# PEMETAAN SEBARAN JUMLAH BAKTERI *Escherichia coli* BERDASARKAN KONSTRUKSI DAN JARAK SUMUR GALI DI WONOCATUR, BANGUNTAPAN, BANTUL TAHUN 2024

Hestiana Kusumaningsih[1], Choirul Amri[2], Ibnu Rois[3]
Jurusan Kesehatan Lingkungan Poltekkes Kemenkes Yogyakarta,
Jl. Tata Bumi 3, Banyuraden, Gamping, Sleman, DIY 55292
Email : hestikusuma11@gmail.com

## INTISARI

Latar Belakang : Air merupakan sebuah kebutuhan pokok yang harus ada untuk kelangsungan kehidupan sehari-hari manusia. Air memiliki 3 persyaratan yang harus dipenuhi yaitu persyaratan fisik, kimia dan biologi. Sebagian besar masyarakat menggunakan air sumur gali untuk memenuhi kebutuhan air sehari-hari seperti memasak, mencuci dan air minum. Bakteri *Escherichia coli (E. coli)* merupakan salah satu bakteri yang terdapat pada tinja manusia. Pencemaran terjadi dapat disebabkan oleh faktor jarak sumur dengan septic tank < 10 meter, konstruksi sumur yang tidak memenuhi syarat, tidak memilki sarana pembuangan air limbah (SPAL), dekat dengan sumber pencemar lain seperti kandang ternak.

Tujuan : Mengetahui peta sebaran jumlah bakteri *Escherichia coli* berdasarkan konstruksi dan jarak sumur di Wonocatur, Banguntapan, Bantul

Metode : Jenis penelitian yang digunakan adalah penelitian deskriptif, dengan desain studi *observasional*. Pendekatan yang akan digunakan yaitu pendekatan *prospektif* dari data primer terkait konstruksi dan jarak sumur di Wonocatur, Banguntapan, Bantul melalui analisis spasial berbasis *Geographic Information System* (GIS) yang dilakukan analisis sebaran menggunakan *interpolasi.* Penelitian dilakukan pada bulan April 2024. Sampel dengan jumlah 50 sampel air bersih.

Hasil : Jumlah sumur gali di Wonocatur terdapat 50 sumur. Terdapat 24 sumur positif bakteri *Escherichia coli* dan 26 negatif bakteri *Escherichia coli*. Berdasarkan konstruksi sumur gali terdapat 17 sumur yang tidak memenuhi syarat positif bakteri *Escherichia coli*, 7 sumur memenuhi syarat positif *Escherichia coli* dan 26 sumur memenuhi syarat negatif *Escherichia coli.* Berdasarkan jarak sumur terdapat 7 sumur yang tidak memenuhi syarat positif *Escherichia coli*, 17 sumur memenuhi syarat positif *Escherichia coli* dan 26 sumur memenuhi syarat negatif *Escherichia coli.*

Kesimpulan : Berdasarkan analisis interpolasi, konstruksi dan jarak sumur gali mempengaruhi kandungan bakteri *Escherichia coli.*

Kata kunci : *Escherichia coli*, pemetaan, sumur gali, GIS

# MAPPING THE DISTRIBUTION OF THE NUMBERS OF *Escherichia coli* BACTERIA BASED ON WELL CONSTRUCTION AND DISTANCE DIG IN WONOCATUR, BANGUNTAPAN, BANTUL YEAR 2024

Hestiana Kusumaningsih[1], Choirul Amri[2], Ibnu Rois[3]
Department of Environmental Health Poltekkes Kemenkes Yogyakarta,
Jl. Tata Bumi 3, Banyuraden, Gamping, Sleman, DIY 55292
Email : hestikusuma11@gmail.com

## ABSTRACT

Background: Water is a basic need that must exist for the continuity of human daily life. Water has 3 requirements that must be met, namely physical, chemical and biological requirements. Most people use dug well water to meet their daily water needs such as cooking, washing and drinking water. *Escherichia coli* bacteria (E. coli) is one of the bacteria found in human feces. Pollution can occur due to the distance between the well and the septic tank being less than 10 meters, well construction that does not meet the requirements, not having waste water disposal facilities (SPAL), and being close to other sources of pollution such as livestock pens.

Research Objective: Knowing the distribution map of the number of *Escherichia coli* bacteria based on the construction and distance of wells in Wonocatur, Banguntapan, Bantul

Method: The type of research used is descriptive research, with an observational study design. The approach that will be used is a prospective approach from primary data related to the construction and distance of wells in Wonocatur, Banguntapan, Bantul through geographic information system (GIS) based spatial analysis which carries out distribution analysis using interpolation. The research was conducted in April 2024. Samples consisted of 50 clean water samples.

Results: The number of wells dug in Wonocatur was 50 wells. There were 24 wells positive for *Escherichia coli* bacteria and 26 negative for *Escherichia coli* bacteria. Based on the construction of the dug wells, there were 17 wells that did not meet the requirements for being positive for *Escherichia coli* bacteria, 7 wells that met the requirements for being positive for *Escherichia coli* and 26 wells that met the requirements for being negative for *Escherichia coli*. Based on the distance of the wells, there were 7 wells that did not meet the requirements for being positive for *Escherichia coli,* 17 wells that met the requirements for being positive for *Escherichia coli* and 26 wells that met the requirements for being negative for *Escherichia coli.*

Conclusion: Based on interpolation analysis, the construction and distance of dug wells influence the content of *Escherichia coli* bacteria.

Key words: *Escherichia coli*, mapping, dug wells, GIS