**Health Sciences and Nursing**

**Communicable Disease: Measles**

Measles is a viral disease caused by the rubeola virus. It is spread from one person to another through coughing and sneezing, and is usually transmitted in combination with other diseases. It is one of the most commonly occurring diseases globally and affects 20 million people annually. Scientists estimate that there are 21 strains of measles virus.

**Description of outbreak**

Measles virus has affected several countries globally in the present and previous decades. Measles has been reported in different countries in the world. In Canada, the outbreak of measles was reported in 1998 but measures have been put in place to control it. The largest outbreaks were reported in Quebec in 2011 due to the return of a large number of travellers from France to Canada who were affected by the condition (Zipprich, Winter, Hacker, Xia, Watt & Harriman, 2015). In the United States, measles was reported on November 12, 2002 despite the claim that it was eliminated in North, Central, and South America. In Venezuela, measles outbreaks were reported in the first half of 2018 when 1613 cases of infections were reported according to the report of the Pan American Health Organization that provides awareness regarding epidemiology of diseases. The Asian countries that have been greatly affected due to measles outbreaks are: Philippines, Japan, and Israel. A large outbreak was experienced in Philippines in 2014, resulting into 57,564 cases of infections and 110 deaths. Most of the cases were among people who were not vaccinated. Measles outbreak was reported in Japan in 2007 when a number of learning institutions were closed in order to prevent its spread. In Israel, averagely 1000 cases of measles infection were reported between August 2007 and May 2008. Most of the affected people were

Portugal. Ukraine has experienced multiple incidences of measles outbreaks between 2001 and 2002 where about 25,000 infections and 14 deaths were reported. In Germany, measles outbreak occurred in 2001 resulting into 6,037 cases of infections and two deaths. The outbreak of measles in Netherlands was reported by the Dutch National Institute for Public Health and Environment (RIVM) in September 2008 in which 90 children who were unvaccinated were affected. Another incident of Measles outbreak was reported in the Bible Belt in the Netherlands in June 2013 (Orenstein, Cairns, Hinman, Nkowane, Olivé & Reingold, 2018). In the UK, 56 cases of measles infection were reported in 1998 while in 2006, 449 cases were reported. In Bulgaria, there was a significant measles infection of 23,791 people in the beginning of April 2009. The infection spread to neighboring countries such as; Germany, Greece, Macedonia, and Turkey. In France, approximately 5,000 people were hospitalized in 2008 due to measles while the total number of reported cases was 22,000. In Portugal, the most recent incidences of measles were due to immigration from the UK, France and Romania which resulted into 22 cases of infections in 2004. The Oceania countries that have been affected by measles outbreak include; Australia and New Zealand. In Australia, cases of measles were reported in Melbourne and Auckland regions between December 2013 and January 2014.

**B1. Epidemiological Determinants and Risk Factors**

Epidemiological determinants of measles include; sneezing, coughing, conjunctivitis of the eyes, and long duration of fever with rashes. Measles is also characterized by the occurrence of Koplik’s spots in the mouths of patients. They are small spots occurring on the inner sections of the cheeks near the molars. The identification of these spots before  a patisnt’s condition worsens can be a major step towards prevention of its spread. The rash that develops due to measles is usually characterized by red maculopapular swelling that begins a few days after infection of the patient. The population at risk of infection with measles is children who are unvaccinated and pregnant women. Any person who has not undergone immunization is also at risk of measles infection. There is a high rate of occurrence of measles in developing countries such as Africa and Asia where a significant number of deaths occurs due to the disease. People in countries that are recovering from natural disasters or conflicts are also at risk of experiencing measles epidemic due to damage to health infrastructure and immunization practices that have an impact on the effectiveness of immunization efforts while overcrowding in camps increase the chances of its spread.

**B2. Route of Transmission**

Measles is majorly transmitted through the inhalation of air coughed by an infected person. It is also spread by personal contact with an infected person or direct contact with secretions from the nose or throat. When sneezed into the air, measles virus remains active for at least 2 hours (Kulkarni, Ajantha, Kiran & Pravinchandra, 2017). It can be transmitted by an infected person 4 days before the manifestation of symptoms such as rashes. In case of measles outbreak, there can be significant epidemics that can cause high death rates especially among children who are malnourished. While measles can be eliminated in a country, there is the possibility that it can be imported through infected immigrants.

**B3. Impact on Community**

Measles outbreak has an impact of preventing the ability of people to contribute to economic development of their communities since it has a lasting impact on patients such as paralysis of some body parts. Governments of countries with measles outbreak have to allocate more resources in terms of personnel and special diagnostic and prevention resources for the management of measles. The average expenditure incurred in measles vaccines in case of outbreaks is about $ 4,100 per day. There is the impact of separation of infected people from other members of the community during preventive practices such as quarantine. The community may also incur a high cost of seeking treatment when there is little support from the government or authorities. Parents incur the cost of missing work hours due to the need to provide care to children who are affected with measles or take them to healthcare facilities.

**B4. Reporting Protocol**

It is required that measles outbreak should be reported to the nearby government health agencies or authorities who have the power to mobilize resources for prevention of spread as well as treatment initiatives. The notification should include the date of occurrence, the symptoms observed, and the demographic characteristics of the affected people. Reporting can be done by sending emails, calling helpline numbers, or personal reporting at the relevant authorities (Coughlin, Beck, Bankamp & Rota, 2017). In case of identification of the symptoms of measles in a healthcare facility, the medical officer in charge of an organization should be notified. The information about the occurrence of an infectious disease such as measles should be kept confidential by not disclosing it to the general public.

**B5. Prevention Strategies for Measles**

A major prevention strategy that would be applied to prevent the occurrence of measles in the community is patient education. Patients can be educated to understand the symptoms of measles so that they can report to the relevant organizations for interventions before the spread of the disease. Patient education can also include informing them about the alternative treatments they can seek when infected with measles.

Community education strategies can be applied by educating the public about preventing prctices such as avoidance of contact with people who are affected with measles.

**Score Summary for Measles**

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| --- | --- | --- | --- |
| Cases of Measles | Community Advocacy | Emergency Response | Communicable Disease |
| Canada/Quebec/2011 | 3.8 | 4.6 | 2.8 |
| Unites States/Philadelphia/1991 | 4.3 | 5.2 | 3.4 |
| Israel/2007 | 2.5 | 6.3 | 2.6 |
| Philippines/2014 | 3.6 | 4.8 | 3.1 |
| Germany/2001/2013 | 4.2 | 6.4 | 2.8 |
| United Kingdom/1996/2002/2003 | 3.3 | 6.6 | 2.4 |

Table 1. Score Summary for Measl

**References**

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