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A Review on Emerging & New Viruses on the Indian Horizon

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Abstract : In this Review article to study the emerging & new viruses on Indian horizon. Emerging virus means the new disease, new problem. In this India reported by Emergence/ re-emergence of different viral infection. Every country should be implementing a comprehensive set of measures, calibrated to their capacity and context, to slow down transmission and reduce mortality associated with Viral Infections. The important emerging viral infection are discussed in this review article. In this include Nipah virus, Zika virus, Chikanguniya virus, avian influenza, Plague, Cholera, SARS Corona virus, Japanese Encephalitis, Ebola virus. The incidence of infectious diseases in humans may increase in the near future. Newly emerging and re-emerging infectious diseases are causing great loss of life and suffering worldwide.

Key words: Nipah virus, Zika virus, Chikanguniya virus, avian influenza, Plague, Cholera, SARS, Corona virus, Japanese Encephalitis,Ebola virus.

Introduction

Virus is an obligate intracellular parasite. Viruses are classified into different orders and families. An important threat to human's health is the emergence and rebirth of viral disease. Viral diseases are widespread. Emerging infections means infections that have newly appeared in a population or have existed previously but are rapidly increasing in incidence or geographic range. Re-emerging infectious diseases are Old Diseases; new problem. Previously detected or unknown infectious agents can cause emerging infections A large number of hosts are available for transmission. Emergences are often spread of pathogen in newer areas. Several factors underlie the emergence of such diseases, including increasing population, poverty and malnutrition, increased domestic and global connectivity. Approximate indicate [70%] emerging infection & [60%] of infectious diseases of humans are zoonotic in origin.[1] Viral pathogens are known to cause outbreaks that have epidemic and pandemic potential. [71%] of these outbreaks were caused by viral pathogens & [29%] due to non viral pathogens. Despite remarkable advances in medical science & treatment during 20th century infectious diseases remain the leading cause of death worldwide. Emergence of new infectious diseases re-emergence of old infectious diseases & persistence of intractable infectious diseases. During the last [20] yr. At least [30] new diseases have emerged. In re-emerging diseases that once were major health problems globally or in particular country and then declined dramatically, but are again becoming health problems for a significant In emerging disease that have not occurred in human before or that occurred only small numbers in isolated places.[2]

1) Nipah Virus:-

Nipah virus is a zoonotic virus (it is transmitted from animals to humans). It is a type of RNA virus & the genus of Nipah virus is Henipavirus. Generally This Virus is spread from the bats & sick pigs. Its infection is the viral infection caused by Nipah Virus. Spread typically requires direct contact with an infected source. Symptoms of this disease appear in [5-14]

days. The natural reservoirs of NiV are Fruit bats of the genus *Petrous* .The routes of include contaminated fruits by the infected bats, close contact with the infected person, & also spread from contaminated food or directly between people. Ribavirin drug is very effective against this virus in vitro. Inactivated vaccination using human monoclonal antibody targeting Nipah G glycoprotein was evaluated in exposure post therapy in the ferret model and benefited.[3] The disease is suspected in symptomatic individuals in the context of an epidemic outbreak. Outbreak of this disease is published on 31 may 2018. The disease was most prevalent in Malaysia and Singapore in 1999. By mid-1999, more than [265] human cases of encephalitis, including [105] deaths, had been reported in Malaysia, and [11] cases of either encephalitis or respiratory illness with one fatality were reported in Singapore. The disease was identified 2001 in India and Bangladesh. The disease has been identified periodically in eastern India [2001, 2007]. The highest mortality due to Nipah virus infection has occurred in Bangaladesh.in

Fig No: 1 Location of Nipah Virus outbreak

Northern India, as in Bangladesh, P. giganteus bats live in close association with the human population. This outbreak is the third Nipah virus outbreak in India. The country demonstrated its capacity to rapidly contain the outbreak, including by the identification of cases, verifying cases with laboratory testing and caring for patients. The risk of exposure is high for hospital workers and caretakers of those infected with the virus. This virus is also identified in Kelara.

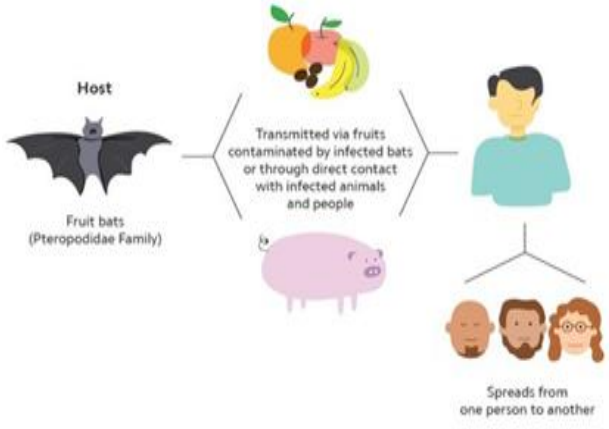

Fig No: 2 How to Spread Nipah virus showing in above picture.

