

# **SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES**

*Affiliated To The Tamil Nadu Dr. MGR Medical University, Chennai*

*Approved by Pharmacy Council of India, New Delhi.*

**Coimbatore -641035**

**COURSE NAME: SOCIAL AND PREVENTIVE PHARMACY (BP 802 T)**

**B.PHARM. VIII SEM / IV YEAR**

**UNIT II: TOPIC 1: GENERAL PRINCIPLES OF PREVENTION AND CONTROL OF SARS, INFLUENZA,**

**ACUTE RESPIRATORY INFECTIONS (ARIS), PNEUMONIA**

# DESIGN THINKING

## 1. EMPATHY



Understanding user needs, fears, and experiences to identify challenges with existing prevention methods (e.g., discomfort of masks, lack of access to testing).

## 2. DEFINE



FORMULATING CLEAR CHALLENGES TO GUIDE INNOVATION

# DESIGN THINKING

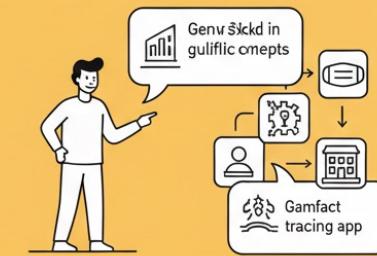
## 3. IDEATE

BRAINSTORM creative solutions.

Encourage diverse ideas.



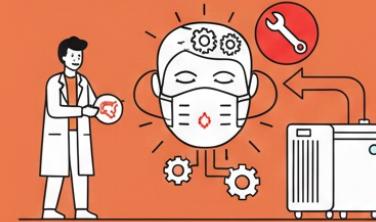
Generate Sketid in gulfic concepts



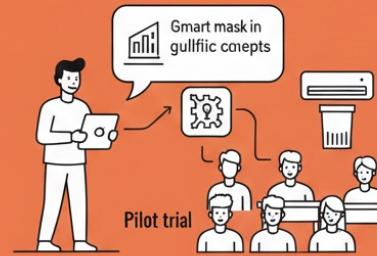
FOSTERING CLEAR & INNOVATION TO SOLVE CHOLLANGES

