



Avian Influenza

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Outlines



Define Disease



Review Preventive Measures



Understand Virus



Analyze Impacts



Identify Transmission



Examine Efforts



Monitor Statistics



Provide Conclusions



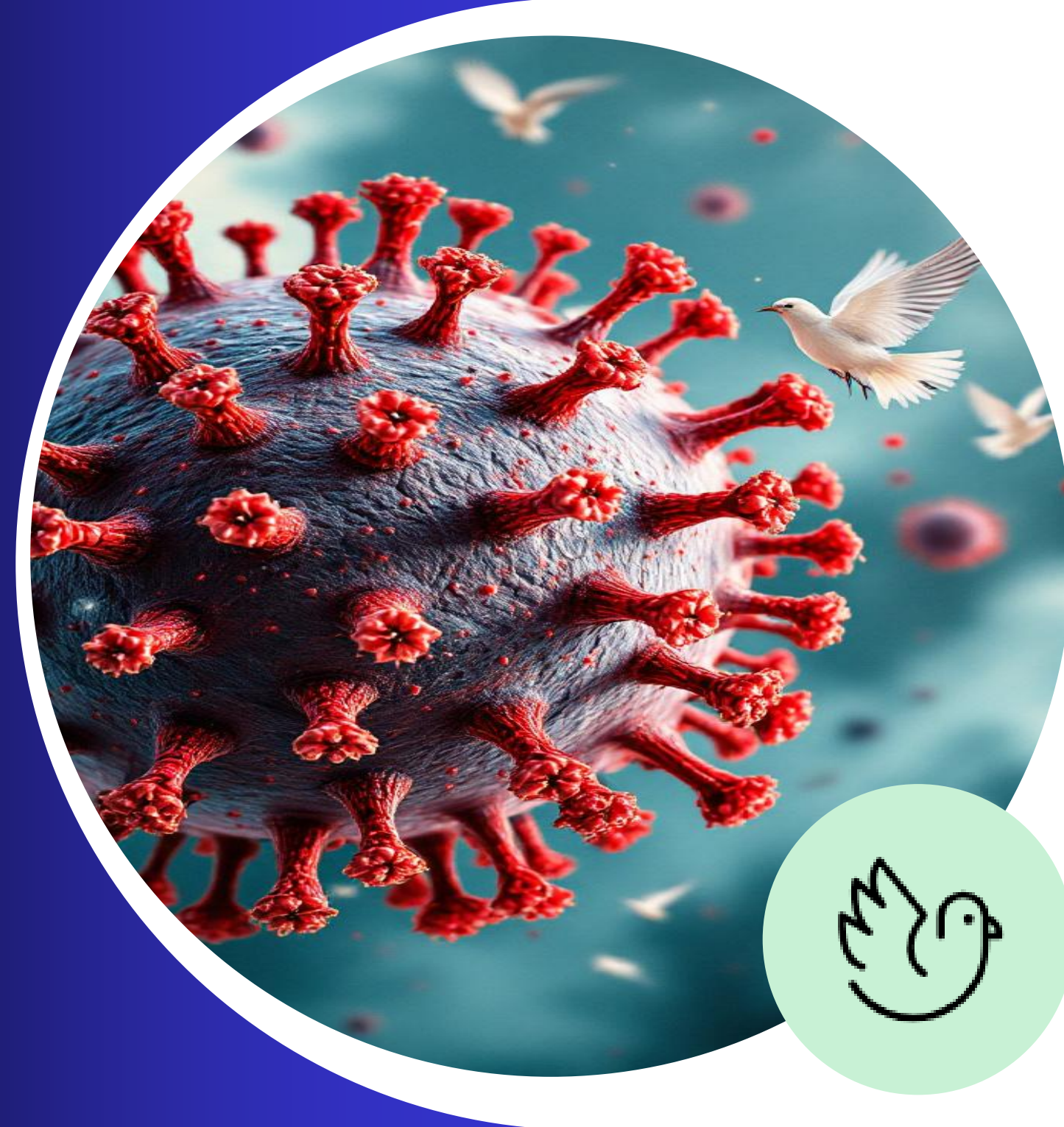
Clarify Symptoms



Document Sources



Introduction



With the continuous advancement in science and medicine, infectious diseases remain a persistent challenge to global public health. Among these diseases, avian influenza stands out due to its high virulence, rapid spread among birds, and potential transmission to humans. This virus, scientifically classified under strains such as H5N1 and H7N9, has raised global concern due to its outbreak, economic implications, and public health risks. In this presentation, we will explore the nature of avian influenza, its transmission routes, its impact on humans and animals, and the preventive strategies needed to prevent its spread.