In this Reverse transcriptase polymerase chain reaction is used for the diagnosis of the nipah virus infection. IgG and IgM antibody detection can be done after recovery to confirm Nipah virus infection.

To prevent for this disease from WHO:-

- Avoiding exposure to bats and sick pigs in endemic areas.
- Avoid fruits eaten by infected bats
- Switching to closed top containers prevents transmission via this route. Surveillance and awareness are important for preventing future outbreaks.
- Avoid contact with infected people[4]

Health care workers caring for a patient suspected to have NiV fever should immediately contact local and national experts for guidance and to arrange for laboratory testing. Procedures for the laboratory diagnosis of Nipah virus include serology, histopathology, and PCR and virus isolation. The International Health Regulations [2005] or "IHR [2005]" have been in force since 15 June 2007. The IHR [2005] provide a framework for WHO epidemic alert and rapid response activities already being implemented in collaboration with countries to control international outbreaks and to strengthen international public health security. Epidemiological data and operational information about outbreaks is dynamic and changes rapidly. The WHO generates a dynamic picture of Alert and Response Operations. WHO's global alert and response activities and the Outbreak Alert and Response Network represent a major

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pillar of global health security aimed at the detection, verification and containment of epidemics. In the event of the intentional release of a biological agent these activities would be vital to effective international containment efforts. WHO global alert and response systematically gathers official reports and rumors of suspected outbreaks from a wide range of formal and informal sources. The Global Public Health Intelligence Network is one of the most important sources of informal information related to outbreaks. Rapid detection and verification of health emergencies is essential to save lives.[[4]

2) Zika Virus:-

Zika virus spread from the Aides species mosquito (*Ae. aegypti*and *Ae.albopictus*) bite. Family Of this Disease is Flaviviridae. It is communicable virus. It is similar to the dengue fever, yellow fever, & west Nile virus. Zika virus diseases are passed from a pregnant woman to her fetus. There is no vaccine or drug available to treat Zika virus, so it is important to avoid mosquito bites and sexual contact in Zika virus-infected areas, this is the only solution. Zila virus is the abrovirus,it is spreading in American& Asian Countries. The World Health Organization has suggested that priority should be to develop inactivated vaccines and other nonlife vaccines, which are safe to use in pregnant women. This Virus Was 1st identified in Uganda in 1947 in Monkey & isolated in the Apr.1947.[3] Three laboratories confirmed the virus in different districts and states on May 15 by Ministry of Health and Family Welfare-Government of India, in Bapunagar area, Ahmedabad District, Gujarat, State, India. Zika virus was confirmed by BJ Medical College, Ahmedabad, and Gujarat through rt-pcr test. The etiology of this case has been further confirmed through a positive RT-PCR test and sequencing at the national reference laboratory, National Institute of Virology, Pune on 4 January 2017. Two additional cases Acute Febrile Illness (AFI) and the Antenatal clinic (ANC) have been identified by the surveillance. The cases are reported below in chronological order:

Case 1st: A [34]-year-old female, delivered a clinically well baby at BJMC in Ahmedabad on 9 November 2016. During her hospital stay, she developed a low grade fever after delivery. No history of fever during pregnancy and no history of travel for the past three months was reported. A sample from the patient was referred to the Viral Research & Diagnostic Laboratory (VRDL) at the BJMC for dengue testing and thereafter found to be positive for Zika virus. She was discharged after one week [on 16 November 2016]. The sample was re-confirmed as Zika virus positive by RT-PCR and sequencing at NIV, Pune.

Case 2nd: During the Antenatal clinic (ANC) surveillance between 6 and 12 January 2017, a total of [111] blood samples were collected at BJMC. One sample from a[22]-year-old pregnant female in her 37th week of pregnancy has been tested positive for Zika virus disease.

