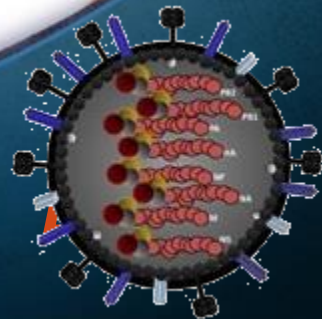
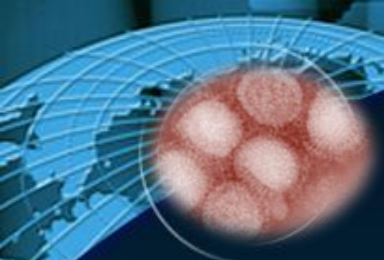


COVID-19 & Influenza

Shervin Shokouhi
MD, MPH

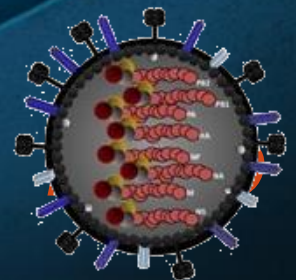




How are COVID-19 and influenza viruses similar?

❖ Similar respiratory symptoms →
So it makes it difficult to differentiate between two diseases

→
❖ Similar transmission routes
So the same public health measures are important to prevent both infections.





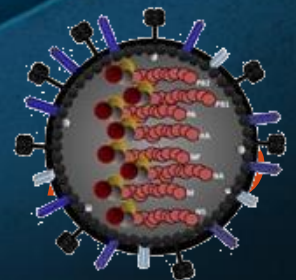
What is the difference between two diseases?

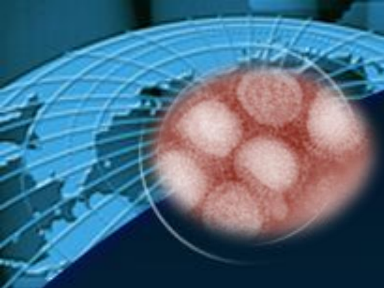
Influenza → has a shorter incubation

- Can spread faster

In COVID-19 →

- the number of secondary infections is higher
- Percentages of severe and critical infections are higher
- Mortality appears higher
- No licensed vaccines or treatment are available currently





Concerns about the concurrence of the two diseases

Despite The ongoing global response to COVID -19, the world can not lose sight of the significant public health risk posed by influenza.

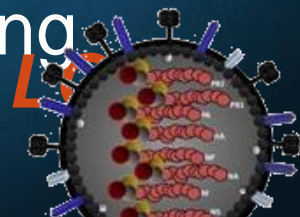
Co-circulation of COVID-19 and influenza can worsen the impact on health systems that are already overwhelmed.





Effect of influenza on COVID-19

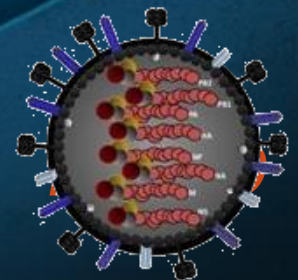
- ✓ Coronavirus transmission can be decreased dramatically while preventing influenza virus.
- ✓ COVID-19 disease may also be prevented to some extent following the application of influenza control measures.
 - ✓ It is recommended to Take immediate measures that involve investigating thoroughly, testing, isolating and quarantining contacts.

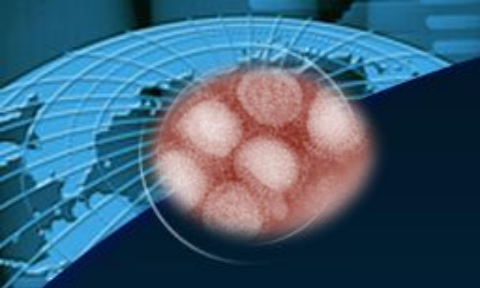




Influenza Vaccines

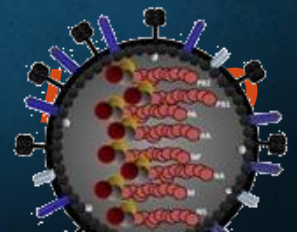
- ✓ Safe, effective and the **principle measure for preventing influenza**
- ✓ Recommendation to routine annual influenza vaccination for all persons aged 6 months or older who don not have contraindications
- ✓ Inactivated influenza vaccines (IIVs):
Trivalent (IIV3) & quadrivalent (IIV4)

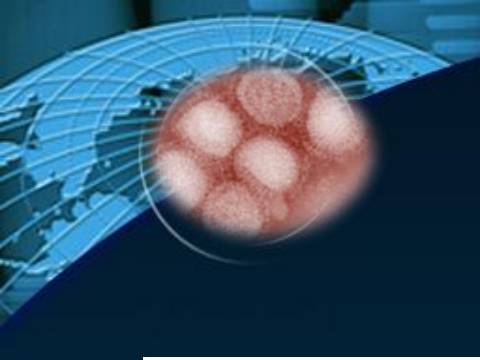




Effect of influenza vaccine on COVID-19

- ❑ There is currently **no effective COVID-19 vaccine**
 - ❑ Flu vaccine does not protect against COVID-19
But does reduce the risk of seasonal influenza that has the same symptom and the same way of transmission.
- ❑ So, due to the likelihood of co-epidemics of COVID-19 and influenza, the most effective strategy, is **to increase vaccination coverage** among people specially Persons who are at high risk of complications from influenza .





