

# FluKB: an Integrated Knowledge Base for Influenza Viruses

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# Influenza Viruses

- Viral Family: Orthomyxoviridae family (Single Stranded RNA Virus).
- Types of Influenza Viruses: A, B and C Viruses.
- Type A
  - Epidemics & Pandemics
  - Affects Humans & Animals (all ages)
  - Classified by Subtypes: Hemagglutinin(HA) & Neuraminidase (NA)
- Type B:
  - Milder Epidemics
  - Affects Humans only (mainly children)
  - Not Categorized as HA or NA Subtypes
- Type C:
  - No Epidemics
  - Rarely reported in Humans

# Why Is Influenza A Virus Such a Public Threat?

- Antigen Drift: Variation within the HN Subtype (Less Danger)
- Antigen Shift: Variation between HN Subtypes (Pandemic)

Spanish Flu	H1N1	1918-1919	50-100 million
Asian Flu	H2N2	1957-1958	1 - 4 million
Hong - Kong Flu	H3N2	1968-1969	750,000
Bird Flu	H5N1	CURRENT	50% of affected people

# Why do we need an Integrated knowledge base?

- To research on Flu Viruses.
- To predict future virus strains early.
- To develop vaccines timely.
- To Educate people on Influenza Viruses.
- To Identify Carrier hosts for Viruses
- To identify countries affected
- To identify number of people affected and lot more...

*The pandemic clock is ticking, we just don't know what time it is" (E. Marcuse)*

# Previous Work

- Influenza Virus Resource by NCBI  
(National Center for Biotechnology Information)
- Influenza Sequence Database by Flu.Lanl.Gov
- Current Design: In support of CDC  
(Centers for Disease Control and Prevention)
- Additional Features when compared to past work:
  - Integrated Virus Vaccine Data
  - Integrated Virus Outbreak Data
  - Integrated Literature Data
  - Dynamic and Static Queries
  - Statistical Graphs
  - Friendly User Interfaces
  - Robust Design

## Consolidated Database for Influenza Viruses

Home

Genetic Info

Vaccine Info

Outbreak Info

Web Queries

Literature

Glossary

Project Notes

### Guidance

This project is done by Kashi Buyyani under the extreme guidance of Dr. Zhengxin Chen , Dr. Guoqing Lu and Dr. Ken Dick as a part of fulfillment of Masters project requirement

[Links](#)

[CDC](#)

[NCBI](#)

[WHO](#)

### About The Project

What exactly is an Avian Influenza and why should we worry about it? Is it something that humans and our surrounding Animals need to worry about? What is the purpose of this project in related to Avian Influenza and how can it serve the need.

This project is one of the attempts made to study about Avian Influenza Viruses and its wide spread in the world. This would help the Researchers in having the useful data stored in a single place from which they can work and simulate the available information to predict the future outbreaks of any dangerous Influenza type viruses. It would also serve as a knowledge base for all the Avian Influenza information.

There are Three Types of Influenza Viruses: A, B and C. Avian Influenza belongs to Type A virus and is part of orthomyxoviridae family. Type A viruses are most dangerous and can cause local epidemics and global pandemics.

H5N1 serotype is a very dangerous virus, and has caused fatal disease and epidemics in bird populations. There have recently been many cases of H5N1 jumping from birds to humans, causing very severe influenza in humans. This has concerned scientists, because H5N1 could be extremely deadly if there was an epidemic.

This website is mainly into different pages, where each page will be covering different phases of our project design.

**Home Page:** This page gives information about the main goal of this project and how the information is divided into different sections in this project.

**Genetic Info:** This interface handles all the Influenza viruses Sequence information.

**Vaccine Info:** This interface handles all the Influenza Viruses Vaccine information.

**Outbreak Info:** This interface handles all the Influenza Viruses Outbreak information.

**Web Queries:** This interfaces handles all the Webqueries related to Influenza Viruses.

**Literature:** This interface handles all the Influenza Viruses Literature information.

**Glossary:** This interface holds the glossary of important terms related to Influenza Viruses.

[http:// www.flugenome.org](http://www.flugenome.org)