Case 3rd: During the Acute Febrile Illness (AFI) surveillance between 10 to 16 February 2017*, a total of 93 blood samples were collected at BJ Medical College (BJMC), Ahmedabad, Gujarat State. One sample from a 64-year-old male presenting with febrile illness of [8] days' duration (negative for dengue infection) was found to be positive for Zika virus at BJMC, Ahmedabad. This is the first Zika positive case reported through AFI surveillance at BJMC, Ahmedabad, and Gujarat State.[4]

Zika virus infections and provides evidence on the circulation of the virus in India, by the assessment of WHO. The conclusion that the Zika virus is known to be circulating in Southeast Asia does not change the global risk assessment. WHO encourages Member states to report similar findings to better understand the global epidemiology of Zika virus. WHO continues to monitor the epidemiological situation and conduct risk assessment based on the latest available information Zika Virus is present in Mexico, Central America, South America, the Caribbean, tropical areas of Southeast Asia, Oceania, and parts of Africa. Zika Virus is associated with neurological complications: Guillain-Barre syndrome and microcephaly in infants born to pregnant women infected with the virus.[4,6]

3) Chikanguniya:-

Chikanguniya is Viral Disease spread to people by infected mosquitoes. It is transmitted from human to human by the Aides species mosquitoes. Family and genus of this virus is Togaviridae & Alpha virus. This virus is identified in [60] countries in Asia, Africa, Europe and the Americas. This virus can be separated from the blood from the first day of infection.

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Muscle pain, headache, nausea, fatigue and rash is a symptoms of this disease. Antiviral drug treatment is useful for the disease. The virus is diagnosed by Serological tests & enzyme-linked immunosorbent assays (ELISA).[3] Mosquito control focuses on removing standing water where mosquitoes lay eggs and develop as larvae; If standing water cannot be removed, pesticides or biological control elements may be added. Suspected cases in Maharashtra for this virus is [258,998] & in Karnataka is [752,245] cases. The density of mosquito's decreases when there is an Elimination of breeding site. A team from the Ministry of Health and Family Welfare, health officials from Kerala and staff from the WHO India Office and Regional Office for South-East Asia inquiry about the outbreak in Kerala. They carried out epidemiological and clinical examinations of suspected cases in home and at hospital, and collected clinical samples. [31] Physicians from a sentinel network on La Reunion reported [3115] cases of Chikanguniya between 5 March 2005 and 17 March 2006. Between February 27 and March 5, [196] cases were covered.

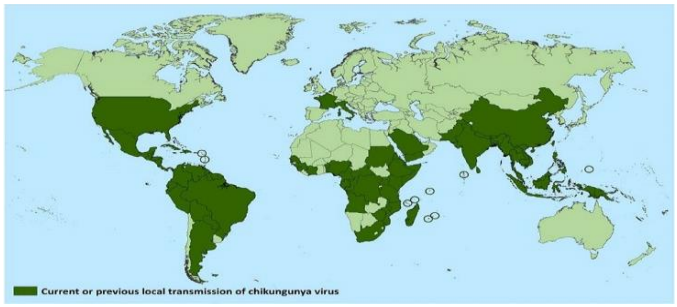

Fig No: 3 Chikanguniya virus Outbreaks

Virus cases and outbreaks had been identified in countries in Africa, Asia, Europe, and the Indian and Pacific Oceans. Approximately [2, 04,000] Peoples are infected by chikanguniya virus.[4]

Table 1. Beginning Of 2006 Many Countries from south west Indian Ocean European reported seen by following table.

Countries	Year	Cases
Mayotte	9 Jan – 10 Mar	2833
Mauritius	1 Jan – 5 Mar	6000
Seychelles	1 Jan – 26 Feb	8818
France	-	160

Table 2. A mixed outbreak of chikanguniya, reported in State & district are following Year's,

Year	Cases	With Disease
1 Dec 2005 - 17 Feb 2006	5671	Fever & Arthralgia
1 – 15 Mar.	2000	--
27 Feb. – 5 Mar 2006	4904	Myalgia & Headache

20 were suspected cases & [5] were isolated cases of co-infection chikanguniya-dengue. Dengue has been reported in the Maldives since January 2006 and on March 5, 2006, 602 suspected patients were found.