## 4. PROTOTYPE & TEST

BUILD ROUGH VERSIONS & GATHER FEEDBACK

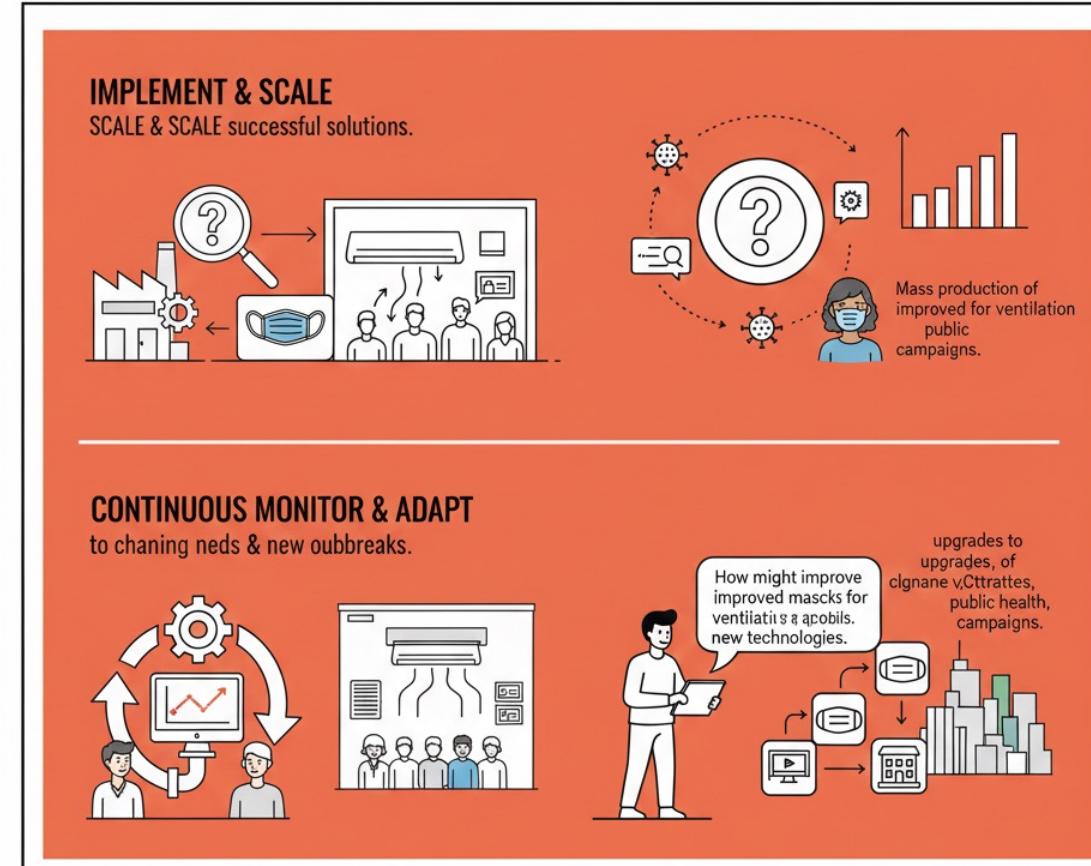


ITERATE & REFININE



TURNING IDEAS INTO TANGIBLE SOLUTIONS SOLVE CHOLLANGES

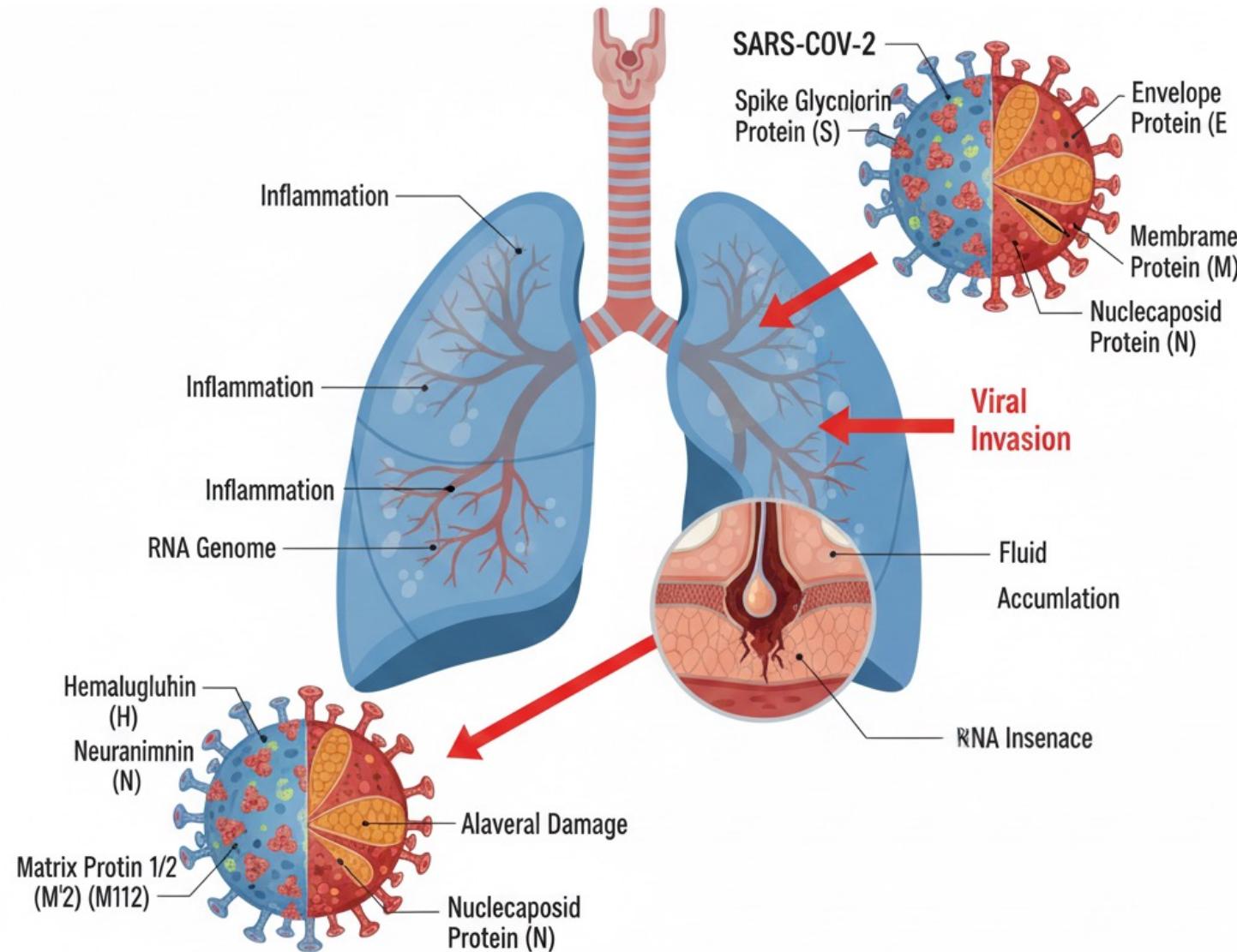
# 5. EVOLVE



# EPIDEMIOLOGY OF SARS

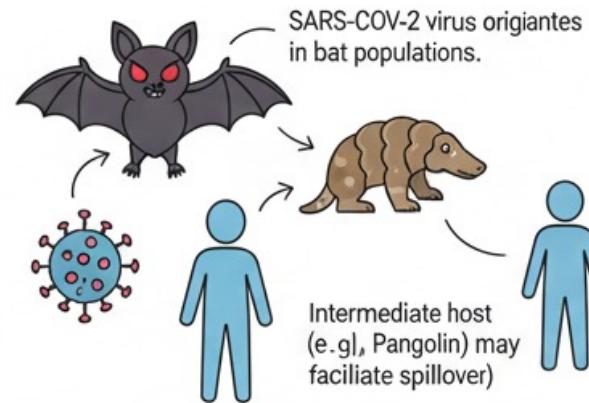


# PATHOPHYSIOLOGY

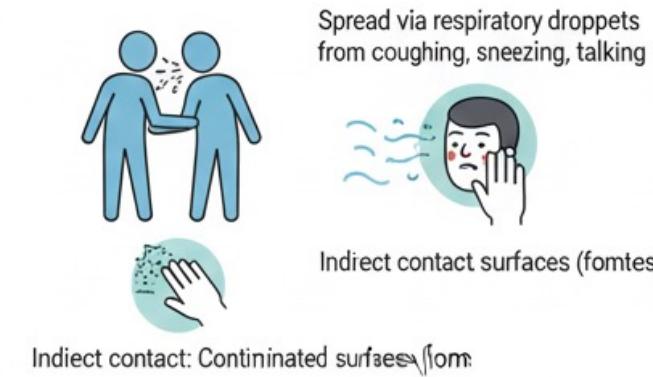


# TRANSMISSION

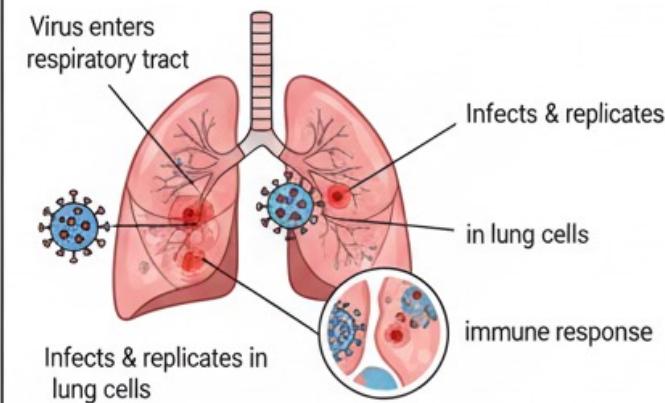
## 1. ZOONOTIC ORIGIN (BAT TO HUMAN)



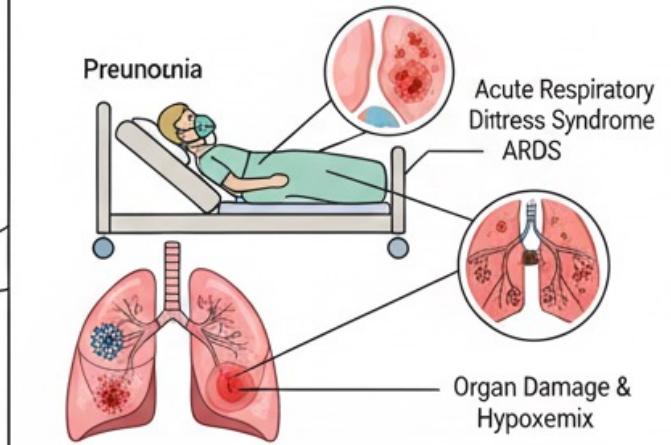
## 2. HUMAN-TO-HUMAN TRANSMISSION



## 3. VIRAL REPLICATION & SPREAD



## 4. SEVERE RESPIRATION DISTRESS



# PREVENTION OF SARS



## VACCINATION & IMMUNIZATION:

Developing and administering vaccines to build immunity against the SARS virus



## HYGIENE & SANITATION:

Frequent hand washing, use of hand sanitizers, and maintaining clean environments



