
@KAYLAKOOCHAKZADEH

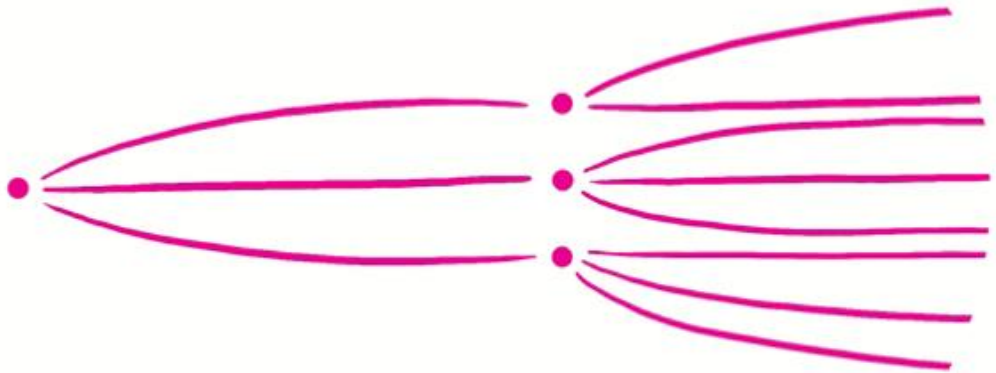
Transmission

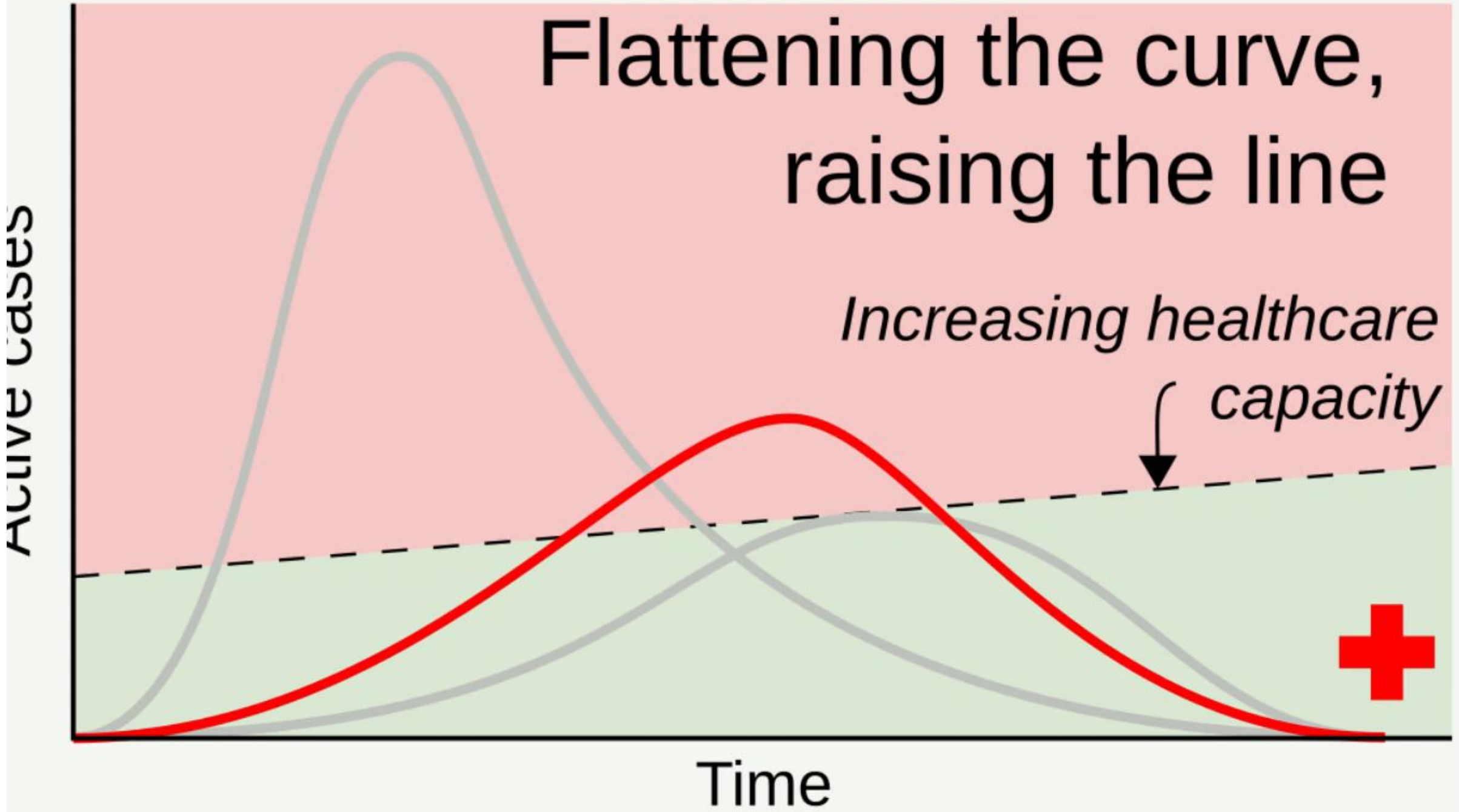
- Incompletely understood.
- Probably primarily spread during close contact (1-2 metres) & by droplets produced during coughing, sneezing, talking.
- Saliva carries large viral loads. An uncovered cough leads to droplets travelling up to 11.4 metres (37 feet).
- May also spread by touching a contaminated surface, including skin, and then touching eyes, nose, or mouth.
- While there are concerns it may spread by faeces, this risk is believed to be low.
- Most contagious in the first 3 days after onset of symptoms, spread may be possible before sx appear & in later stages.
- People have tested positive up to 3 days before onset of symptoms and up to 8 days after resolution of sx.
- Asymptomatic transmission has been identified.
- The European Centre for Disease Prevention and Control (ECDC) says 1 person generally infects 2-3 others.
- Virus survives for hours to days on surfaces (up to 3 days).
- Pets have tested positive for COVID-19. Authorities advise washing one's hands after contact with animals.

