

Living Safely with Down Syndrome in the Age of COVID-19

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NDSC**

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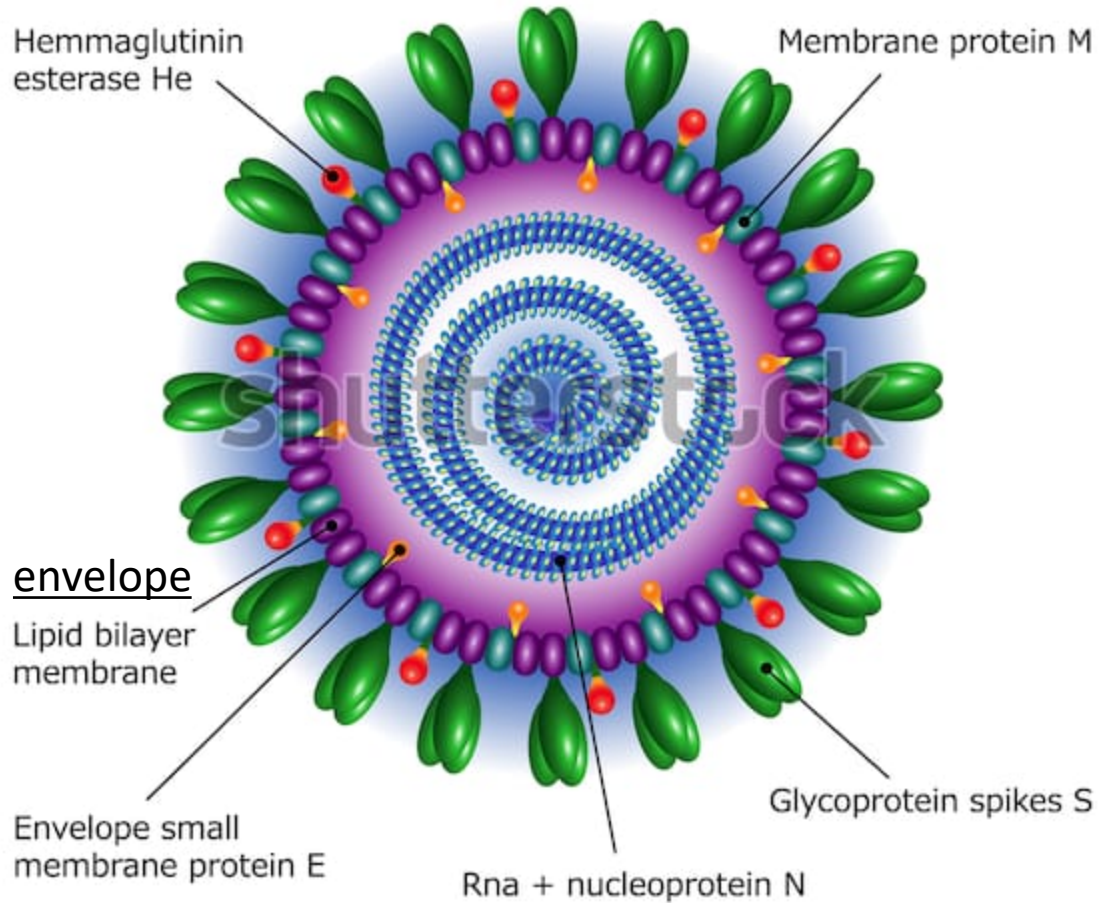
Mommy, is this Armageddon?

Early March, 2020

- At Costco: - no toilet paper - no disinfectant wipes
 - No soup - Only 2 palettes of water per customer
- NO!
- Basic services are intact- water, electricity, traffic lights, sewers
- We have leaders, scientists, guidance, hope.
- We have each other

Corona Virus

Baltimore Group IV ((+)ssRNA)