## SOCIAL DISTANCING & MASKS

Limiting close contact with sick individuals and wearing a mask in public



## SURVEILLANCE & DIAGNOSTICS

Early detection, isolation of cases, and contact tracing to prevent spread

# CONTROL OF SARS



**ISOLATION & QUARANTINE:**  
Separating infected individuals and exposed contacts to prevent further transmission



**CONTACT TRACING & MONITORING:**  
Identifying and monitoring individuals who have been close contact with confirmed cases



**MEDICAL TREATMENT & SUPPORT**  
Providing supportive care, oxygen therapy, and antiviral medications to SARS patients



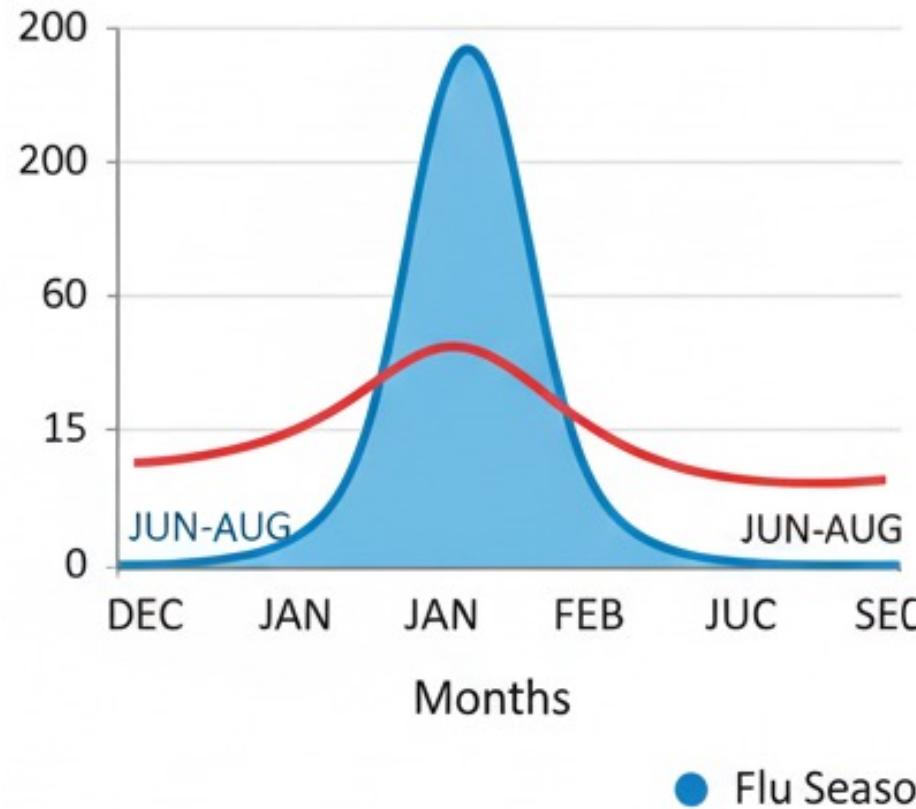
**PUBLIC HEALTH INTERVENTIONS:**  
Implementing travel restrictions, school closures, and community-wide awareness campaigns