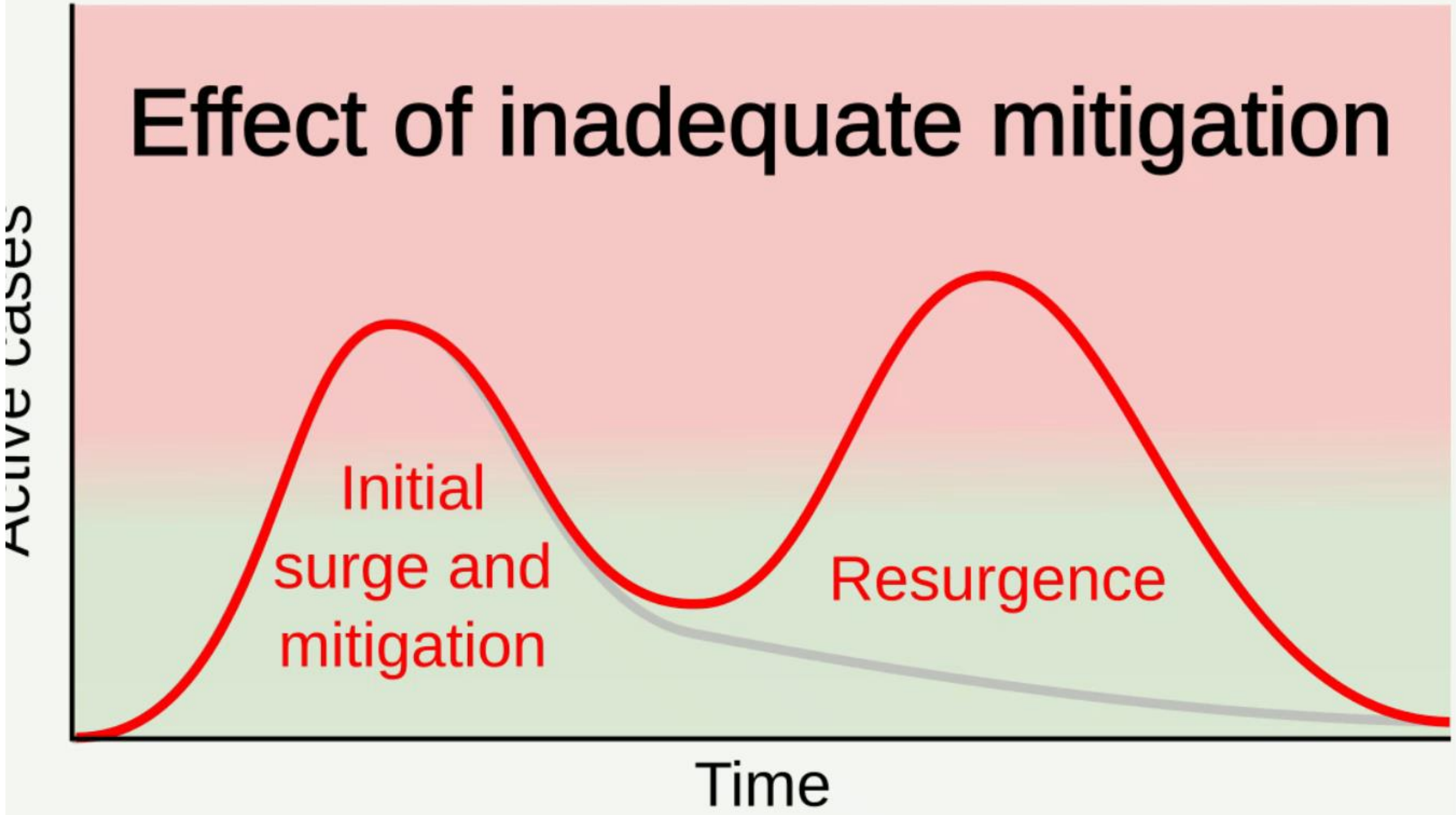
Diagnosis

- Infection can be provisionally diagnosed by symptoms,
- Confirmation is ultimately by reverse transcription polymerase chain reaction (RT-PCR) of infected secretions.






Flattening the curve,
raising the line
Increasing healthcare
capacity
Active cases
Time


Effect of inadequate mitigation
Active cases
Initial surge and mitigation
Resurgence
Time

Treatment

- There is no vaccine.
- There are no specific treatments.
- Development efforts are underway.
- Taking OTC cold meds, drinking fluids, & resting may help sx.
- Depending on severity, O_2 therapy, iv fluids, & breathing support may be required.
- The use of steroids may worsen outcomes.


HOPE
BRONX

Complications

- Respiratory; acute lung injury, ARDS
- Shock; septic, cardiogenic, cytokine
- Cardiac; cardiac injury, acute coronary syndromes, pericarditis, myocarditis, arrythmias
- Hematologic; thrombosis, DIC, cytopenias
- Renal; acute kidney injury
- Neurologic; most commonly dizziness, headache, impaired consciousness, hypogeusia, hyposmia; stroke & seizures may also occur
- Gastrointestinal; diarrhea, liver injury
- Oncologic; febrile neutropenia; some treatments may place patients at increased risk of severe infection

Patients with blood cancers

- The American Society of Hematology (ASH) is collecting information on patients with blood cancers who develop COVID
- Severity of infection, demographics, blood disorder, treatments received
- We are participating in this database at St. Paul's