Scientific understanding of avian influenza



Scientific understanding of avian influenza

Avian influenza is a viral infectious disease caused by influenza A viruses from the Orthomyxoviridae family. It primarily affects wild and domestic birds and can occasionally spread to mammals, including humans.

Virus Composition



Lipid Envelope

The virus has a lipid envelope containing specific proteins.



RNA Structure

It carries single-stranded RNA for viral replication.



Scientific understanding of avian influenza

Impact on Humans and Birds



Humans

Focus on respiratory health
and prevention



Birds

Address respiratory,
digestive, and neurological
health





Modes of transmission



Modes of transmission

How can avian viruses be transmitted from birds to humans?

Direct Contact

Involves touching infected birds or their secretions, leading to potential infection.

Handling Contaminated Poultry

Managing poultry meat or eggs without hygiene measures can cause infection.

Inhalation

Breathing in virus particles from contaminated environments, posing a respiratory risk.

Indirect Transmission

Contact with contaminated surfaces or tools can lead to virus spread.





Modes of Transmission

Environmental and Climatic Factors Affecting Virus Spread

◆ Environmental Factors:

1. **Population density:** Higher density increases virus transmission.
2. **Human-animal interaction:** Enhances the spread of zoonotic viruses (e.g., avian flu).
3. **Pollution and poor sanitation:** Facilitate the spread of respiratory and gastrointestinal viruses.

◆ Climatic Factors:

1. **Temperature:** Respiratory viruses spread more in cold weather.
2. **Humidity:** Influences virus stability in the environment.
3. **Rain and wind:** Increase the spread of waterborne and airborne viruses



Global and local statistics of avian influenza





Global and local statistics of avian influenza

Global Cases & Mortality

- **Since 2003, 888** human cases of H5N1 in **23 countries**, with **463 deaths** (52% mortality rate).
- **2022:** 67 countries reported outbreaks, leading to **131M poultry losses**.
- **2023:** 14 more countries, mainly in the Americas, faced outbreaks.
- **Human infections remain rare**, but continuous monitoring is crucial.

Global and local statistics of avian influenza

Comparison of the Impact of Avian Influenza on Agriculture and Economy

Aspect	Agricultural & Animal Production	Economic Impact
Mass Poultry Culling	Over 280M birds culled since 2021.	Losses in poultry-exporting countries due to trade bans.
Production Costs	Higher costs for poultry farming and food production.	Rising food prices affecting consumers & food industries.
Supply Chain Disruptions	Lower demand for feed (corn, soy) affecting suppliers.	Export restrictions lead to economic losses.
Fertilizer Shortages	Reduced poultry manure impacts crop yields .	Increased fertilizer costs affect agricultural markets.





Global and local statistics of avian influenza



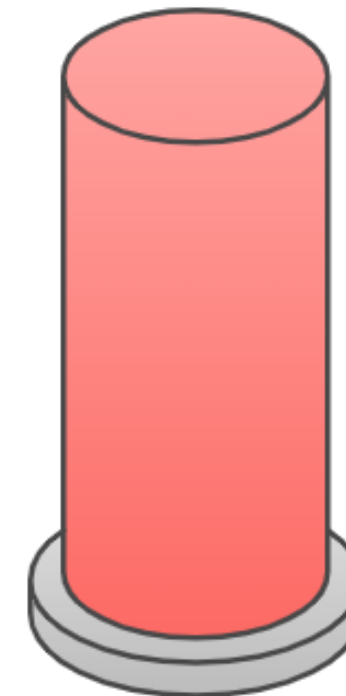
Gaza (2015) Outbreak

Major H5N1 outbreak in Gaza farms

Gaza (unspecified)