Diagnosis of this virus by PCR based techniques.[4,7]

4) Avian Influenza:-

Avian influenza known as bird flu. Bird flu is similar to swine flu, human flu, dog flu, horse flu avian influenza disease caused by infection with avian (bird) influenza (flu) Type A viruses. This virus do not infect human. Human and avian viruses bind to different receptors. There are [4] types of viruses A, B, C, & D. Influenza a viruses are classified into subtypes based on two surface proteins, hem agglutinin (HA) and neuraminidase (NA). This virus spread human to human very rarely. Avian influenza strains are divided into two types based on their pathogenicity - high pathogenicity or low pathogenicity.[3] Low pathogenic Avian Influenza viruses usually cause subclinical infectious or mild illness in poultry & other birds. While some Gallinacean game birds (e.g., small birds, pheasants, guinea fowl, and partridges) infected with the LPAI virus are infectious, others have clinical signs including lethargy, sinusitis, conjunctivitis, decreased egg production, and diarrhea. High pathogenic avian influenza viruses usually cause severe illness in chickens and turkeys, and few birds in infected flocks typically survive. HPAI virus infections can be asymptomatic. Antiviral drugs are used for this treatment. This is appeared in china at 1996.

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Table .3

No.	Countries	Cases
1	Jiangsu	52
2	Zhejiang	21
3	Anhui	14
4	Guangdong	14
5	Shanghai	2
6	Fujian	2
7	Hunan	1

WHO reported [106] cases in china at 9 Jan 2017. Human cases increases in December & January. The Ministry of Health and Family Welfare in India has informed WHO that no human cases of H5N1 infection have been detected to date. Testing has been undertaken at the National Institute of Virology in Pune and the National Institute of Communicable Diseases in Delhi. A [27]-year-old poultry worker died of respiratory ailments in Gujarat on February 17, but it was not clear if samples were taken. WHO strongly recommends that patient samples be sent to a WHO collaborating laboratory for diagnostic confirmation? The country's first outbreak of highly pathogenic H5N1 avian influenza was confirmed by the Agriculture Authority of India in Poultry on 18 February. The disease was detected at several commercial farms in the Navapur sub-district in the western state of Maharashtra. Large numbers of poultry deaths, at more than [50] farms in the area, had been noted, but the cause was initially diagnosed as Newcastle disease. It is understood that the outbreak started on January 27. The government has provided a Navapur hospital for the management, in isolation, of probable human cases. [12] Patients suffering from fever and respiratory illness were admitted to Navapur district hospital for observation as a precautionary measure. In Vaira sub-district of Gujarat, three more patients have been admitted to the hospital for observation. Samples from patients are tested at the National Institute of virology. Diagnosed this virus by the laboratory tests by taking sample of patient. Many influenza viruses have become resistant to the effects of a category of antiviral drugs that includes amantadine and rimantadine. These drugs must be taken within two days after the appearance of symptoms.[4,8]

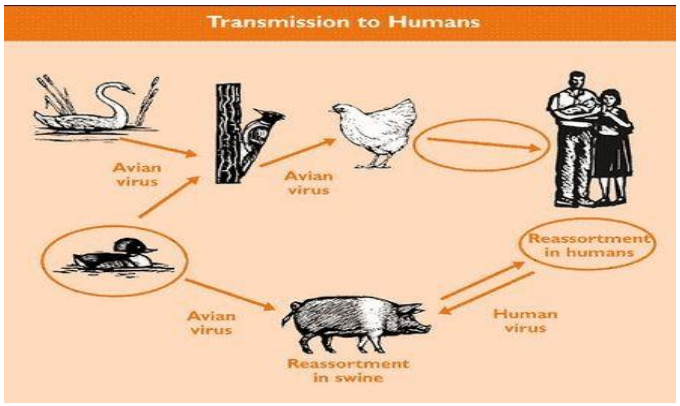

Fig No: 4 How to transmission of Avian Virus

5) Plague:-

Plague is infectious disease caused by bacterium Yersinia pestis.symptoms are common of this disease like headache, fever, weakness etc. It is discovered by the Institute Pasteur, bacteriologist Alexander Yersinia during a plague outbreak in Hong Kong in 1894 Yersinia pestis gram negative coccobacillus belonging to the Enterobacteriace. It is rodent pathogen. Transmission of this disease is between the people through the air via infectious droplets. Plague can be a very severe disease in people. Bubonic and septicemia plague are generally spread by flea bites or handling an infected animal. Bubonic plague is most common disease in human which in addition to fever and malaise is characterized by the enlargement of regional lymph nodes (buboes) at the site of bacterial cell proliferation. Gentamicin or streptomycin may be used, B-lactam is not useful.[3] Plague animal hosts are classified as enzootic (maintenance) host and epizootic (amplification) host. Plague organisms are sometimes identified in colonies or in areas of more sensitive species. Globally about [600] cases are reported a year. In 2017 the countries with the most cases include the Democratic Republic of the Congo, Madagascar and Peru. It has historically occurred in large outbreaks, with the best known being the Black Death in the 14th century which resulted in greater than [50] million dead.