Research efforts

- Most other clinical trials are currently closed to enrollment.
- Funding for COVID-19 research is being prioritized (eg CIHR, Michael Smith Foundation).
- Applications for COVID-19 research is being expedited (eg by the REB).
- The Federal Government on May 16 announced $450 new funding for research


#Our gay town
The world can still be beautiful
I stay home to keep my community safe!
Thank you to our brave Doctors Nurses!
Purell
We're in This Together
Kinky paint
Sophi Bak

Severity of disease

- Ranges from asymptomatic to life-threatening and even fatal
- At increased risk of severe disease are:
  - persons >60 years of age
  - or with comorbidity
- Does MDS/AA make people more susceptible to COVID?
  - Viral infection immune response is mediated via the lymphoid immune system
  - But MDS/AA is a comorbidity and many patients are >60

Severe disease

- There is often a cytokine release syndrome
- Cytokines are hormones that enable cells to signal each other
- Cytokine storm results in tissue mayhem such as fluid leak in the lungs
- Cytokine blockers (eg medications that block interaction of interleukin-6 [IL-6] with its receptor) are under study

Treatments under consideration

- Using convalescent serum (ie antibodies from recovered people) to treat patients with severe disease
- Clinical trials of several existing medications
  - Eg an antiviral used to treat hepatitis C
- A clinical trial of a vaccine has opened in the UK

How can we protect ourselves?