# INFLUENZA EPIDOPOLOGY: PATTERNS

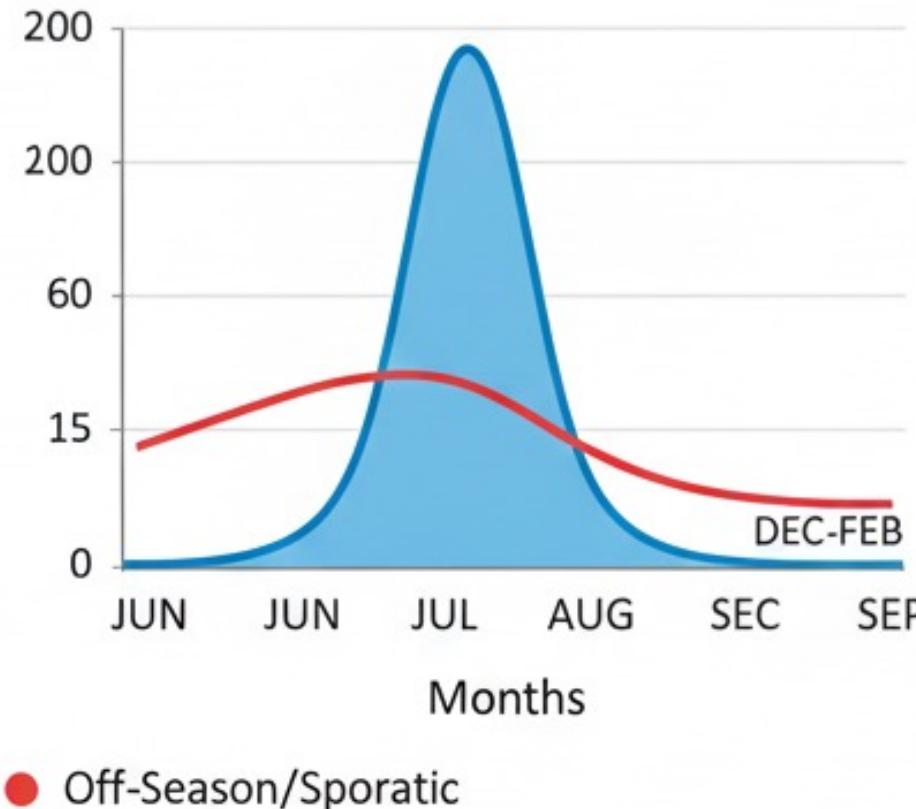
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## Northern Hemiseere

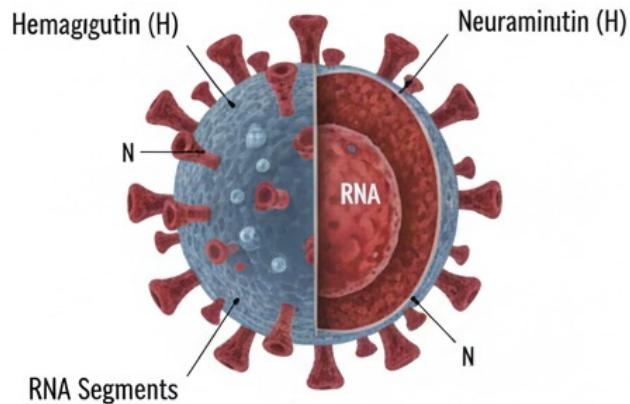


## Southern Hemiseere



## UNDERSTANDING GLOBAL INFLUENZA CYCLES

# INFLUENZA: VIRUS TYPES & ANTIGENIC SHIFTS



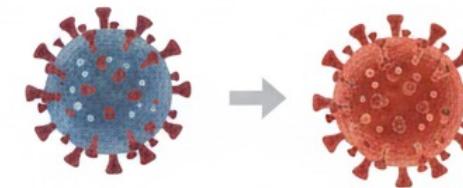
## INFLUENZA VIRUS TYPES

**Type A** → Causes pandemics & epidemics. Subtypes (e.d.), H1N1, H3N2

**Type B** → Causes regional epidemics. Two lineages (Victoria & Yamagata)

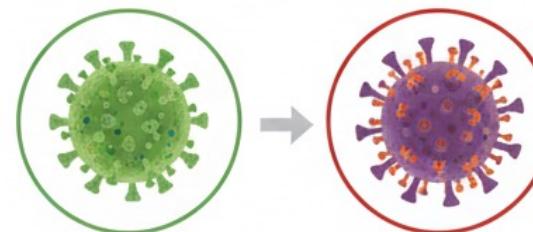
**Type C** → Causes mild illness. No epidemics.