ISSN:-2581-6934 |Available at : www.jidps.com | pp :(1-11)

Table 4. Plague cases in India at 1994 are shown in following table.

No.	State	Cases
1.	Maharashtra	488
2.	Gujarat	77
3.	Karnataka	46
4	Uttar Pradesh	10
5.	Madhya Pradesh	4

1 Aug 2017 started outbreak of plague in Madagascar due to concerted national and international response the current and unprecedented. In 19 Feb.2002 [16] cases of pneumonic plague including [4] deaths in Hat Koti village, reported by the Ministry of Health, India Since the outbreak on 14 February 2002. On Monday, 27 November the Ministry of Health of Madagascar officially announced the containment of the acute urban pneumonic plague outbreak. However, because plague is endemic in Madagascar and the plague season lasts from September to April, more cases of bubonic and sporadic pneumonic plague are expected to be reported until April 2018. A team from the NICD visited the village, and found that all the cases could be linked to residents of one hamlet. Under the guidance of the team, the local health administration has taken the following measures: administration of chemoprophylaxis to contacts of the patients, to residents of the affected and neighboring village and to doctors/paramedics and health workers; fumigation in the affected villages and transport vehicles; public education campaign. On 8th Feb. reported last case WHO proposed no special restrictions on travel or trade to or from India. [4,9]

6) Cholera:-

Cholera is a infectious disease. It is an infection of the small intestine & caused by the types of *Vibrio cholera*, Others names is Asiatic cholera, epidemic cholera. In this disease patients condition is with severe dehydration due to cholera causing sunken eyes and wrinkled hands and skin. It is spread mostly by the unsafe food and unsafe water that has been contaminated with human feces containing the bacteria. It is extremely serious disease that can cause severe acute watery diarrhea with severe dehydration that can cause severe acute watery diarrhea with severe Several antibiotics are effective in the treatment of cholera, including doxycycline, ciprofloxacin, and azithromycin, assuming that the cholera strain is sensitive. This disease diagnosed by the stool test.[3] Cholera is still around today Researchers have estimated that each year there are 1.3 million to 4.0 million cases of cholera, and [21000-14000] deaths worldwide due to cholera. Cholera occurs as both outbreaks and chronically in certain areas in 2014, it was revived with a secretariat based on the Global Task Force on Cholera Control (GTFCC). Orissa government reported [34111] cases of diarrhea including [33] deaths. Population of Orissa has [37] million people & 8 million were affected by the floods. Clusters of [121] samples taken from 5 districts were positive for Vibrio cholera in cases of severe diarrhea, [46%] positive for sero group [139]. This proportion of [0139] is higher than the rate found in neighboring Bangladesh, where in 2000 there was a positive isolation of [24%] for [0139] in coastal areas and [7.2%] for coastal areas. The last outbreak in the US was when steamship Mortal brought infected people from Nepal to the city. Cholera outbreak affect several countries Overall, [54%] of cases were reported from Africa, [13%] from Asia and [32%] from Hispaniola. WHO is assisting the national health authorities in continuing surveillance.[4,10]

7) SARS:-

Sever Acute Respiratory syndrome (SARS) is a respiratory disease of humans & type of Corona Virus called SARS associated Cov. SARS-CoV.

This Disease 1st reported in Asia (at Vietnam French hospital of Hanoi) in Feb.2003 the SARS infection quickly spread from China to other Asian Countries. The disease caused by the coronavirus. Coronavirus as the causative agent for SARS. The Virus was officially named the SARS coronavirus (SARS-Cov) The [2] other type cause SARS & Middle East Respiratory Syndrome (MERS) these are less common but far more deadly.[3] This virus cases reported in Guangdong Province & [12] new cases in China at 17 Apr.2003. No new cases and no new deaths found in Beijing. As of April 15, [321] people in the Amoy Garden had been similarly infected. In [25] countries reported by cumulative total[3389] cases & [165] deaths. In India 1st of SARS

