ONTOLOGY AND EPISTEMOLOGY OF MALARIA

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In the philosophy of science, a scientific discipline can be expressed as knowledge, if it fulfills the ontology criteria that include what the nature of science, epistemology includes methods and paradigms and axiology includes goals, imperative values, attitudes (Suriasumantri, 1988). Plato says philosophy is the knowledge that is to achieve genuine truth (Bostock, 1986). Whereas Aristotle defines philosophy is science which includes the fact contained in it the sciences of metaphysics, logic, rhetoric, ethics, economics, politics, and aesthetics (Charles, 1984).

Ontology in public health can function as a formalized repository of knowledge to improve public health surveillance systems (Tolentino et al., 2005). Ontology is defined as the study of the concepts of reality explained by a scientific discipline (Dharmawan, 2007). Ontology of malaria is a field that moves to understand, explore and develop knowledge about the disease. Epistemology or history of scientific development in examining the origin and scope of a realm of knowledge that seeks to answer questions ‘how is science acquired? (Bodenreider, Smith, & Burgun, 2004).

Malaria is an infectious disease caused by the Plasmodium parasite which is transmitted by the bite of a female Anopheles mosquito (Cox, 2010; Organization, 1995). Known for five species, namely Plasmodium falciparum, Plasmodium vivax, Plasmodium ovale, Plasmodium malariae and Plasmodium knowlesi (Spangenberg et al., 2013). Malaria morbidity in an area is determined by Annual Parasite Incidence (API) per year. API is the number of malaria positive cases per 1,000 residents in one year. Indonesia has a malaria prevalence of 1.4% with an API figure in 2015 of 0.85%, and Bengkulu Province is ranked sixth which has a prevalence rate of 1.5% and an API rate of 2.03% (Kementrian Kesehatan, 2016). Transmission of malaria is highly related to climate (Arab, Jackson, & Kongoli, 2014; Paaijmans et al., 2010). Seasonal changes affect both directly and indirectly against vector carrying disease (Grover-Kopee et al., 2006). Environmental conditions have a direct impact on vector reproduction, development, the relative age of the population and the development of parasites in the vector body, as well as vegetation changes and agricultural cropping patterns also affect vector population density (Razakandrainibe et al., 2009).
Given the explanation of philosophy of science and malaria, what it remains unclear is how about the philosophy of public health and how it is implemented and applied to malaria. This article is aimed to provide the perspective in regards to the ontology and epistemology of Malaria.

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According to Nijhuis and Van der Maesen, philosophy of public health is explained separately, namely "Public" and "Health". These two terms have their own categories. “Public” category number 1 emphasizes the individual. In this view, the public is primarily comprised of the actions and motives of discrete individuals. “Public” category number 2, on the other hand, emphasizes the collective over the individual. In this view, the public is primarily conceived as populations within social, economic, and political systems. “Health” category number 3 is a mechanistic view that emphasizes the traditional medical distinction between disease and non-disease in the individual, while “Health” category number 4 views health as the degree to which an individual reaches an equilibrium state with physical, psychological, and social influences. Much more could be said about these four categories (Islam, 2017; Weed, 1999). Malaria is a public health problem in the tropics (Uneke, 2008).

Based on the Nijhuis and Van der Maesen’s explanation, therefore, "Public" and "Health" of malaria can be described as the following:

**“Public” category of the number 1.** Individual actions, in this case, are actions carried out by individuals to overcome something, in this case, namely how he acts related to malaria and the reasons for individuals doing it as a motive. So if individuals have a view of ontology related to malaria, then ethically it will have a positive impact on individuals, namely avoiding malaria.

**“Public” category of the number 2 and 4.** In general, malaria-endemic locations are remote villages with bad environmental conditions, difficult means of transportation and communication, lack of access to health services, low levels of education and socio-economic conditions, and poor healthy living behavior (Chiyaka, Garira, & Dube, 2007; Maguire et al., 2005; Steketee, Nahlen, Parise, & Menendez, 2001). The use of insecticide-treated bed nets is one of the effective ways to prevent malaria (Korenromp et al., 2003). The community uses insecticide-treated bed nets to feel comfortable effects when using mosquito nets, and the community also gives a positive attitude towards the use of mosquito nets (Wael, Thaha, & Riskiyani).

**“Health” category of the number 3.** There is a belief in the community that malaria is a common problem that they can handle themselves using the knowledge they have acquired before (Zaluchu & Arma, 2008). In Jambi province, there were 34.5% of malaria treatment users, with the most widely used traditional medicines being using Sambiloto (27.1%) (Dharmawan, 2007). In modern terms, there are drugs used in the treatment of malaria. New mefloquine and halofantrine drugs will be widely available for clinical use of malaria (Hyde, 2005).

**“Health” category of the number 4.** The social influence in the community towards malaria still has an active role. Public trust in the causes of malaria, ways of treatment and ways to prevent malaria are still powerful in holding customs regarding healing and perceiving an illness (Ningsi, Anastasia, & Nurjana, 2010).

**CONCLUSIONS**

Understanding science should be based on philosophy. Science has developed very quickly. Therefore philosophy as the foundation of science must be a reference in developing science. Malaria is one of the studies of public health and needs to be studied by its basic foundation by using philosophical studies.
REFERENCES


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