## Antigenic Drift



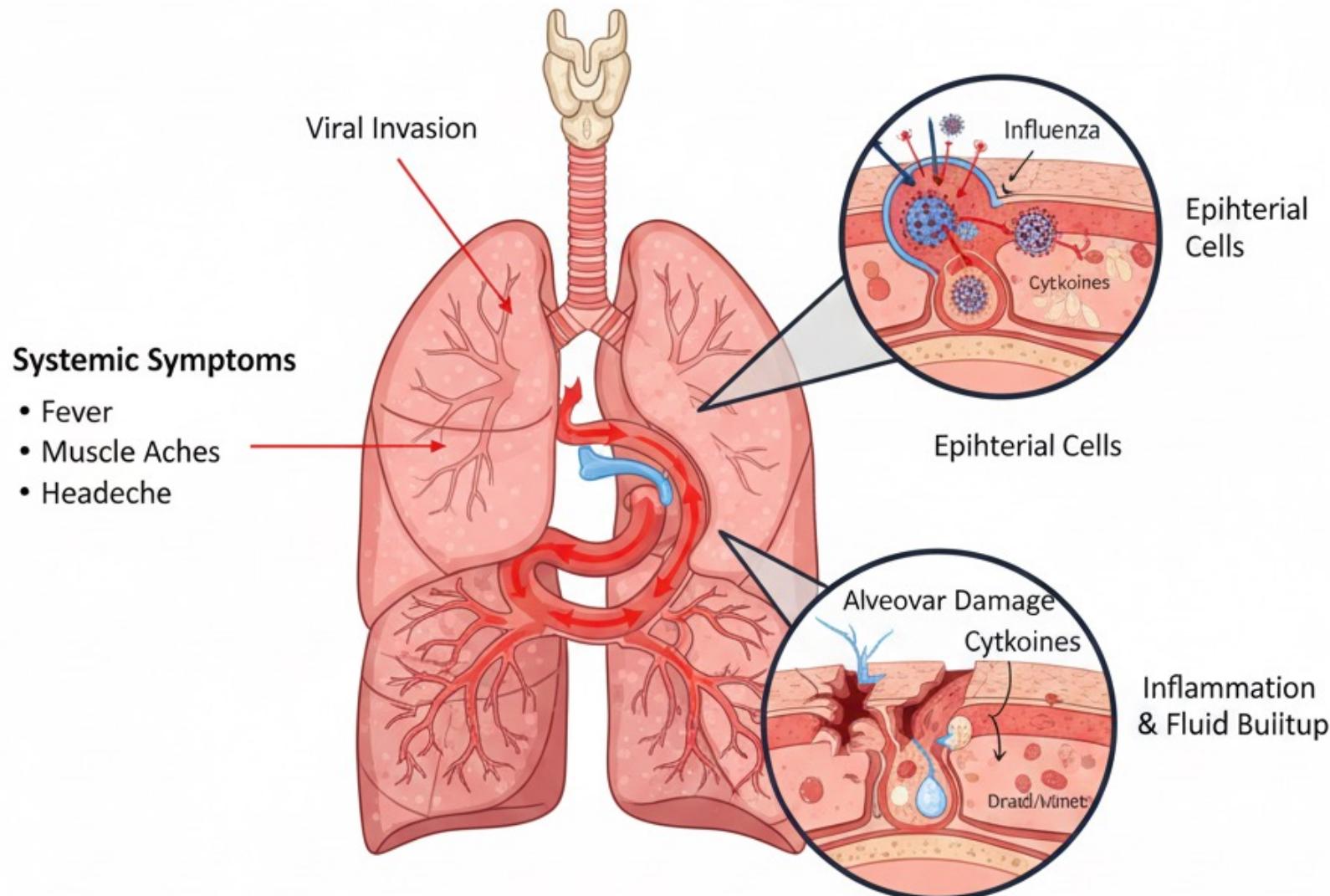
Small, continuous changes in H & N genes. Leads to seasonal flu variations.

## ANTIGENIC SHIFTS



## Antigenic Shift

Abrupt, major change. New H/or N protein from animal influenza A virus. Can lead to pandemics.



# PREVENTION OF INFLUENZA



## VACCINATION & ANNUAL SHOTS

Annual influenza vaccines to build immunity against circulating virus strains



## HYIGENE & SANIATION

Frequent hand washing, use of hand sanitizers and maintaining clean environments



## SOCIAL DISTANCING & MASKS

Avoiding close contact with sick individuals and wearing masks in crowded public places



## EARLY DETECTION & ISOLATION

Prompt identification of flu cases, staying home when sick, and following public health guidance

# CONTROL OF INFLUENZA



## ISOLATION & QUARINTINE:

Separating sick individuals and exposed contacts, and limifng to prevent further spread.



## CONTACT TRACING & MONITORING

Identifying and tracking individuals who have been in close contact with confirmed flu cases.



## MEDICAL TREATMENT & SUPPORT

Providing antiviral medications, oxygen therapy, and suportive care for severe flu cases