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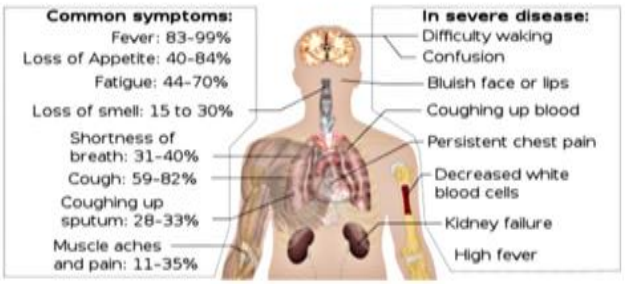
reported by the yesterday. The National Institute of Virology in West Coast Goa confirmed the existence of a new coronavirus that causes SARS. With potential SARS cases being reported from a growing number of countries, the WHO is exploring what is known about the new disease, specifically its mode of transmission and what a puzzle it is. In Canada, there is concern around a cluster of potential cases and [31] suspected among members of the charismatic religious community, the healthcare they are treating, and close family and social contacts. The number was increasing compared to the daily updates of SARS. As of Apr.21 update the Chinese government today released another 109 stork cases in Beijing. The latest report comes after the announcement of [33] previously SARS patients who were not previously released on Sunday.[4] There is no breakdown in the number of patients in regular and military hospitals. The new figure brings the total number of confirmed cases in China to [1,959]. As of 22 Apr. reported the[11] new deaths cases were reported in China[6] and Hong Kong SAR[5]. Following the global alert on Acute Respiratory Syndrome (SARS) issued by the WHO on March 12 and 1, national authorities are keeping a close watch on suspected and potential cases. On March 2, the WHO recommended additional measures aimed at curbing the travel-related spread of SARS. On April 2, the WHO recommended that individuals traveling to Hong Kong Special Administrative Region and Guangdong Province, China, should consider postponing all necessary travel. As of 24 Apr.2003 update report by the [24] out of [125] new cases among health workers, including one in Beijing. There have been a total of [541] incidents involving health workers in China since the SARS outbreak began in mid-November 2002. Beijing has the highest number of [89] new cases, followed by Guangdong 1 and Inner Mongolia 11. Beijing has reported 4 new deaths, bringing the number of SARS deaths in China to [110]. A total of [1359] cases have been reported together, with Guangdong having the highest number of probable cases, followed by Beijing with [774] probable cases. When SARS first appeared, no specific tests were available. Now many laboratory tests can help detect the virus. But since 2004 there has been no known transmission of SARS anywhere in the world.[4,11]

8) Covid-19:-

Coronavirus disease 2019 (COVID19) is an infectious disease caused by (SARS COV-2) severe acute respiratory syndrome coronavirus 2. Coronaviruses are enveloped positive-stranded RNA viruses that replicate in the cytoplasm. To deliver their nucleon capsid into the host cell, they rely on the fusion of their envelope with the host cell membrane. It was 1st discover in Wuhan, China Lab at Dec.2019 & has since spread globally, resulting in an ongoing pandemic. However, the first case may be traced back to 17 November, 2019. As of 31 May 2020, cases have been reported across [188] countries and territories, resulting in more than [368,000] deaths. More than [2.56] million people have recovered. The virus is mainly transmitted to humans through close contact, often through small drops created by coughing, sneezing and speaking. It is most contagious in the first three days after the onset of symptoms, although it is possible to spread before the onset of symptoms and from people who do not have symptoms. Diagnosis of this virus by real-time reverse transcription polymerase chain reaction (rRT-PCR) from a nasopharyngeal swab. Chest CT imaging may also be useful in individuals who have a high risk of infection based on symptoms and risk factors; however, the guidelines do not recommend the use of CT imaging for routine screening.[3] According to the World Health Organization, there are no vaccines or specific treatments for Covid-19. This is mostly affected on this organ of the lungs, because the virus accesses host cells via the enzyme angiotensin-converting enzyme 2 (ACE2), which is most abundant in type II alveolar cells of the lungs.



People were kept in isolation rooms to escape the epidemic in Corona. A study of the first [41] cases of confirmed

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COVID-19, published in January 2020 in *The Lancet*, revealed the earliest date of onset of symptoms as 1 December 2019. WHO has confirmed the human to human transmission. Coronavirus Covid-1 is affecting [213] countries and territories around the world and 2 international vehicles. On 11 February 2020, WHO announced a name for the new coronavirus disease: COVID-19.Recent update of coronavirus cases [6,396,278] Deaths [377,974] & recovered cases [2,929,531]? The Ministry of Health in its morning notification of Covid-1 raised the number of coronavirus deaths in the national capital to [168].[4,12]

GLOBAL STRATEGY TO RESPOND TO COVID-19.

The global strategic objectives are as follows:

• Mobilize all sectors and communities to ensure that every sector of government and society takes ownership of and participates in the response and in preventing cases through hand hygiene, respiratory etiquette and individual-level physical distancing.