Chickens culled in Nuseirat and Deir Al-Balah

66243



8500



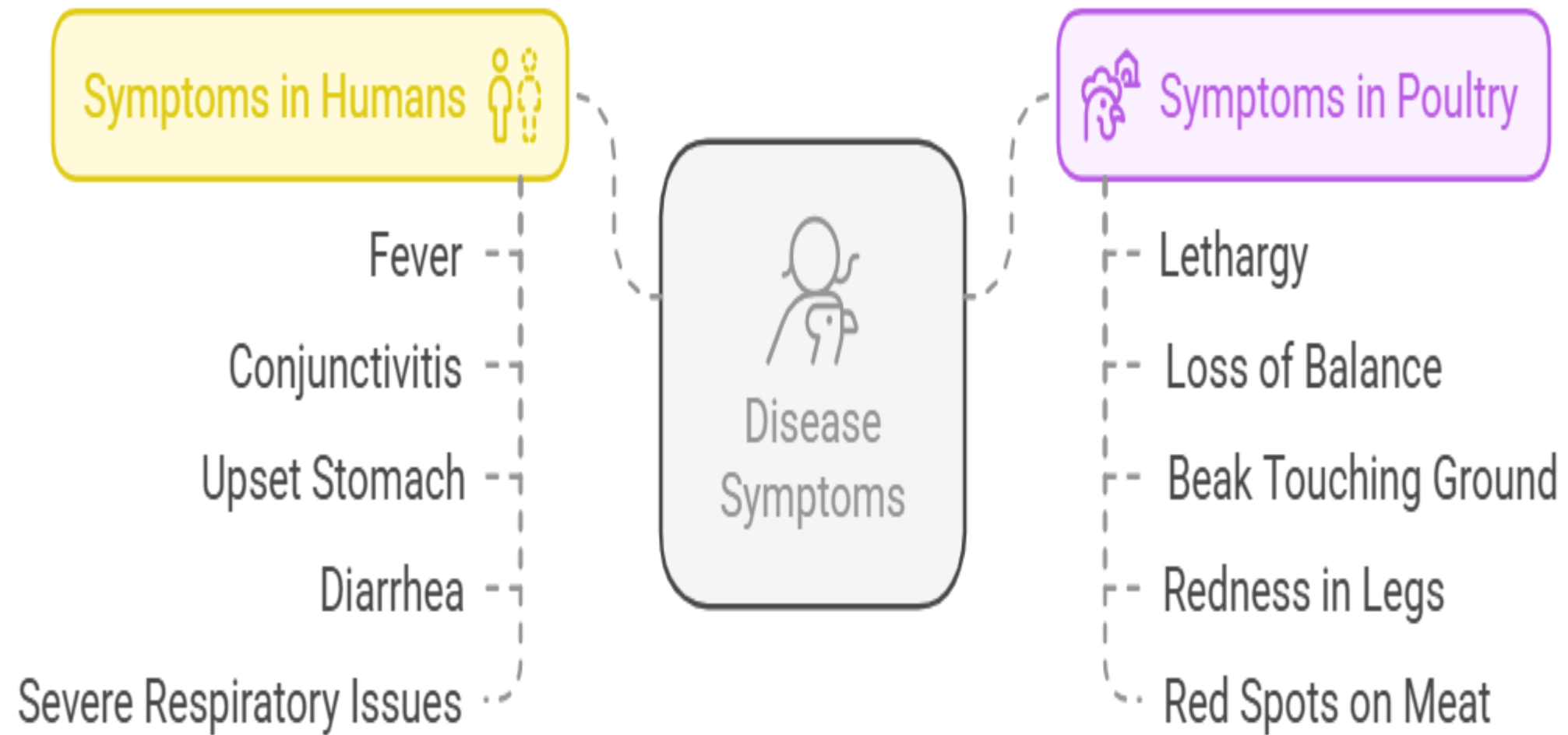
Situation in Palestine



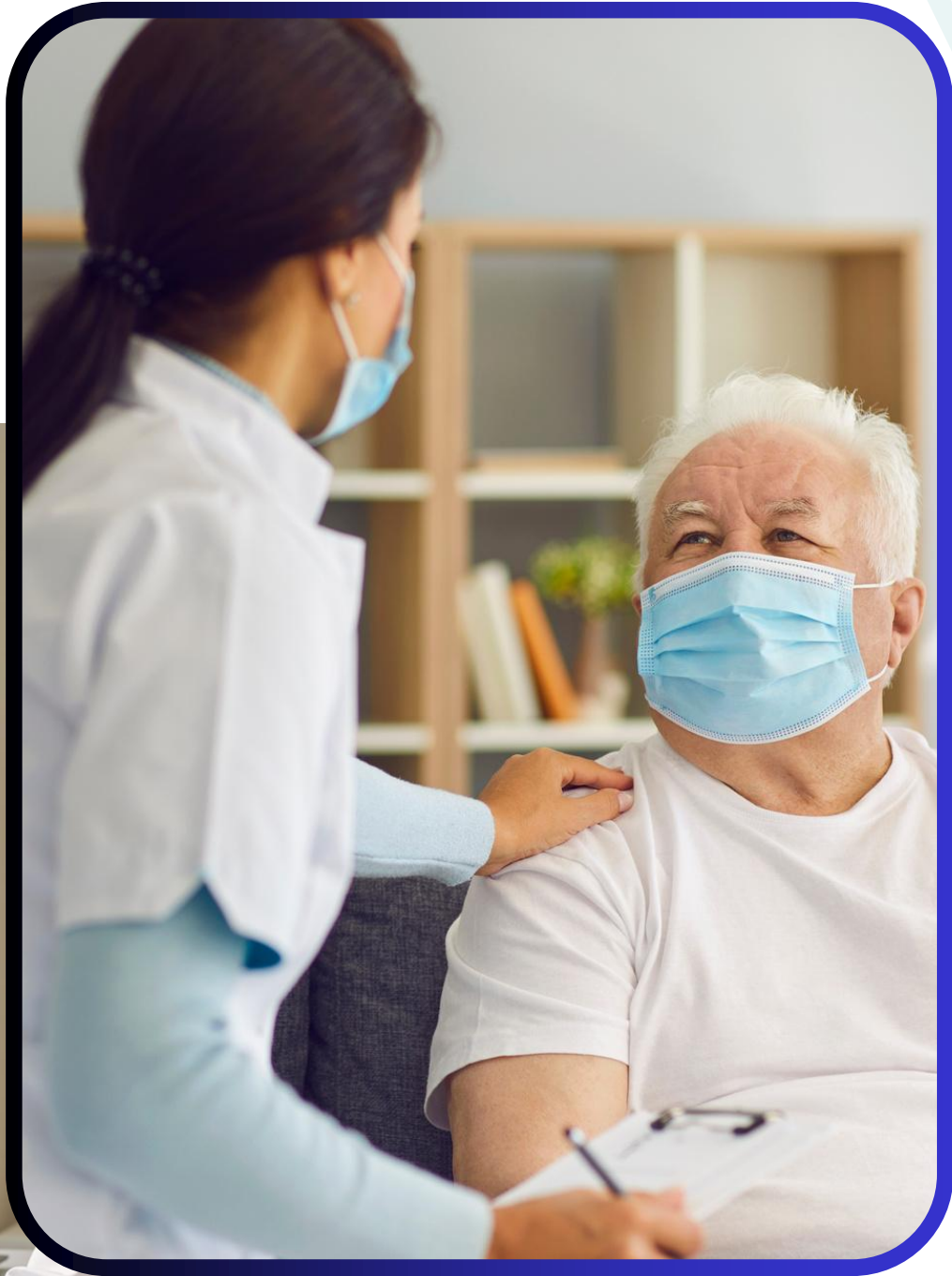
Symptoms and diagnosis



Symptoms and diagnosis



Symptoms and diagnosis



Clinical Assessment

Reviewing symptoms and exposure history

Detecting virus's genetic material

PCR Test



Viral Culture

Isolating the virus from samples

Identifying immune response in blood

Antibody Testing



Preventive measures



and treatment





Preventive measures and treatment



Farm Measures

Strategies to restrict access and establish zones.