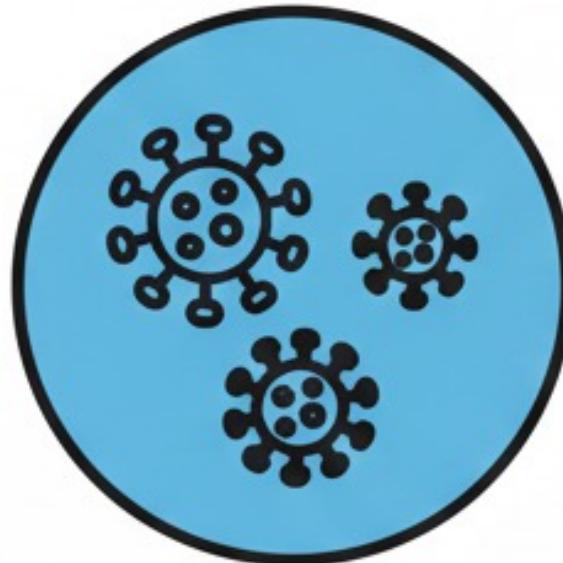


## PUBLIC HEALTH INTERVENTIONS:

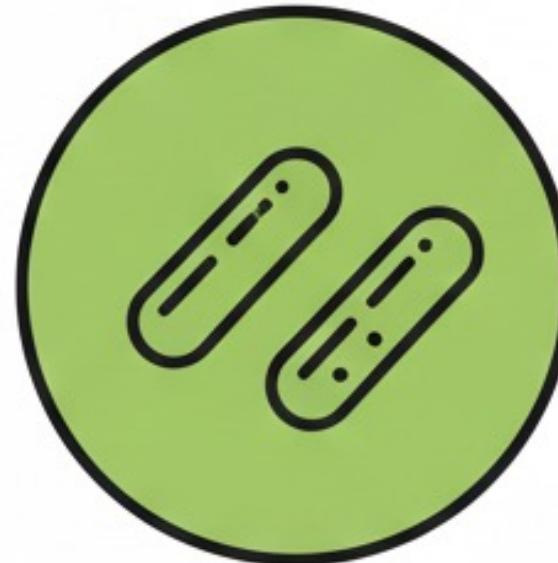
Implementing school closures, public awareness campaigns, and community-wide emergency responses

# **AIRBORNE DISEASES ACUTE RESPIRATORY TRACT INFECTIONS (ARIS)**

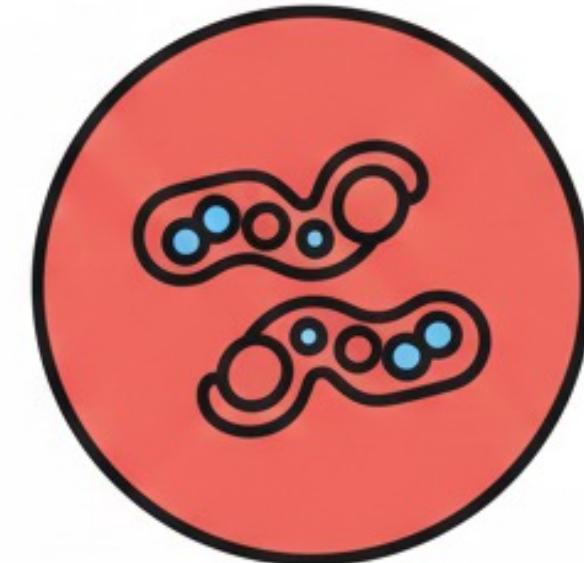
# COMMON PATHOGENS



**Virues**  
(e..l, Influenza, RSV,  
Rhinovirus)

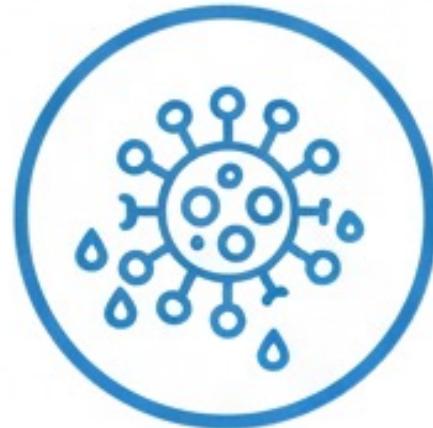


**Bacteria**  
(Pneumonia,  
Strep)



**Bacteria**  
(anaarbeic)

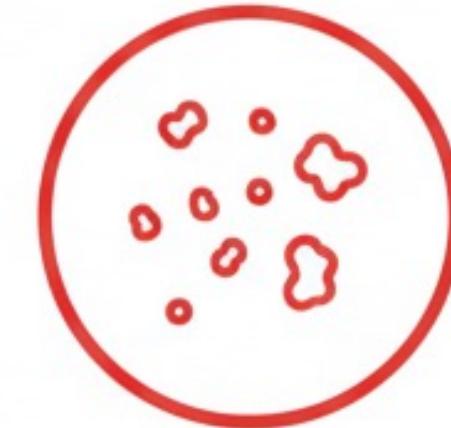
# MODE OF TRANSMISSION



**Droplets**  
(Coughing,  
Surfaces)

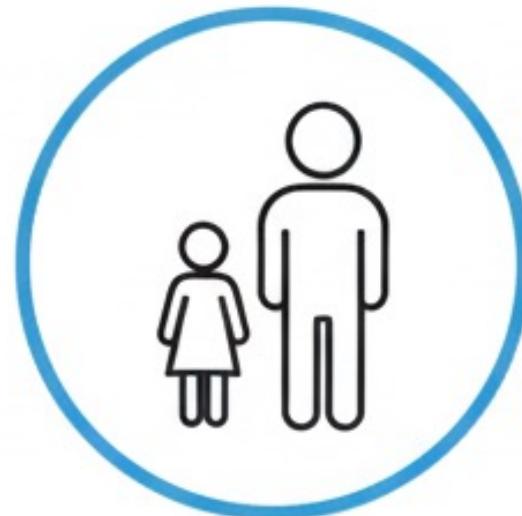


**Contact**  
By Surfaces



**Airborne**  
(Small particles)

# AFFECTED POPULATION



## Children U5

Highest incidence due  
due underdeveloped  
immune systems



## Elderly 65+

Increased risk of  
severe illness &  
complications



## Varies in cold regions

Higher burden in  
autumn & winter  
months

# CONTROL OF ARIS



## ISOLATION & QUARANTINE

Separating sick individuals to prevent further spread.



## CONTACT TRACING & MONITORING

Identifying and monitoring exposed contacts.



## MEDICAL TREATMENT & SUPPORT

Providing antivirals, oxygen therapy, and care.



## PUBLIC HEALTH INTERVENTIONS

Implementing closures, awareness campaigns.



