CHAPTER I
INTRODUCTION

1.1 RESEARCH BACKGROUND

Urinary tract infection (UTI) is a disease that is often found in people around the world. This disease can have an impact on increasing the economic burden on families[1]. Urinary tract infections (UTIs) are caused by the growth of microorganisms in the urinary tract, where under normal conditions urine does not contain bacteria, viruses or other microorganisms[2].

Urinary tract infections (UTIs) affect more than 7 million people worldwide[3]. The study results show that the prevalence of UTI in Indonesia is 22 million people, generally affecting women but some are found in men. Around 100,000 Indonesians are affected by UTI every year[4]. Approximately 11% of women in the United States (US) are diagnosed with at least one urinary tract infection (UTI) each year.[5] Approximately 15% of all antibiotics are prescribed to people in the US with a diagnosis of UTI. Data from several European countries show comparable levels[6]. According to research on the Global Prevalence of Infection in Urology (GPIU), 10-12% of patients admitted to urology wards experience healthcare-associated infections[7].

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[1] Rita Endriani, Fauzia Andrini, and Dona Alfina, "Pola Resistensi Bakteri Penyebab Infeksi Saluran Kemih (ISK) Terhadap Antibakteri di Pekanbaru," *Jurnal Natur Indonesia* 12, no. 2 (November 21, 2012): 130, https://doi.org/10.31258/jnat.12.2.130-135.

[2] Retno Dwi Hartanti and Nur Oktavia, "CHMK Pharmaceutical Scientific Journal Volume 3 Nomor 2, April 2020" 3 (2020).

[3] Tess E Cooper et al., "D-Mannose for Preventing and Treating Urinary Tract Infections," ed. Cochrane Kidney and Transplant Group, *Cochrane Database of Systematic Reviews* 2022, no. 8 (August 30, 2022), https://doi.org/10.1002/14651858.CD013608.pub2.

[4] Shinta Mayangsari, Nour Athiroh As, and Ratna Juniwati Lisminingsih, "Prevalensi Infeksi Saluran Kemih (ISK) Pada Pasien Di Rumah Sakit Islam (RSI) Unisma Malang Tahun 2018," *Biosaintopis (BIOSCIENC-TROPIC)* 6, no. 2 (January 25, 2021): 34–39, https://doi.org/10.33474/e-jbst.v6i2.320.

[5] Stacy M. Lenger et al., "D-Mannose vs Other Agents for Recurrent Urinary Tract Infection Prevention in Adult Women: A Systematic Review and Meta-Analysis," *American Journal of Obstetrics and Gynecology* 223, no. 2 (August 2020): 265.e1-265.e13, https://doi.org/10.1016/j.ajog.2020.05.048.

[6] Kurnia Penta Seputra, "Penatalaksanaan Infeksi Saluran Kemih dan Genitalia Pria 2015," n.d.

[7] Kurnia Penta Seputra, *Penatalaksanaan Infeksi Saluran Kemih Dan Genitalia Pria 2015*, 2nd ed. (Jakarta: Ikatan Ahli Urologi Indonesia, 2015).

Antimicrobials or antibiotics are used to treat infection problems to prevent the infection from getting worse, eradicate microorganisms, infections and preventing recurrence [8]. So rational antibiotic therapy management is needed. According to the European Association of Urology (EAU), antibiotic treatment as a management of UTI is used in combination between penicillin-aminoglycoside groups, a combination of second-generation aminoglycoside cephalosporins or intravenous injection of third-generation cephalosporins. In Indonesia, fluoroquinolone groups, are recommended a combination of penicillin beta-lactam inhibitors, cephalosporins, and a combination of aminoglycoside carbapenem groups [9].

Problems often encountered related to the use of antimicrobials are inappropriate to use that triggers bacterial resistance to antibiotics. Wise administration of antibiotics requires consideration of several factors, including according to indications, patient conditions and appropriate and rational doses. Monitoring and evaluation of antibiotic use can be done qualitatively and quantitatively. Qualitative evaluation is carried out to determine the quality of antibiotic use carried out using the gyseens method to obtain rational results. looking back at the hadith of the Prophet Muhammad SAW in the history of Imam Muslim Jabir bin Abdillah, Rasulullah SAW said:

حَدَّثَنَا هَارُوْنُ بْنُ مَعْرُوْفٍ وَأَبُوْ الطَّاهِرِ وَأَحْمَدُ بْنُ عِيْسَى قَالُوْا حَدَّثَنَا ابْنُ وَهْبٍ أَخْبَرَنِيْ عَمْرٌو وَهُوَ ابْنُ الحَارِثِ عَنْ عَبْدِ رَبِّهِ بْنِ سَعِيْدٍ عَنْ أَبِي الزُّبَيْرِ عَنْ جَابِرٍ عَنْ رَسُوْلِ اللهِ ﷺ أَنَّهُ قَالَ لِكُلِّ دَاءٍ دَوَاءٌ فَإِذَا أُصِيبَ دَوَاءُ الدَّاءِ بَرَأَ بِإِذْنِ الله عَزَّ وَجَلَّ. (رواه مسلم)

"Every disease has a cure, if the right cure is found for a disease, then the disease will be cured, cured with the permission of Allah 'azza wa jalla" (HR. Muslim).