• Control sporadic cases and clusters and prevent community transmission by rapidly finding and isolating all cases, providing them with appropriate care, and tracing, quarantining, and supporting all contacts.

• Suppress community transmission through context-appropriate infection prevention and control measures, population level physical distancing measures, and appropriate and proportionate restrictions on non-essential domestic and international travel.

• Reduce mortality by providing appropriate clinical care for those affected by COVID-19, ensuring the continuity of essential health and social services, and protecting frontline workers and vulnerable populations.

• Develop safe and effective vaccines and therapeutics that can be delivered at scale and that are accessible based on need.[13,14,15]

9) Japanese Encephalitis:-

It is a neurologic infectious disease. Brain caused by the Japanese encephalitis virus. Other name of this virus is Japanese B encephalitis. Common symptoms of this virus is like headache, fever, vomiting, confusion, seizures etc. Usual onset action of this virus is [5-15] days after infection. This virus is generally spread by mosquitoes. The Japanese encephalitis virus infects neuronal cells through a clathrin-independent endocytic system. The disease usually occurs outside the cities. Diagnosis is based on blood or cerebrospinal fluid testing.[3] Prevention is generally with the Japanese encephalitis vaccine, which is both safe and effective. Ecology of this virus is widely studied. The virus exists in a zoonotic transmission cycle among mosquitoes, pigs, bats, and water birds belonging to the family ardeidae. There is no antiviral treatment on patients with JE. Treatment is helpful in relieving the symptoms and stabilizing the patient. The disease occurs in Southeast Asia and the Western Pacific. The disease was first described in [1871]. Japanese Encephalitis (JE) in Japan is the leading cause of viral encephalitis in Asia, with up to [70,000] cases reported each year. Outbreaks appear to be exacerbated in the western Pacific. Locals are most at risk from rural residents; Japanese encephalitis usually does not occur in urban areas. Humans, cattle and horses are dead-end hosts as the disease manifests itself as life-threatening encephalitis. Pigs act as a promoter host and play a very important role in the epidemic of the disease. When abortion and fetal malformation are common sequels, infection in swine is reduced in pregnancy. The most important vector is *Culex tritaeniorhynchus* which feeds animals preferably over humans. The natural hosts of the Japanese encephalitis virus are birds, not humans, and many believe that the virus will not be completely eradicated. In November 2011, the Julius encephalitis virus was reported in South Korea. Large outbreaks of JE occur every [2-15] years. During the rainy season the JE transmission intensifies, during which the number of vectors increases. The main types of JE vaccines currently in use are mouse: inactivated mouse brain-derived vaccines, inactivated Vero cell-derived vaccines, live attenuated vaccines and live recombinant vaccines. Japanese encephalitis (JE) is a major public health problem in India. When the first case was reported in 1955, the disease was restricted to south India. During the period from July 2 to August 200, [1145] cases of Japanese encephalitis have been detected in [1] district of Uttar Pradesh. About a quarter of them (n = 26) have died. Cases from adjoining districts of Bihar have also been admitted to hospitals in Uttar Pradesh. Only one incident has occurred in most affected villages. Theoretical surveys in the affected villages have shown high

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density of the vectors of genital encephalitis (JE) - Culex tritenorinchus and Culex Vishnu group.[4,16]

10) Ebola Virus:-

Ebola virus disease (EVD), formerly known as Ebola hemorrhagic fever, is a severe, often fatal illness affecting humans and other primates. Family of this virus is filoviridae. This virus is more spread in wild animals, and then spreads in the human population through direct contact with the blood, secretions, organs or other bodily fluids of infected people, and with surfaces and materials (e.g. bedding, clothing) contaminated with these fluids. Incubation period of this virus is [2- 21] days. Ebola virus contains a type of genetic material called RNA, which is similar to DNA and contains the blueprint for assembling new virus particles. Ebolaviruses contain single-stranded, non-infectious RNA genomes.[3] Ebola contains a protein called glycoprotein that comes out of its membrane and binds to receptors on the cell surface. The binding of these receptors triggers a cell "eating" process called macroprinocytosis, resulting in a wave-like movement of the skin of the cell causing the virus to form. Diagnosis of this virus in ELISA test, PCR test, laboratory testing. This disease is 1st identified in 1976, in two simultaneous outbreaks: one in Nzara (a town in South Sudan) and the other in Yambuku(Democratic Republic of the Congo), a village near the Ebola River from which the disease takes its name. This virus is producing largely amount in monocytes, macrophages, dendritic cells including liver cells, fibroblasts, and adrenal gland cells. Viral replication triggers high levels of inflammatory chemical signals and leads to a septic state. 2nd outbreaks occurs in 26 Aug.1976 in Yambuku. This outbreak was caused by EBOV, formerly designated *Zaire Ebola virus*, a different member of the genus *Ebolavirus*than in the first Sudan outbreak.[4]

