

# Communicable disease epidemiology essay sample

[Science](#), [Epidemiology](#)



As stated by the Centers for Disease Control (CDC) (CDC, 2013); chickenpox is a very contagious disease caused by the varicella-zoster virus (VZV). VZV causes a primary infection that is characterized by a rash with macules, papules, and then vesicles. Other symptoms include fever, lethargy, and pruritus. VZV then remains in the body on the sensory nerve ganglia and can reactivate as at a future time as shingles (Herpes Zoster). Chickenpox is spread through airborne, droplet, and contact with infected fluids.

Chickenpox is treated by treating the symptoms, and preventing complications. Home remedies such as anti-itch lotions and soothing baths may help relieve itching and irritation. Long fingernails can be trimmed short to help prevent injury to the skin caused by scratching which may lead to skin infections, and antipyretics can be used for fever. Generally healthy persons will survive the disease, but certain demographics can have complications that can result in death. Epidemiologic Triangle

VZV can spread easily from an infected host to a susceptible host who has never had chickenpox or who has never received the varicella vaccine. VZV is transmitted when an infected host sneezes or coughs in the air.

Transmission also occurs by direct or indirect contact or breathing in chickenpox vesicles particles that contain the virus. The reservoir, person with VZV, is contagious from one to two days before rash onset until the vesicles have crusted over. The virus then exits the host via the vesicles and respiratory tract. The VZV enters the susceptible host via the respiratory tract, through open wounds, or by touching mucous membranes. After exposure to the virus it takes 10-21 days for the susceptible host to develop varicella (CDC, 2013). During latent exacerbation of the disease,

shingles, those who have never been vaccinated can get varicella. According to Marin, Meissner, & Seward (2008); varicella is very virulent, and it only takes a small amount of the agent to cause infection. Prevention is the best defense against this agent, so the most effective way to break the chain of infection is prevention through vaccination. Determinants of Health

The determinants of health include the social and economic environment, the physical environment, and the person's individual characteristics and behaviors (WHO, n. d.). Chickenpox can have serious implications, especially in babies, adults, and people with compromised immune systems. Human immunodeficiency virus (HIV), acquired immune deficiency syndrome (AIDS), and pregnancy, are biological health status disparities that contribute to developing chickenpox and increase the risk for complication. Complications such as dehydration, pneumonia, bleeding problems, encephalitis, cerebellar ataxia, bacterial infections of the skin, and sepsis can occur. Access to healthcare for treatment of preventative vaccination is impacted by socioeconomic status. The ability to pay for or have transportation to access healthcare can make persons vulnerable to disease.

Furthermore, individual health behaviors contribute to patient adherence to treatment or preventive vaccination. Some patients have fears, or concerns about the safety of vaccination, or have cultural or spiritual beliefs that don't allow vaccination. All determinants of health contribute to the development of this disease by increasing vulnerability to transmission of the disease. Higher income and social status are linked to better health, so the inverse is true. In communities where education levels are low and the physical

environment is unsafe; health disparities occur. The lack of a social support networks (families, friends and community) has a direct impact of risk for disease. The environment also impacts the development of the disease. Outbreaks are common in schools, daycares, and communal areas where many children gather. Nurse's Role

Nurses have developed the specialty of infection control nursing to combat communicable diseases. Infection control nurses educate staff and clients about communicable infectious organisms, and develop and monitor infectious control practices in healthcare settings. Nurses in acute and ambulatory settings are expected to identify, isolate, and treat persons that have signs and symptoms of an acute infection of chickenpox. Data is used to accurately identify cases, and report finding to the appropriate agencies and departments. Furthermore, nurses provide age appropriate vaccination to prevent chickenpox. According to Smith (2009), Community health nurses interview infected persons to help identify contacts placed at risk by exposure to infected individuals, and perform home visits to monitor persons under treatment and ensure compliance with treatment protocols.

Nurses also analyze data collected from community cases to develop interventions appropriate for the sociopolitical environment. Varicella surveillance includes documenting and monitoring the impact of varicella vaccination programs on varicella incidence, morbidity, and mortality (CDC, 2013). Overall, the effort towards chickenpox prevention has decreased the incidence of the disease significantly. According to the CDC (2013); each year, more than 3.5 million cases of varicella, 9,000 hospitalizations, and

100 deaths are prevented by varicella vaccination in the United States.

Before the varicella vaccine, about four million people would get chickenpox each year in the United States (CDC, 2013). Good nursing care, community education, and community resources, have also contributed to a decline in cases. The CDC is a national organization that has been a major resource in resolving the impact or reducing the impact of chickenpox.

Two doses of the varicella vaccine have proven to be most effective for all ages. The first vaccination is given as a toddler, and the second vaccination is given at school age. Two doses of the vaccine are about 98% effective at preventing chickenpox (CDC, 2013). The CDC also has an active surveillance program that attains community incidence rates for chickenpox diseases in communities with high varicella vaccination rates to evaluate the efficacy of current and future varicella vaccination practices and policies. The weakest link in this communicable disease chain has been identified, and nurses are an integral part in continuing to decrease the prevalence of chickenpox by encouraging vaccination.

## References

Centers for Disease Control and Prevention (CDC). (2013). Retrieved on December 18, 2014, from <http://www.cdc.gov/chickenpox/hcp/clinical-overview.html> Marin, M.,

Meissner, H. C., & Seward, J. F. (2008). Varicella prevention in the United States: a review of successes and challenges. *Pediatrics*, 122(3), e744-e751.

Smith, M. a. (2009). *Community/Public Health Nursing Practice: Health for Families and Populations*, 4th Edition. [VitalSource Bookshelf version].

<https://assignbuster.com/communicable-disease-epidemiology-essay-sample/>

Retrieved on December 21, 2014 from [http://pageburstls.elsevier.com/books/9781416050049/id/B9781416050049000081\\_p346](http://pageburstls.elsevier.com/books/9781416050049/id/B9781416050049000081_p346) World Health Organization (WHO). (n. d.). The determinants of health. Retrieved December 21, 2014, from <http://www.who.int/hia/evidence/doh/en/> World Health Organization (WHO). (n. d.). Varicella. Retrieved on December 18, 2014, from <http://www.who.int/ith/diseases/varicella/en/>