## WEARING MASKS



## HAND HYGIENE



## SICK STAY HOME

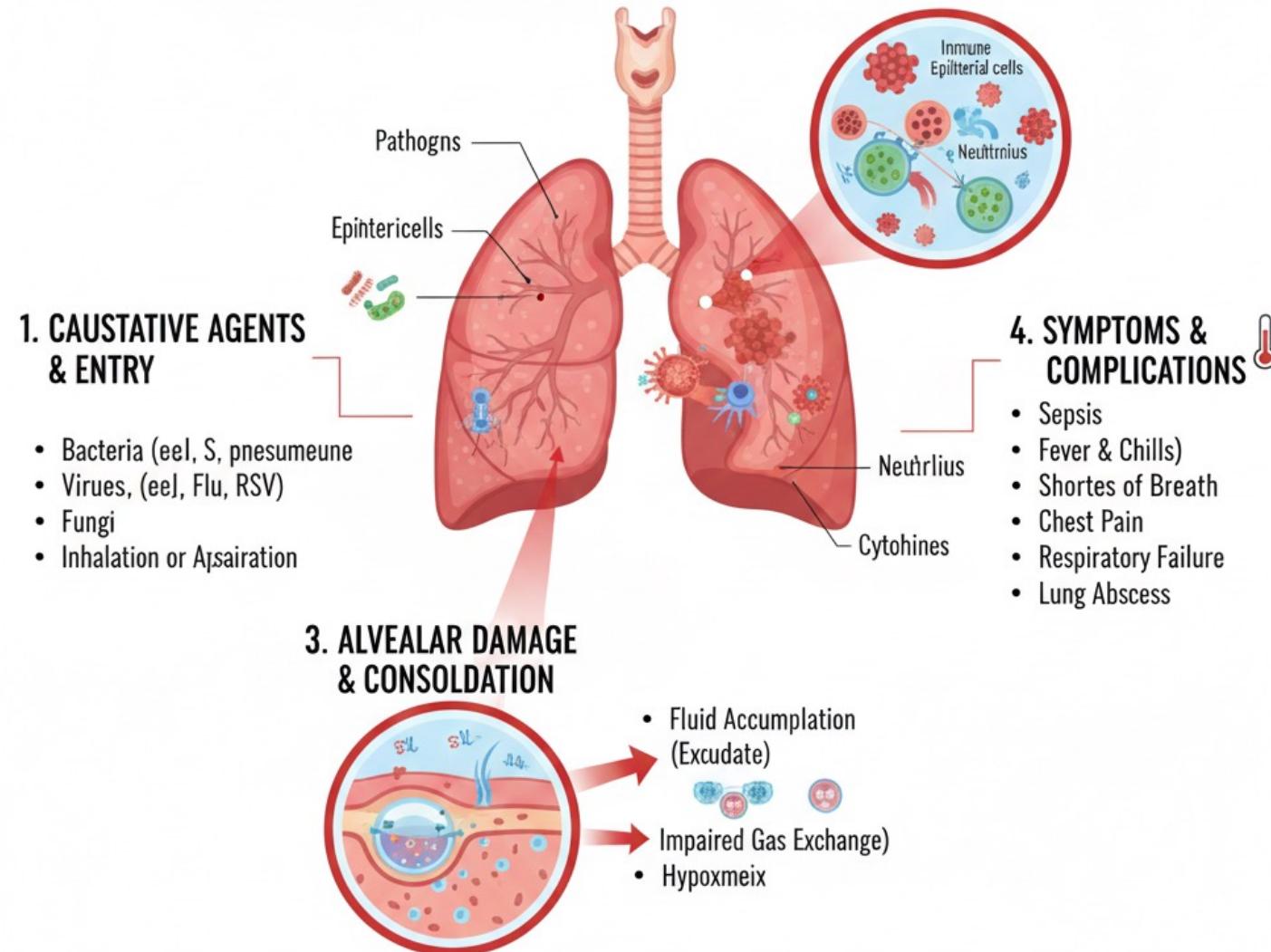


## VACCINATION

TYPE	SETTING	DESCRIPTION
 Hospital-Acquired (HAP)	In-hospital, >48h after admission	Often drug-resistant bacteria
 Community-Acquired (CAP)	Outside healthcare settings	Common, various pathogens
 Ventilator Associated (VAP)	On mechanical ventilation	Severe, high mortality risk
 Aspiration	Inhalation of foreign material	Chemical or bacterial pneumonia

# PATHOPHYSIOLOGY OF PNEUMONIA

## 2. INFECTION & INFLAMMATION



# CONTROL OF PNEUMONIA



## 1. ISOLATION & QUARANTINE:

Separating infected patients to prevent transmission.



## 2. CONTACT TRACING & MONITORING:

Identifying and managing exposed individuals.



## 3. MEDICAL TREATMENT & SUPPORT:

Providing antibiotics, oxygen therapy, and supportive care



## 4. WEARING MASKS:

Reduces spread in healthcare settings and public.



