

ABSTRACT**Water Source-Based Bacteriological Quality of Water Supply
Related to the Incidence of Diarrhea in Underfives**

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The incidence of diarrhea is affected by various factors, such as the quality of water supply used every day, in addition to treatment and care behaviour as well as housing sanitation facilities.

The objective of this study was to investigate the bacteriological quality of water supply based on the water source and its relation to the incidence of diarrhea in underfives. This study used cross-sectional design, and carried out in the Subdistrict of Porong, District Sidoarjo, where a part of its population received water supply from water source of Umbulan spring, and in the Subdistrict of Karangpilang, Surabaya Municipality, where a proportion of its population received water supply from water source from Surabaya River. Samples were water supply obtained from taps in the respondents' house and underfives enrolled using simple random sampling. Data analysis was carried out using Mann Whitney test to find the difference of water supply bacteriological quality according to water source, and Multiple Logistic Regression test to find relations between the incidence of diarrhea in underfives and all affecting variables. The significance level used in data analysis was 5% (0.05).

Results showed that the proportion of bacteriological quality of water supply taken from the respondents' house that met the health criteria (0 MPN/JPT) was 52.4% in Karangpilang and 90.5% in Porong. The bacteriological quality of the water supply was significantly different ($p = 0.014$). The bacteriological quality of water supply taken from water processing facilities that met the health criteria was that taken from Tamanan, Gempol, processing plant that obtained water source from Umbulan spring. Samples of water supply taken from Karangpilang processing plant, that obtained water from Surabaya River, did not meet the health criteria (1.1 MPN/JPT). The incidence rate of diarrhea in underfives was 16.7% in Karangpilang, and 10.3% in Porong. Results of multiple logistic regression test showed that it was the variable of clean water and water supply availability that had significant relations in the incidence of diarrhea in underfives ($p = 0.013$).

Keywords : *water supply bacteriological quality, diarrhea in underfives*