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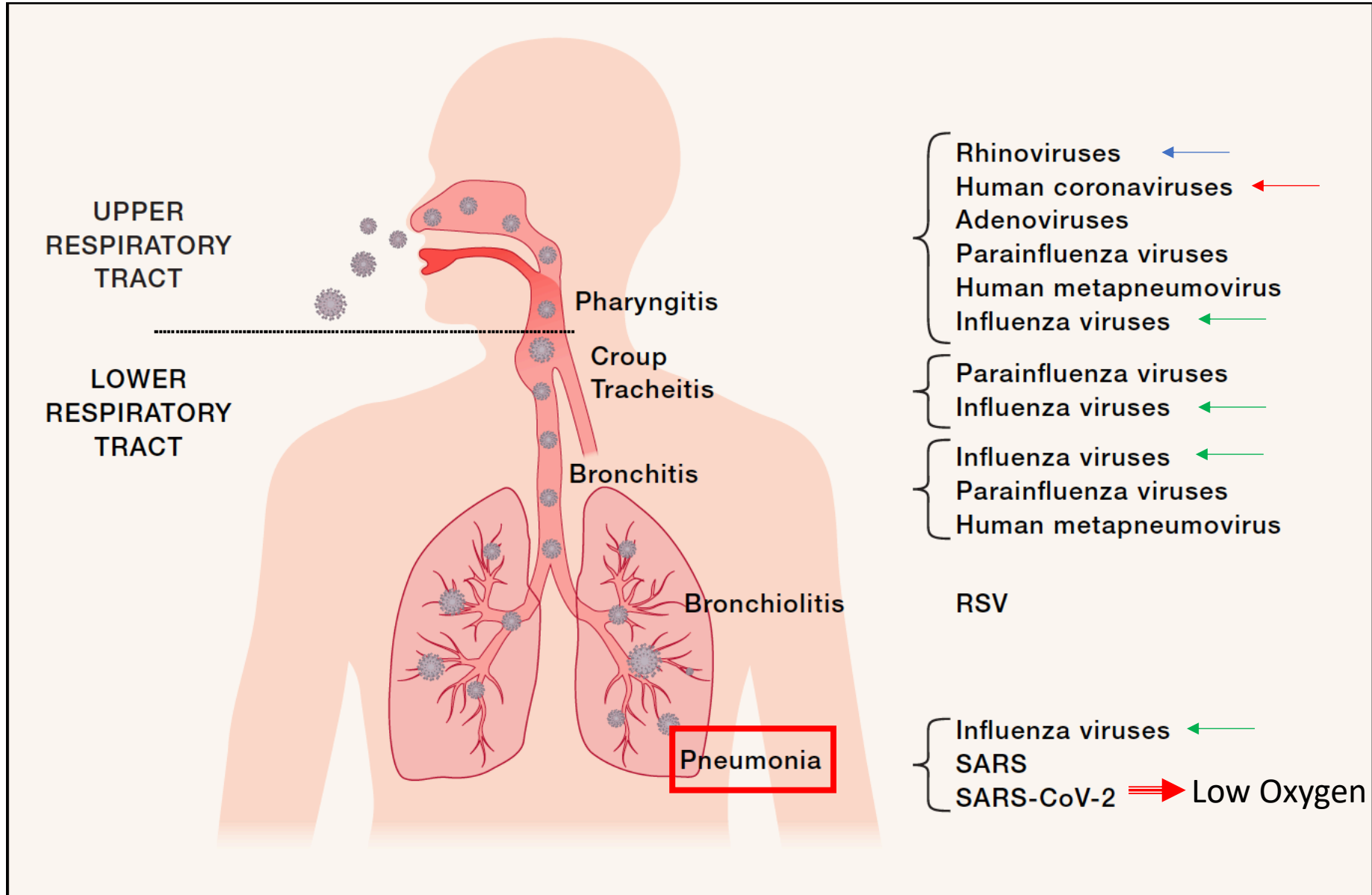
2019 Novel Coronavirus (SARS CoV2)

Epidemic of Severe Febrile Pneumonia (COVID-19)

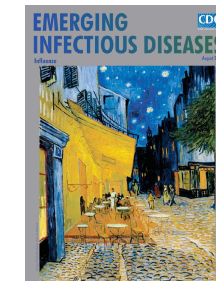
- Newly introduced zoonotic viral pathogen
 - 7th known coronavirus
 - 4 common cold viruses
 - 3 are serious
 - SARS
 - MERS
 - SARS CoV2 (COVID-19)



Respiratory Viral Infections



Infections as Cause of Death in Persons with Down Syndrome



Sweden

- Infections 52.0 – 57.1%
- Pneumonia 41.7 – 48.7%

Western Australia

Table 1 Causes of death among people with Down syndrome at different life stages

Cause of death	Childhood and early adulthood (0–18 yr), % (n)	Adulthood (19–40 yr), % (n)	Senescence (>40 yr), % (n)
Congenital heart defects	12.8 (19)	23.1 (9)	0 (0)
Pneumonia and other respiratory infections	33.1 (49)	23.1 (9)	39.6 (44)

2009 H1N1 Influenza Epidemic

Adults with T21 and other adults had similar influenza symptom onset.