## 5. HAND HYGIENE:

Frequent washing with soap and water



## 6. VACCINATION:

Promoting recommended childhood and adult vaccines

# SUMMARY OF ARIS

Disease	Causative Agent	Key Features	Prevention
SARS	SARS-CoV	Severe viral pneumonia, high mortality	Isolation, PPE, surveillance
Influenza	Influenza A/B/C viruses	Fever, cough, seasonal epidemics	Annual vaccination, antivirals
ARIs	Various viruses	Common cold, sore throat	Hygiene, avoid smoke, masks
Pneumonia	Bacterial/Viral/Fungal	Alveolar inflammation, difficulty breathing	Vaccines (PCV, Hib), nutrition

# ASSESSMENT 1

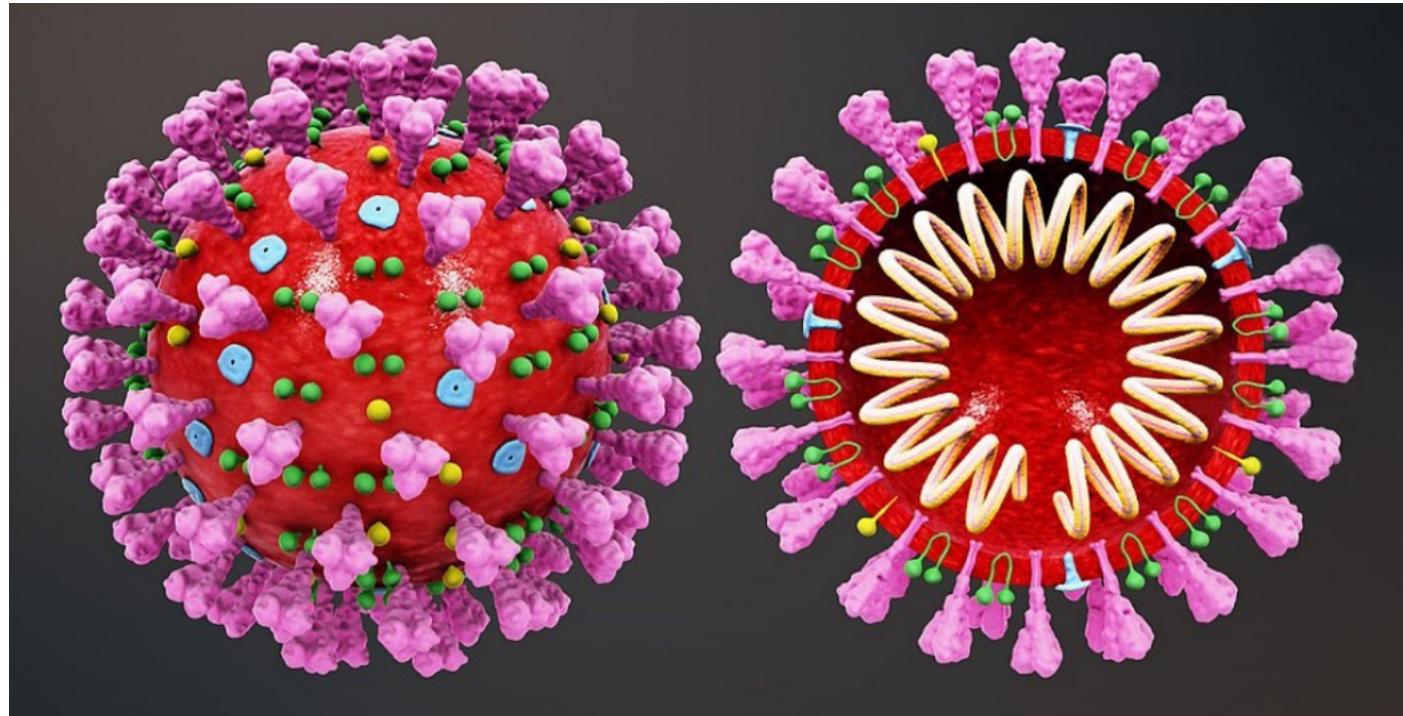
## SARS PROVENTION WORD FIND!

Find 5 hidden words related to Chlera Provention.

F	O	T	E	R	L	S	F	G	O	M
Q	O	H	T	F	E	P	F	G	E	F
W	E	R	A	T	U	P	S	E	D	F
P	E	R	T	E	U	S	J	A	N	T
P	E	A	P	L	R	E	O	F	L	E
C	F	O	N	G	E	N	H	A	D	E
P	L	N	E	T	O	H	N	K	O	P
H	E	L	O	N	D	M	T	X	N	D
S	M	G	L	N	A	T	C	E	Y	T

# ASSESSMENT 2

**Name this organism and disease?**



# ASSESSMENT 3

## Match the following

A. Pathogen	B. Disease/Condition
1. Streptococcus pneumoniae	a. Common Cold
2. Influenza Virus (Orthomyxoviridae)	b. Pharyngitis (Strep Throat)
3. Rhinovirus	c. Pneumonia
4. Streptococcus pyogenes (Group A Strep)	d. Flu (Influenza)

# ASSESSMENT 4

## Challenging Missing Word Sentence for ARIs

In Severe Acute Respiratory Syndrome (SARS), the viral infection of the lower respiratory tract can cause diffuse..... damage, often leading to a severe form of pneumonia known as ARDS (Acute Respiratory Distress Syndrome).



# ASSESSMENT 5



**What is the name of the instrument and its usage?**

## REFERENCES

1. Short Textbook of Preventive and Social Medicine, Prabhakara GN, 2nd Edition, 2010, ISBN: 9789380704104, JAYPEE Publications
2. Textbook of Preventive and Social Medicine (Mahajan and Gupta), Edited by Roy Rabindra Nath, Saha Indranil, 4th Edition, 2013, ISBN: 9789350901878, JAYPEE Publications
3. Review of Preventive and Social Medicine (Including Biostatistics), Jain Vivek, 6<sup>th</sup> Edition, 2014, ISBN: 9789351532331, JAYPEE Publications
4. Essentials of Community Medicine—A Practical Approach, Hiremath Lalita D, Hiremath Dhananjaya A, 2nd Edition, 2012, ISBN: 9789350250440, JAYPEE Publications

# Thank you