# ANALISIS BERBAGAI FAKTOR RISIKO YANG BERPENGARUH TERHADAP LAMA RAWAT INAP PASIEN INFEKSI BILIER

## (Studi Karakteristik Pasien, Kondisi Klinis, Biomarker Laboratorium, Komorbiditas dan Karakteristik Bakteriologis di RS Dr. Kariadi Semarang)

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## ABSTRAK

**Latar Belakang:** Infeksi bilier merupakan masalah kesehatan global dengan prevalensi mencapai 118,75 kasus per juta penduduk di kawasan Asia-Pasifik. Walaupun sebagian besar pasien menjalani rawat inap selama 3−5 hari, terdapat kasus yang memerlukan perawatan lebih lama sehingga meningkatkan beban rumah sakit, morbiditas, dan mortalitas. Penelitian ini bertujuan menganalisis faktor risiko yang memengaruhi lama rawat inap pasien infeksi bilier di RSUP Dr. Kariadi Semarang.

**Metode:** Penelitian kohort retrospektif ini menganalisis 89 pasien infeksi bilier di RSUP Dr. Kariadi Semarang (Januari 2022–Desember 2024) yang menjalani tindakan operasi dan pemeriksaan kultur cairan empedu. Variabel yang dinilai meliputi karakteristik pasien, parameter klinis, biomarker laboratorium, komorbiditas, dan profil bakteriologis. Analisis statistik menggunakan uji *T-test*, *Mann-Whitney*, *Chi-square*, dan *Fisher exact test*, serta kurva ROC untuk menentukan nilai *cut-off* lama rawat inap. Tingkat kemaknaan ditetapkan pada $p < 0,05$.

**Hasil:** Pada penelitian ini 89 subjek terinklusi, jumlah perempuan 52,85%, dengan rerata usia 51,92 ± 13,10, mayoritas infeksi bilier disebabkan bakteri Gram negatif 84,3%, komorbiditas terbanyak keganasan 32,6%. Rerata lama rawat inap adalah 16,56 ± 15 hari. Nilai cut-off LoS 13,5 hari ditentukan berdasarkan indeks Youden tertinggi (sensitivitas 70%, spesifisitas 100%). Kadar hemoglobin rendah (<12 g/dL) dan keganasan terbukti sebagai faktor risiko rawat inap ≥13,5 hari.

**Simpulan:** Kadar hemoglobin rendah dan keganasan merupakan faktor risiko perpanjangan lama rawat inap pada pasien infeksi bilier dalam penelitian ini.

**Kata kunci:** faktor risiko, infeksi bilier, lama rawat inap, parameter laboratorium, komorbiditas.

# ANALYSIS OF RISK FACTORS AFFECTING LENGTH OF HOSPITAL STAY IN PATIENTS WITH BILIARY TRACT INFECTIONS

*(A Study of Patient Characteristics, Clinical Conditions, Laboratory Biomarkers, Comorbidities and Bacteriological Profiles at Dr. Kariadi Hospital Semarang)*

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## ABSTRACT

**Background:** Biliary infections represent a global health concern with a prevalence of 118.75 cases per million population in the Asia-Pacific region. While most patients require 3−5 days of hospitalization, prolonged hospital stays in some cases significantly increase healthcare burden, morbidity, and mortality. This study aimed to analyze risk factors affecting length of stay (LoS) in biliary infection patients at Dr. Kariadi Central General Hospital, Semarang.

**Methods:** This retrospective cohort study analyzed 89 patients with biliary infections at Dr. Kariadi Central General Hospital Semarang (January 2022−December 2024) who underwent surgical procedures and bile culture examinations. Analyzed variables included patient characteristics, clinical parameters, laboratory biomarkers, comorbidities, and bacteriological profiles. Statistical analysis employed T-test, Mann-Whitney, Chi-square, and Fisher's exact tests, with ROC curve analysis to determine length of stay cut-off value. Significance level was set at $p < 0.05$.

**Results:** This study had 89 participants, of whom 52.85% were female. The mean age was 51.92 years ± 13.10. Gram-negative bacteria caused the majority of biliary infections (84.3%), while malignancy was the most common comorbidity (32.6%). The mean hospital stay was 16.56 ± 15 days. A cut-off of LoS 13.5 days was determined using the highest Youden index (sensitivity 70%, specificity 100%). The study found that low hemoglobin levels (<12 g/dL) and malignancy were risk factors for hospital stays of 13.5 days or more.

**Conclusion:** In this study, low hemoglobin levels and malignancy were risk factors for prolonged length of hospitalization in patients with biliary infection.

**Keywords:** risk factors, biliary infection, length of stay, laboratory parameters, comorbidities.