However, adults with DS had:

16-fold increase in hospitalizations,
8-fold increase in intubation, and
335-fold increase in death

Increased incidence of bacterial and viral pneumonia with Down Syndrome, not all fatal.

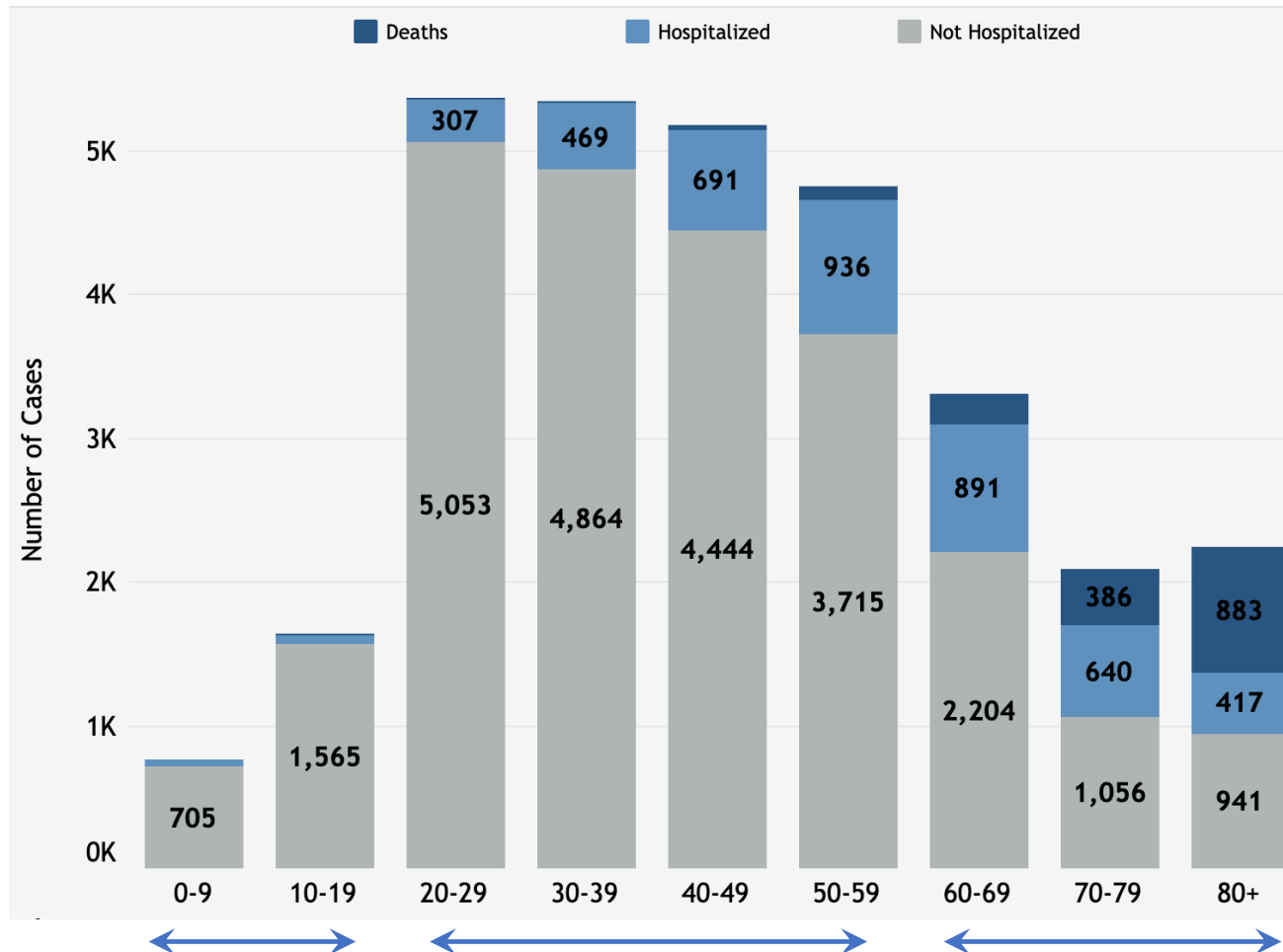
Englund. Am J Med Genet A2013: 161A; 642