- Follow instructions of Public Health officials
- Wash hands with soap & water frequently
- Don’t touch your face
- Cover coughs & sneezes with the inside of the elbow
- Wear a mask in public
- Wipe down surfaces with a 1:10 solution (in water) of chlorine bleach

How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

Duration of the entire procedure: 40-60 seconds

0 Wet hands with water;

1 Apply enough soap to cover all hand surfaces;

2 Rub hands palm to palm;

3 Right palm over left dorsum with interlaced fingers and vice versa;

4 Palm to palm with fingers interlaced;

5 Backs of fingers to opposing palms with fingers interlocked;

6 Rotational rubbing of left thumb clasped in right palm and vice versa;

7 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;

8 Rinse hands with water;

9 Dry hands thoroughly with a single use towel;

10 Use towel to turn off faucet;

11 Your hands are now safe.

World Health Organization | Patient Safety — A World Alliance for Safer Health Care | SAVE LIVES Clean Your Hands

How to handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS ONLY WHEN VISIBLY SOILED!

Duration of the entire procedure: 20-30 sec.

Apply a palmful of the product in a cupped hand and cover all surfaces.

Rub hands palm to palm

right palm over left dorsum with interlaced fingers and vice versa

palm to palm with fingers interlaced

backs of fingers to opposing palms with fingers interlocked

rotational rubbing of left thumb clasped in right palm and vice versa

rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa

…once dry, your hands a safe.


Powell
BE KIND
Patty Hajdu
Breece Austin

Questions?

This tool is designed to help streamline the care of MDS patients with iron overload (IOL). It features comprehensive information on clinical endpoints impacted by and IOL reduction, the outcome of a Canada-wide physician consensus on best practices in IOL management in MDS. It will support physicians in their treatment of MDS patients with IOL.

CCMDS|CCSMD

An Internet-Based Algorithm for the Diagnosis, Workup and Management of IOL in MDS from the Canadian Consortium on MDS

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BACKGROUND & AIMS

- MDS patients develop red blood cell (RBC) transfusion dependence.
- Transfusional iron overload (IOL) is detrimental to clinical endpoints and iron chelation therapy (ICT) attenuates these effects.
- In 2008 an evidence-based consensus guideline addressing diagnosis, workup and management of IOL in MDS was published by the CCMDS.[1]
- In 2013, the MDS Clear Path, an internet-based algorithm for the diagnosis, workup and management of MDS went live.[2]
- We updated IOL guidelines in 2018[3] and developed a comprehensive internet-based algorithm on IOL in MDS, the MDS Iron Road.[4] The Iron Road identifies decision points, provides evidence, and addresses areas

METHODS

- The updated IOL guidelines review mechanisms of IOL induced cellular damage, evidence for clinical endpoints impacted by IOL: organ dysfunction, infections, marrow failure, overall survival (OS), acute myeloid leukemia (AML) progression, and endpoints around hematopoietic stem-cell transplant (SCT). Evidence for an impact of IOL reduction on these endpoints is discussed.
- The MDS Iron Road was developed by the CCMDS and hemoglobinopathies experts with expertise in IOL management, and addresses diagnosis, workup and management of IOL in clinical practice, and treatment of IOL with ICT & with MDS treatments that induce RBC