Table 5. Outbreaks of Ebola virus:

YEAR	INFECTED	DEATHS
1995	**315**	**254**
2000	**425**	**224**
2003	**143**	**128**
2007	**264**	**187**
2014	**66**	**49**

The WHO confirmed two small outbreaks in Uganda in [2012], both caused by the Sudan variant. The first outbreak affected seven people, killing four, and the second affected [24], killing [17]. The average EVD case fatality rate is around [50%.] Case fatality rates have varied from [25%] to [90%] in past outbreaks. Between May and July 2018, the ninth Ebola outbreak in the DRC took place in the same area, in and around the city of Mbandaka, leading to a total of [54] cases including [33] deaths. According to WHO, the current event seems to be separate from the tenth Ebola outbreak which has been in its final stages in the eastern part of the country almost a thousand kilometers away, with [3463] reported cases including [2280] deaths so far. The WHO has developed detailed advice on Ebola infection prevention and control.[4,17]

Table 6. Emerging Viruses in India

No.	Virus	Disease type	Host/ vector	Transmission	Diagnosis	Outbreak report
1	Nipah	Encephalitis	Pigs, human	Human to human ,close contact with infected animal	Detection of IgM/IgG antibody in serum , viral isolation csf/throat swab	West Bengal 2001,2007
2	Zika virus	Infectious	Mosquitoes	Pregnant woman to her fetus	Serology,ELISA, RT-RT-PCR,Nucleic acid test	Africa,Asia,Island of yam 2007 , Brazil mar 2015
3	Chikanguniya	Infectious	Mosquitoes	Mosquito's to human	Blood test for viral RNA Or Antibodies	Re-emergence in 2005 in several states of India after 30 days
4	Avian influenza	Febrile illness with arthralgia,neurological	Mosquitoes of Added species	Bite of infected Added mosquitoes, mother to child	IgM antibody in serum, detection of viral RNA by PCR in serum	Europe,Asia,Africa,Noth America

ISSN:-2581-6934 |Available at : www.jidps.com | pp :(1-11)

5	Plague	Infectious	Rats, ground squirrel, rabbits	Flea bite to human	Finding the bacterium in lymph node, blood.	Madagascar 2017
6	Cholera	Infectious	Food/water	Contaminated food/water to human	Laboratory rapid test	10 cases in US., America , South Asia
7	SARS	Febrile illness with respiratory manifestation	Horseshoe, bats	Person to person	Viral isolation from respiratory, RT-PCR tests, Plasma test.	No SARS cases reported in India
8	Corona virus	Infectious	Bats,Mannmals	Human to human	RT-PCR Test, Laboratory test	China, Italy, India
9	Japanese encephatilites	Neurological infection	Mosquitoes	Contact with infected animal	Laboratory test	Uttar Pradesh ,India, Asia
10	Ebola virus	Infectious	Bats	direct contact with infected animals	Finding the virus , viral RNA	Nzara, Yambuku

Result & Discussion:

One main motivation for the study of viruses is the fact that they cause many important infectious diseases, among them the common cold, influenza, rabies, measles, many forms of diarrhea, hepatitis, Dengue fever, yellow fever, polio, smallpox and AIDS. Herpes simplex causes cold sores and genital herpes and is under investigation as a possible factor in Alzheimer's. The word virus appeared in [1599] and originally meant "venom". A very early form of vaccination known as violation was developed several thousand years ago in China. Re-emerging & emerging viral infectious is producing many developing countries. Some viral diseases can have an immense impact on world wild population dynamics, especially those with high mortality rates. Emerging infectious diseases have introduce with the diagnosis, treatment, & action of the viruses & also introduce to about outbreaks of the virus in various countries. The speed of the notification is essential if the outbreaks of the re-emerging & emerging diseases have to be combated effectively.

Conclusion:

Re-emerging & emerging viral disease are consider as a continuous threat to human life in era of globalization. Re-emerging & Emerging viral infections that affect million people worldwide every year. Some virus spread in particular country is mostly. In the diagnosis, treatment, & action of the virus is reported. In developing country some emerging & re-emerging virus rate is very high. Treatment of this viruses are produce many side effects. It is important to strengthen the emergency preparedness for these disease and response by focusing on 'one health' approach.

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