

## ABSTRAK

### UJI SENSITIVITAS BAKTERI *Klebsiella pneumoniae* PADA AIR DENTAL UNIT WATERLINE DI RSGM UNSOED TERHADAP ANTIBIOTIK AMOKSISILIN DAN SIPIROFLOKSASIN

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**Latar Belakang.** Infeksi yang terjadi di rumah sakit dan menyerang pasien yang sedang dalam proses perawatan disebut *Healthcare Associated Infections* (HAIs). Penyebaran infeksi dapat terjadi di tempat pelayanan kesehatan gigi. Infeksi dapat berasal dari sumber air yang digunakan di tempat pelayanan kesehatan gigi. Sumber air pada *Dental Unit Waterline* (DUWL) dapat menjadi sumber bakteri nosokomial, salah satunya *Klebsiella pneumoniae*. Berdasarkan data penggunaan antibiotik di RSGM Unsoed, diketahui bahwa antibiotik yang sering digunakan yaitu amoksisilin dan siprofloksasin. **Tujuan.** Mengidentifikasi sumber penyebaran bakteri *Klebsiella pneumoniae* yang resisten terhadap antibiotik pada air yang dikeluarkan dari DUWL serta membandingkan sensitivitas bakteri *Klebsiella pneumoniae* terhadap antibiotik amoksisilin dan siprofloksasin. **Metode.** Jenis penelitian ini adalah eksperimental laboratoris *in vitro* dengan rancangan *Posttest-only control group design*. Penelitian ini menggunakan 16 sampel DUWL di RSGM Unsoed. Sampel pada uji sensitivitas memiliki tiga kelompok perlakuan yaitu Perlakuan 1 (*Disk* amoksisilin), Perlakuan 2 (*Disk* siprofloksasin), Kontrol Negatif (*Disk* kosong berisi akuades). Analisis data identifikasi bakteri disajikan berupa deskriptif. Hasil pengukuran diameter zona hambat dibandingkan dengan *Clinical Laboratory Standards Institute* CLSI (2019) dan dianalisis secara statistik menggunakan uji *Kruskal Wallis* dilanjutkan Uji *Mann Whitney*. **Hasil dan kesimpulan.** Hasil penelitian ditemukan 1 bakteri *Klebsiella pneumoniae* pada DUWL di RSGM Unsoed yang resisten terhadap antibiotik amoksisilin, tetapi sensitif terhadap siprofloksasin. Analisis statistik menggunakan uji *Kruskal Wallis* menunjukkan adanya perbedaan bermakna ( $p < 0,05$ ) antara seluruh kelompok perlakuan dengan median pada Kontrol Negatif yaitu 0 mm, Perlakuan 1 yaitu 0 mm, dan Perlakuan 2 yaitu 38,5 mm. Uji *Mann Whitney* menunjukkan terdapat perbedaan bermakna ( $p < 0,05$ ) antara Perlakuan 1 dan Perlakuan 2. Kesimpulan penelitian ini adalah terdapat bakteri *Klebsiella pneumoniae* yang ditemukan di air DUWL RSGM Unsoed lebih sensitif terhadap siprofloksasin dibandingkan amoksisilin.

**Kata Kunci.** Amoksisilin; *dental unit waterline*; *Klebsiella pneumoniae*; sensitivitas; siprofloksasin.

## ABSTRACT

### ***SENSITIVITY TEST OF *Klebsiella pneumoniae* BACTERIA IN DENTAL UNIT WATERLINE AT RSGM UNSOED TOWARDS AMOXICILIN AND CIPROFLOXACIN ANTIBIOTICS***

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**Background.** Infections that occur in hospitals and affect patients who are in the process of being treated are called Healthcare Associated Infections (HAIs). Spreading of infection can occur in dental health services. Infection can come from water sources that used in dental health services. Water sources in the Dental Unit Waterline (DUWL) can be a source of nosocomial bacteria, one of which is *Klebsiella pneumoniae*. Data from RSGM Unsoed showed that amoxicillin and ciprofloxacin were the most widely used antibiotics. **Purposes.** Identified source of the spread of *Klebsiella pneumoniae* bacteria that were resistant to antibiotics in the water discharged from DUWL and compared sensitivity of *Klebsiella pneumoniae* bacteria among amoxicillin and ciprofloxacin. **Method.** This type of research was a laboratory experimental in vitro with a posttest-only control group design. This study used 16 samples of DUWL at RSGM Unsoed. The sensitivity test were conducted in three groups, Treatment 1 (Amoxicillin Disc), Treatment 2 (Ciprofloxacin Disc), Negative Control (Empty disc filled with aquadest). Bacterial identification data was presented descriptively. Inhibition zone diameter was compared to Clinical Laboratory Standards Institute (CLSI) (2019) then analyzed statistically using the Kruskal-Wallis and The Mann-Whitney test. **Results and conclusions.** The results of study showed that 1 *Klebsiella pneumoniae* in DUWL at RSGM Unsoed was resistant to amoxicillin, but sensitive to ciprofloxacin. Kruskal-Wallis test showed significant differences ( $p < 0,05$ ) between all groups with the median on negative control was 0 mm, treatment 1 was 0 mm, and treatment 2 was 38,5 mm. Mann-Whitney test showed significant difference ( $p < 0,05$ ) between the treatment 1 and 2. The conclusion of this study *Klebsiella pneumoniae* that identified in RSGM Unsoed was more sensitive to ciprofloxacin than amoxicillin.

**Keywords.** Amoxicillin; ciprofloxacin; dental unit waterline; *Klebsiella pneumoniae*; sensitivity.