Persons who are at high risk of complications from influenza

Persons at High Risk of Complications

Children aged <5 years, and especially aged <2 years

Adults aged ≥ 65 years

Persons with chronic pulmonary (including asthma), cardiovascular (except hypertension alone), renal, hepatic, hematologic (including sickle cell disease), or metabolic disorders (including diabetes mellitus) or neurologic and neurodevelopment conditions (including disorders of the brain, spinal cord, peripheral nerve, and muscle such as cerebral palsy, epilepsy [seizure disorders], stroke, intellectual disability [mental retardation], moderate to severe developmental delay, muscular dystrophy, or spinal cord injury)

Persons with immunosuppression, including that caused by medications or by HIV infection^a

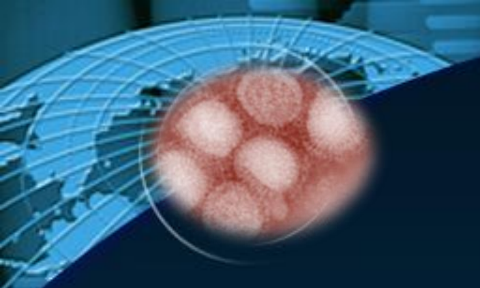
Women who are pregnant or postpartum (within 2 weeks after delivery)

Children and adolescents through 18 years who are receiving aspirin- or salicylate-containing medications and who might be at risk for experiencing Reye syndrome after influenza virus infection

American Indian/Alaska Native people^b

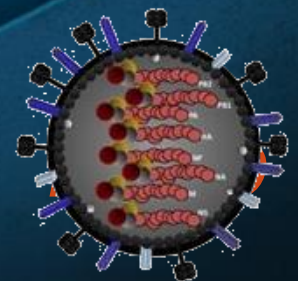
Persons with extreme obesity (ie, body mass index ≥ 40 kg/m²)

Residents of nursing homes and other chronic care facilities



Influenza diagnostic tests for respiratory specimens

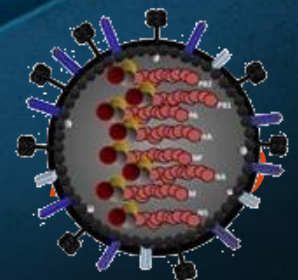
- ❑ Antigen detection test
(Direct or indirect immunofluorescence assays)
- ❑ Nucleic acid amplification (**RT-PCR**)
Gold standard for diagnosis and distinguish from COVID-19
- ❑ Virus isolation (Culture)





Antiviral agents for treatment and prophylaxis of influenza

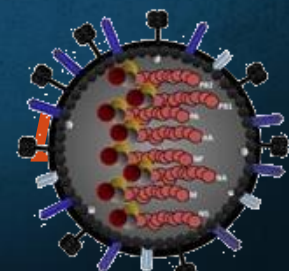
Antiviral agents	Treatment doses	Prophylaxis doses
Oseltamivir	75 mg / BD PO	75 mg / daily PO
Zanamivir	10 mg / BD inhalations	10 mg / daily inhalations
Peramivir	600 / mg /BD / IV	600 / mg /d / IV





Effect of Tamiflu on COVID-19

- ✓ There are currently **no medicine approved** to specifically treat coronaviruses.
- ✓ Tamiflu is designed to be highly specific to the influenza virus.
- ✓ Tamiflu does not have any antiviral effect on COVID-19.



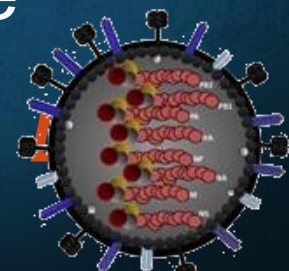


Flu drugs might help in reducing COVID-19

- ✓ **Favipiravir:** Targets the viral RNA polymerase. limited clinical experience to support the use of it for COVID-19.
- ✓ **Arbidol:** inhibits membrane fusion of the viral envelope.

No establish the efficacy of it for COVID-19.

- ✓ **Baloxavir:** currently no known published clinical trial data regarding efficacy in the treatment of COVID-19.

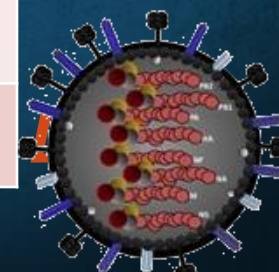


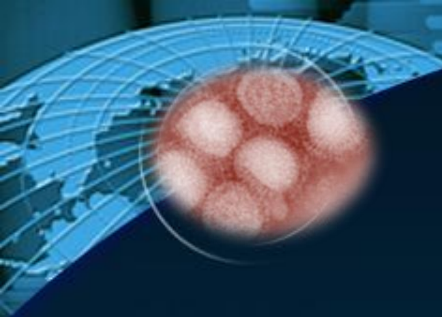
Anti-influenza drugs removal by plasmapheresis (no published evidence)

drug	Protein binding	Volume of distribution	comments
oseltamivir	3 to 42%.	23 to 26 L	- Probably removed - Avoid pre administration
zanamivir	<10%	~16 L	- Probably removed - Avoid pre administration
peramivir	<30%	12.56 L	- Probably removed - Avoid pre administration

Anti-influenza drugs removal by hemoperfusion

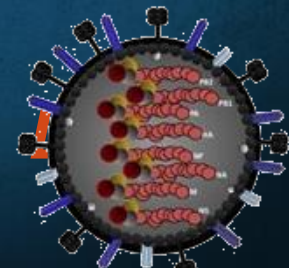
drug	Molecular weight (g/mol)	Half life (hr)	comments
oseltamivir	312.4	1 to 3 (carboxylate: 6 to 10)	- Not removed
zanamivir	332.31	2.5 to 5.1	- Not removed
peramivir	328.41	~20	- Not removed





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And the end,
No significant interactions have been
reported between common Influenza and
COVID-19 drugs.



**Thanks For Your
Attention**