Awareness Education

Teaching hygiene practices to the public.



Veterinary Control

Vaccination and supervision of poultry health.

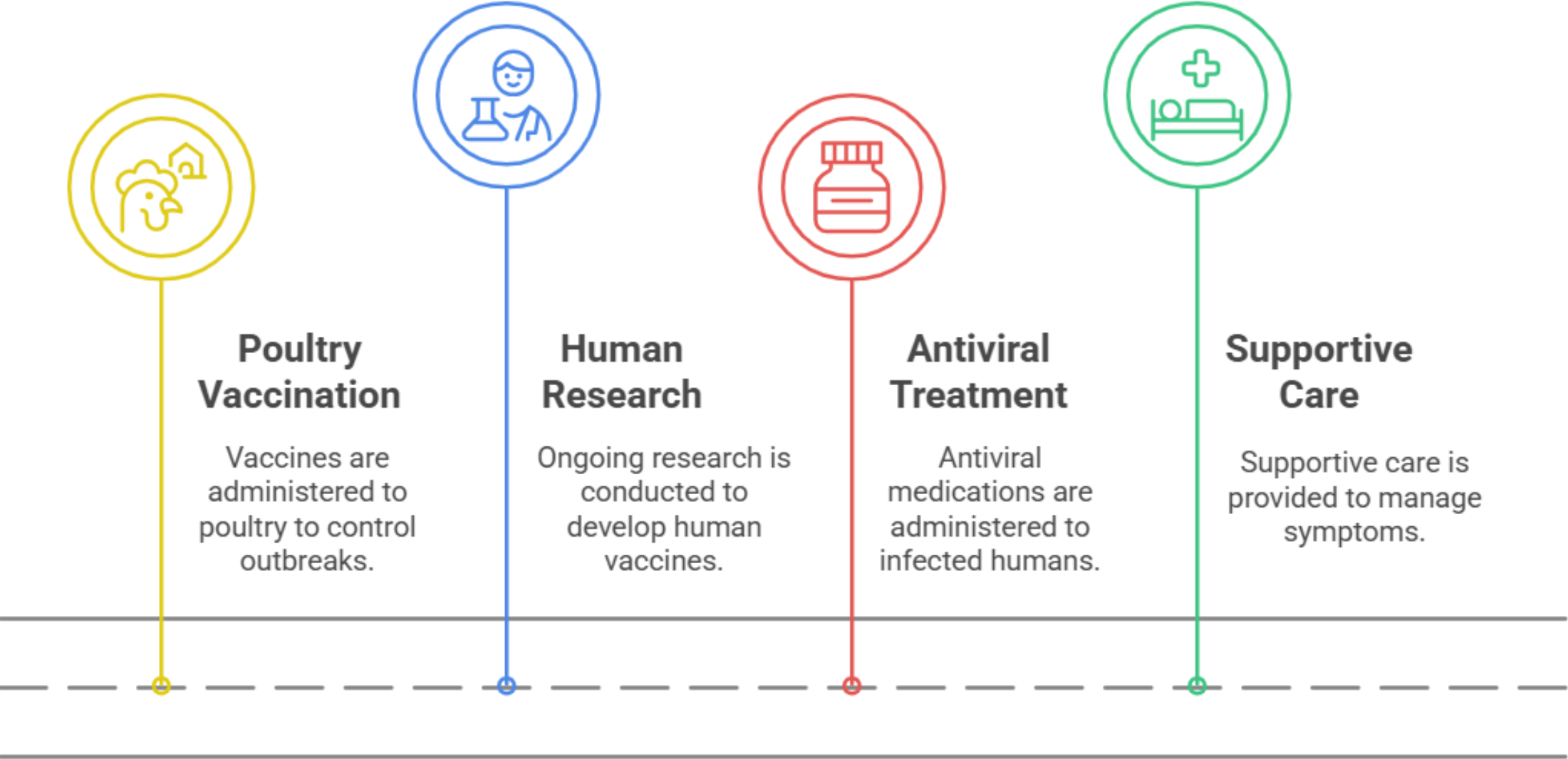


Disposal Methods

Safe ways to dispose of infected birds.