RESULTS

- Results: The Iron Road provides a step by step approach to the diagnosis, workup and management of IOL in MDS. Reference to the MDS Clear Path is made for information on MDS diagnosis, prognostic scores and management, with details of therapeutic options. The MDS Iron Road provides in-depth discussion of RBC transfusions, IOL, and iron reduction strategies including ICT, chelators available, dosing and administration, monitoring, dose adjustments, expected response, side effects and their management, and provincial reimbursement. Where data are lacking but practical advice needed, recommendations are incorporated.
- The "IR Express" mode guides the user through a series of questions specific to the patient's clinical status resulting in a treatment recommendation while the self-directed "Iron Road" mode presents the overall algorithm with links to details. Information panels are provided throughout which discuss evidence supporting treatment recommendations. The self-directed mode and an information panel are shown in Figures 1 & 2 and an example case with panels from the IR Express in Figure 3. References with links to abstracts and supportive data are included within the algorithm and information panels. The Iron Road is available in English (French version pending) at www.mdsironroad.org.

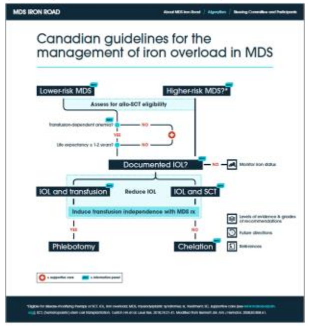


Figure 1. An internet-based interactive algorithm for diagnosis & management of IOL in MDS: self-directed mode links to information panels and: monitor iron status; levels of evidence & grades of recommendations; future directions; & references.

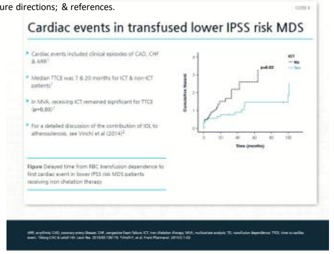


Figure 2. Part of an information panel, in this case addressing cardiac events in lower risk TD MDS with IOL.[5] Links include: iron accumulation; oxidative stress, hematopoiesis; infections; AML progression; EFS; OS; higher risk MDS; SCT.

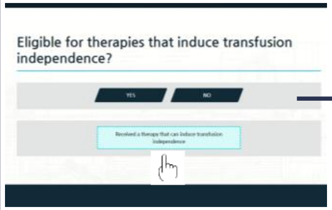


Figure 3. From the "IR Express": a; the patient is eligible for treatment with an erythropoiesis stimulating agent (ESA). b; he became transfusion independent on ESA with a Hb of 115g/L and IOL can be reduced by serial phlebotomy.

EXAMPLE CASE

- A 68 year old man is referred for anemia, RBC transfusion dependent (TD), requiring 2 units per 4 weeks. He is fatigued and short of breath on exertion. A bone marrow aspirate and biopsy shows MDS-RS, IPSS intermediate-1 risk.
- Serum ferritin is 1800ng/mL. Recommendation is to reduce IOL.
- From the algorithm, he has lower-risk MDS, is not eligible for allogeneic SCT, has TD anemia, a life expectancy >1-2 years, and has documented IOL. The next question: is he eligible for therapy that induces transfusion independence (Figure 3a).
- He becomes transfusion independent with ESA, and Hb is 115g/L.
- Figure 3b shows that IOL can be reduced by serial phlebotomy, or by ICT if the Hb will not support phlebotomy.

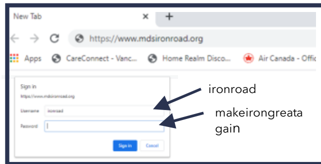
CONCLUSIONS

- An internet-based interactive algorithm is available from the CCMDS to support health care providers in diagnosing and managing IOL in MDS.
- Algorithm recommendations should help to standardize IOL care in MDS across Canada.
- Included are medications not currently approved in Canada for IOL in MDS; these are clearly identified.
- Content will be updated to reflect advances made in IOL management.

REFERENCES

1. Wells RA, et al. 2008 Leuk Res, 32:1338-1353.
2. Wells RA, et al. 2013. http://www.mdsclearpath.org/
3. Leitch HA, et al. 2018 Leuk Res, 74:21-41.
4. From the Canadian Railroad Trilogy by Gordon Lightfoot: "For they looked in the future and what did they see, they saw an iron road running from the sea to the sea". https://www.youtube.com/watch?v=NjoU1Qkeizs
5. Wong CAC, Leitch HA. 2019. Leuk Res. 83:106170

LOGIN



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