Bittles. Eur J Pub Hlth 2006; 17:221

Perez-Padilla. Emerg Infect Dis 2010; 16:1312

Distribution of SARS CoV2 Cases in Colorado

by June 22, 2020



<u>Age</u>	<u>Frequency</u>	
	<u>Cases</u>	<u>Deaths</u>
0-19	8%	0.2%
20-59	67%	10%
60-80+	25%	90%

Risks for Hospitalization and Death

- Advanced age
- Hypertension
- Chronic lung disease
- Diabetes
- Vascular disease
- Immunocompromise

Prevalence of COVID-19 in People with Down Syndrome

<u>Group</u>	<u>Frequency</u> <u>of documented COVID-19</u>
U.S. population	1:103
Colorado population	1:162

Unpublished early data:

Compared with age-matched people, persons with Trisomy 21 show:

Increased incidence of pneumonia of other causes

Decreased frequency of vaccination for pneumonia

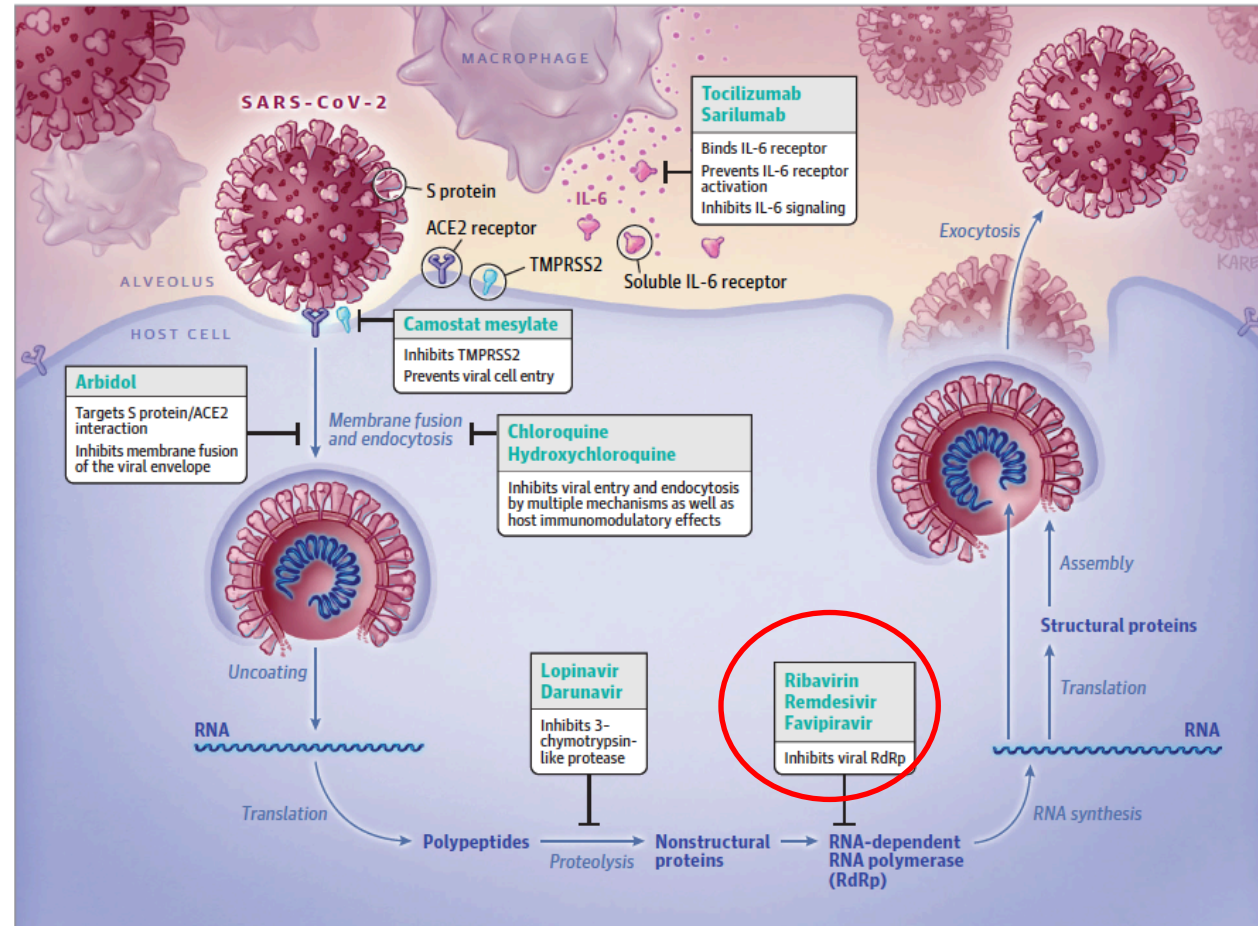
Relatively similar incidence of **COVID-19 infection**