Preventive measures and treatment



Treatment Options



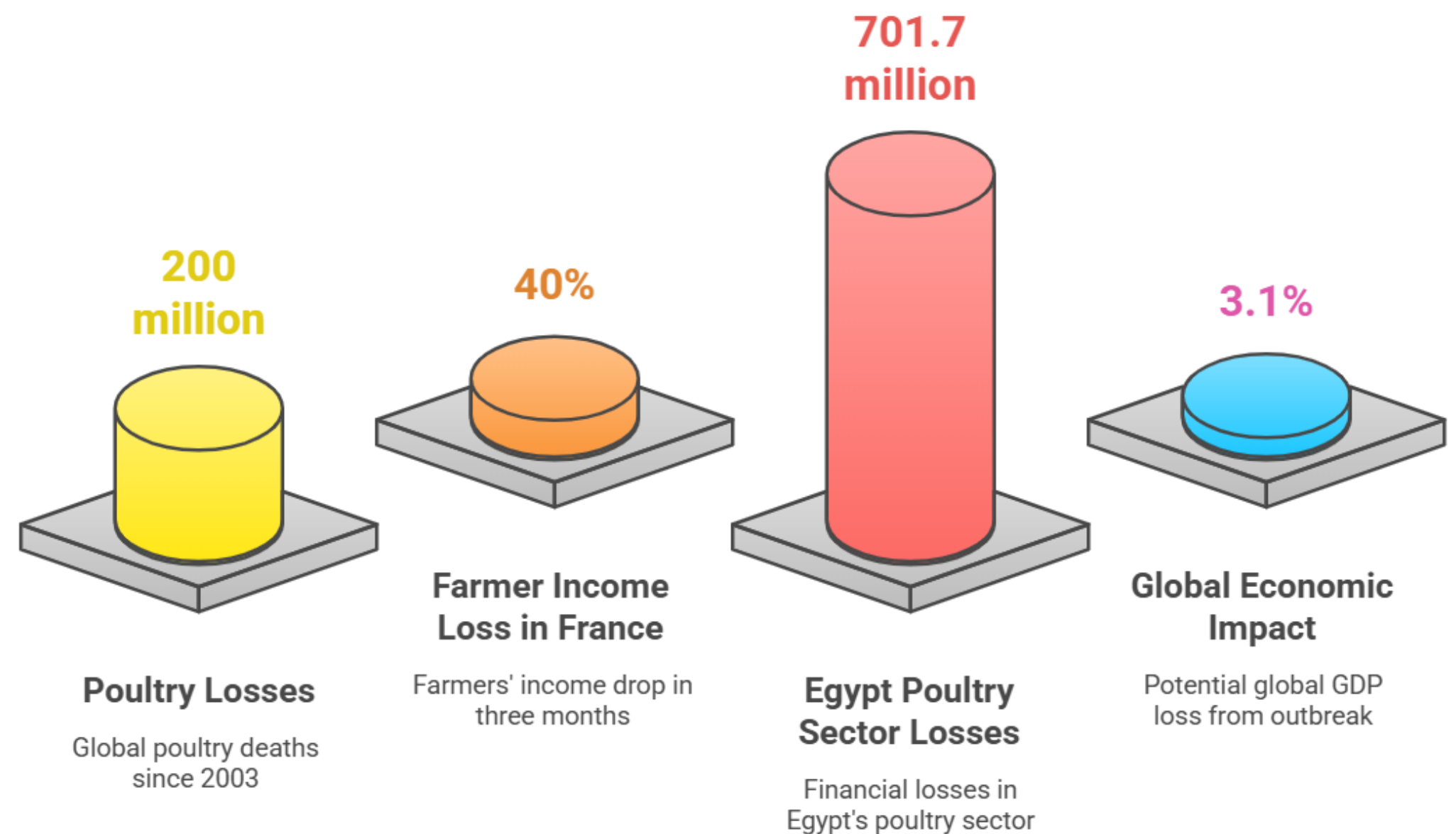


Economic and social impacts of bird flu





Economic and social impacts of bird flu



Government and international actions





Government and international actions:



World Health Organization

- Monitoring and Tracking
- Response Protocols
- Government Coordination
- Vaccines and Treatments
- Awareness and Education

SOS

Global
Response to
Bird Flu
Outbreaks

Governments

- Control Measures
- Financial Compensation
- Protective Supplies

International Cooperation

- Epidemic Reports
- Rapid Response Efforts
- Preparedness Plans



Conclusions



Conclusions

Importance of Surveillance and Awareness

Continuous monitoring of wild and domestic birds is essential for early detection and containment of avian influenza. The WHO emphasizes immediate reporting of suspected cases and implementing quarantine measures when necessary. Public awareness and education on virus transmission and prevention are key to reducing its spread.

Advancing Scientific Research

Scientific research is crucial in understanding avian influenza, improving vaccines, and developing treatments. Studies focus on virus transmission and cross-species infection to enhance preventive measures.





Conclusions

Avoid Contact

Avoid sick or dead birds to reduce risk.



Cook Thoroughly

Ensure poultry and eggs are cooked properly.



Get Vaccinated

Receive the seasonal flu vaccine for protection.



Use PPE

Wear protective equipment when handling birds.



Avoid Dairy

Stay away from unpasteurized dairy products.

Community Role in Prevention

References

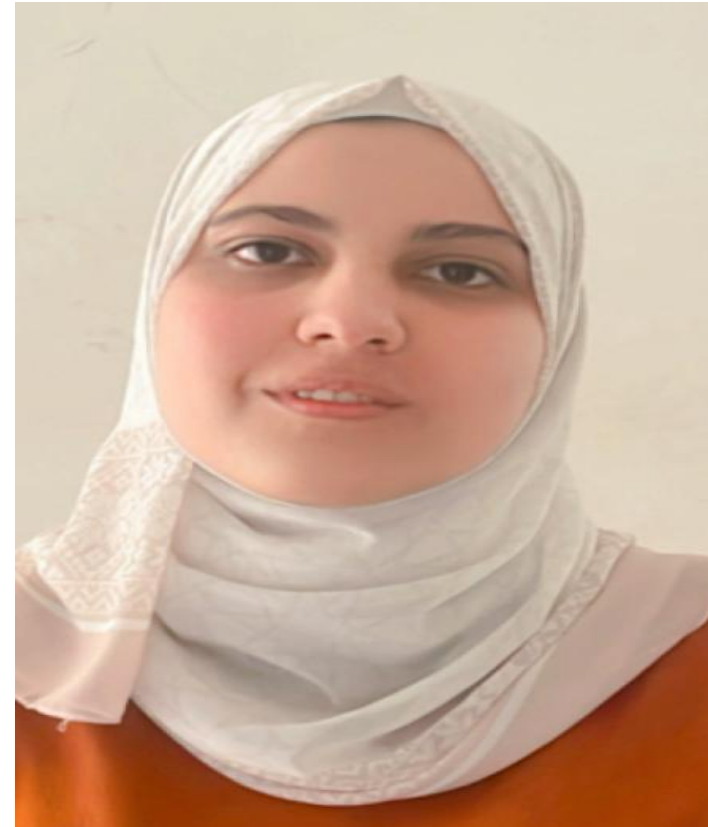
- [World Health Organization \(WHO\)](#)
- [Centers for Disease Control and Prevention \(CDC\)](#)
- [National Institutes of Health \(NIH\)](#)
- [European Commission](#)
- [Food and Agriculture Organization \(FAO\)](#)
- [United States Department of Agriculture \(USDA\)](#)
- [The Lancet](#)
- [Nature - Research on Viral Mutations](#)
- [ScienceDirect - Academic Articles on Avian Influenza](#)
- [NCBI - Research on Virus Transmission and Treatments](#)



