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## Review on Newcastle disease in poultry

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### ABSTRACT

Newcastle disease is an infectious disease of the poultry caused by an avian Paramyxovirus type that affects more than two hundred avian species in the world. It was an enzootic disease in the all parts of Asia, Africa and the Middle East and some countries in South America. Isolated outbreaks of Newcastle disease occurs sporadically in some European countries and Central America. This review synthesizes the availability information on the virus and the disease it causes. The disease is transmitted by the direct contact with infected animals or by the indirect contact through inanimate carriers. The incubation period of the disease varied from 2 to 15 days. Five pathotypes were distinguished according to the incidence and severity for the clinical signs.

Pathogenicity index (ICPI) in the day-old chicks of 0.9 or greater and also has some multiple based amino acids in the C-terminus in the F2 protein and phenylalanine at residue which is the N-terminus of the F1 protein. The term multiple basic amino acids refer to the three arginine or lysine residues. Newcastle diseases have been identified as the major constraint for the development of poultry farming. Its impact is more disastrous for the development countries where the traditional poultry farming is dominant and represents an important source for income and for animal proteins for households. This review synthesizes available information on the viruses and the disease it is causing.

### INTRODUCTION:

Newcastle Disease is also consider as pseudofowl plague, refers to the all infections of poultry caused by the avian paramyxovirus serotype 1 (APMV-1). It is the highly contagious viral disease that can affect the large number of avian species and can cause severe economic losses. The Newcastle disease virus can infect more than two hundred different species in the birds. The disease is having the capable of causing 100% mortality for the unprotected bands. It is entered in the list of diseases requiring notification to the World Organisation for Animal Health (OIE). It can be defined as an infection disease of poultry caused by an APMV-1, which was an intracerebral

### HISTORY OF THE DISEASE

The first outbreaks for the Newcastle disease occurred in the 1926 in Java, Indonesia and in the Newcastle on Tyne in Great Britain, from where it takes the name. It was also described for the same year in Korea. However, there may have been previous manifestations of the disease. Between 1926 and 1981, four Newcastle diseases panzooties occurred around the world. The first panzootic outbreaks for the disease occurred after some years after its discovery, following numerous isolated outbreaks in the several countries around the world. The second panzootic outbreak appeared to have some started in the Middle East and the

late 1960s, and it spreads faster than the first and affected almost every continent. This episode of the disease is facilitated by the majority revolutions in the poultry sector in the Second World War which has transformed by the poultry industries into the commercial industry with the international scope. The disease has been introduced into some countries by air transport for wild bird species. The severity for the second panzootic disease leads for the development of vaccines that has been provided for significant protection for poultries. The universal use of live vaccines has been facilitated for the introduction of the virus into the disease-free area. The strain of the virus is responsible for the third panzootic disease which lasted from 1968 to 1972. However the antigenic and genetic data over the virus is not established the facts that lead to the emergence for this third pandemic. The fourth panzootic has been occurred from 1980 onwards and it is begun in the Middle East. Primarily it affected racing pigeons and other domesticated pigeons but later spread in wild pigeons and other poultries. It spreads easily and is difficult to control because it is affected in animals that are susceptible to Newcastle disease virus and was not included in the vaccination program.

## CONCLUSION

The spread of paramyxoviruses in the organism has infected species followed the steps in the following chronological order for the first step is the penetration of the virus into the target cells through the proteins of the outer envelopes. The HN protein mediates cell attachment, while the in the protein is required for cell fusion. The HN protein binds to the host cell surface through sialic residues on the cell surface. After fusion of the virus with the host cell membrane, the viral nucleocapsid was released into the cytoplasm. This is followed by the transcription phase in the viral genome. In this phase the viral envelopes is also put in that place and finally the new viral particles are released from the cells. During the release of infectious viral particles the HN protein intervenes eliminate sialic acid receptors through the neuraminidase activity. In the addition the virus can also spread in the host organism by forming giant multinucleated cells called syncytia by fusion between an infected cell by expressing the glycoproteins HN and F and a neighbouring cell.