- Similar outcomes
- More information needed

- Low exposure
- Immune integrity
- Good care
- Asymptomatic carriers?

Proposed Therapy of SARS CoV2

Drugs attempt to target different parts of the virus life cycle



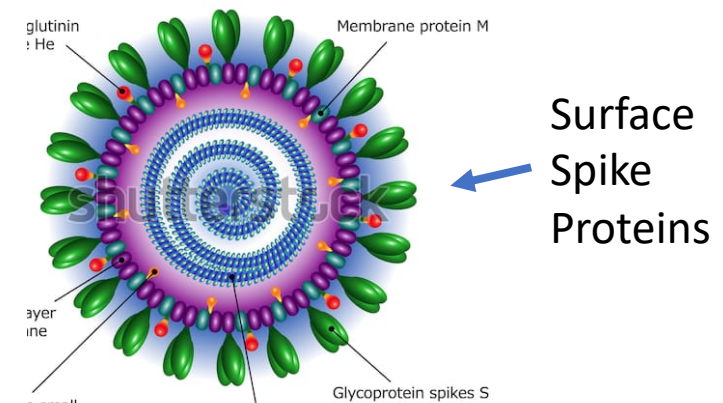
One drug with proven efficacy to date:

Remdesivir
- Shortens recovery

Sanders. JAMA 4/13/20
doi:10.1001/jama.2020.6019

Some things we don't know yet about COVID-19

- How many people have been infected?
- The amount of virus it takes to make you sick?
- The role of children in spreading the virus?
- *Why some people get much sicker than others?
- *How long you will be immune (protected) after infection?
 - How long a vaccine will protect you?



How to avoid COVID-19

- Avoid exposure to sick people, and social distancing
- Wash hands (soap and water for 20 seconds)
- Avoid touching face
- Wipe down surfaces (alcohol, chlorox)
- Surgical mask: Prevents transmission, ? infection
- N95 mask: Caring for someone ill
 - difficult to wear for more than 30 minutes
- Eye protection (esp. HCW)
- **Face Shield**



Managing Social Isolation

- **Loneliness:** as bad as smoking. Increased mortality.
 - > Stress -> chronic release of stress hormones -> decreased immune function and more inflammation
- **Exercise**
 - Reduces Stress; Enhances immune function
 - Walk outside**, online yoga and fitness classes
- **Social “closening”**
 - Regular telephoning of friends (and email, social media)
 - Positive social relationships and ties (for you and others)
- **Mindfulness and/or prayer**
 - Reduces inflammation; Enhances immune function
- **Do small things for other people**

Living Safely with Down Syndrome in the Age of COVID-19

- SARS CoV2 is the virus; COVID-19 is the disease
- SARS CoV2 causes serious lung disease (pneumonia; low oxygen)
- Pneumonia is a major cause of disease and death with Down Syndrome
- To date, COVID-19 has similar incidence and outcome +/- Down Syn.
- Promising new medicines and vaccines are in development
- COVID-19 can be prevented by behavior and barriers
- Social Distancing can bring people together.