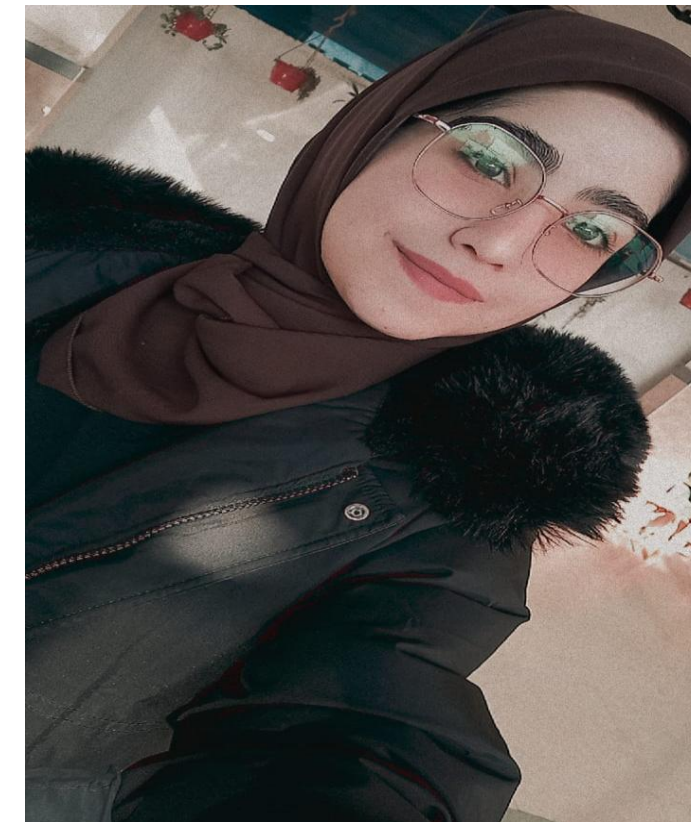
Our Team



Alaa Alzebda

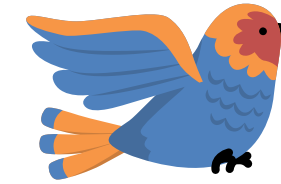


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Our Team



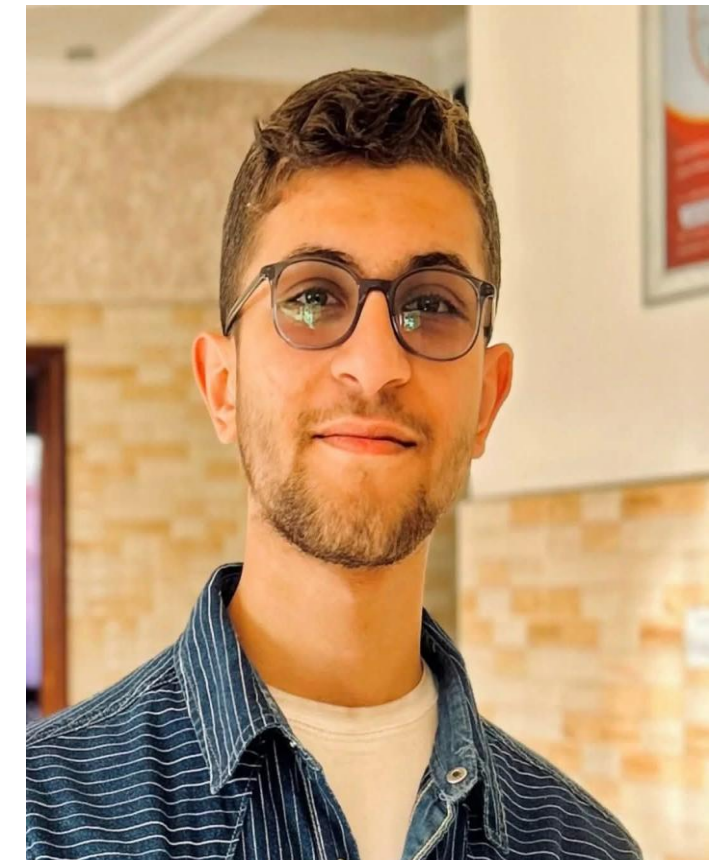
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THANK
YOU