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[8] Adhi Wardhana Amrullah et al., "Evaluasi Rasionalitas Penggunaan Antibiotik pada Pasien dengan Infeksi Saluran Kemih di Rumah Sakit X di Surakarta," *Jurnal Manajemen Dan Pelayanan Farmasi (Journal of Management and Pharmacy Practice)* 12, no. 2 (June 30, 2022): 116, https://doi.org/10.22146/jmpf.73613.

[9] Wirda Anggraini et al., "Evaluasi Kualitatif Penggunaan Antibiotik pada Pasien Infeksi Saluran Kemih dengan Metode Gyssens," *Keluwih: Jurnal Kesehatan dan Kedokteran* 2, no. 1 (December 16, 2020): 1–8, https://doi.org/10.24123/kesdok.V2i1.2876.

Based on the hadith above, it can be concluded that with the permission of Allah Almighty, all kinds of diseases will be cured if treated with the right medicine. The selection of the right antibiotics is the main point so that evaluation of antibiotic use can be carried out. Antibiotic evaluation is carried out for the benefit of the community or the community's interests, including patients, medical practitioners, and research by practicing the hadith above. Thus, an evaluation of antibiotic use is carried out to obtain appropriate antibiotic treatment to know the rationality of antibiotics and avoid antibiotic resistance.

1.2 Statements of the Research Problem

1. What is the pattern of antibiotic use in cases of urinary tract infections (UTIs) in hospitalized patients at Dr. Moewardi Regional Hospital?
2. How is the qualitative evaluation of antibiotic use using the Gyssens method in cases of urinary tract infections (UTIs) in hospitalized patients at Dr. Moewardi' Regional Hospital?

1.3 Purpose of the Research Objectives

1. To find out the pattern of antibiotic use in cases of urinary tract infections (UTIs) in hospitalized patients at Dr. Moewardi Regional Hospital.
2. To find out the qualitative evaluation of antibiotic use using the gyssens method in cases of urinary tract infection (UTIs) in hospitalized patients at Dr. Moewardi Regional Hospital.

1.4 Significant of the Research Benefits

1. Theoretical benefits

Improving the quality of service at Dr. Moewardi Regional Hospital in providing antibiotic services to patients with urinary tract infections

2. Practical benefits

Adding information and knowledge related to the rationality of antibiotic use in urinary tract infection patients at Dr. Moewardi Regional Hospital

1.5 Authenticity of Research

Research on antibiotic evaluation has been conducted by several researchers, as shown in Table 1 below

Table 1. authenticity of research

Research title	Type of method	Variable	Result	Research differences
Evaluasi Penggunaan Antibiotik dengan metode Gyssens pada penyakit infeksi dan pola sensitivitas bakteri di ruang rawat inap anak Rumah Sakit Cipto Mangunkusumo [10].	Non-experimental	Dependent variables: age, gender, length of stay, nutritional status, medical procedures, organ systems involved and antibiotic use. Independent variables: bacterial culture results, mortality outcomes	The results of the qualitative evaluation of antibiotic use using the Gyssens method showed that the selection of appropriate antibiotics according to the Gyssens criteria was 68.1%.	Dependent variable: the rationality of antibiotics with gyssens Independent variable: antibiotic
Evaluasi Penggunaan antibiotic dengan metodeGyssens pada pasien pneumonia di rumah sakit Bhayangkara kupang periode Juli-Desember2019[11]	Non-experimental with descriptive research design	Dependent variable: Rationality of antibiotic use Independent variable: antibiotics	The results of the data obtainedshowed that the useof antibiotics in pneumonia patients most often was the quinolone group, namely levofloxacin, with 14 prescriptions or 48% for single antibiotic use. With the use of other antibiotics, such as taxegram / cefotaxine as many as 4 prescriptions or 14%.	Dependent variable: Rationality of antibiotics with gyssens Independent variable: antibiotics.

[10] Mulya Rahma Karyanti and Karina Faisha, "Evaluasi Penggunaan Antibiotik dengan Metode Gyssens pada Penyakit Infeksi dan Pola Sensitivitas Bakteri di Ruang Rawat Inap Anak Rumah Sakit Cipto Mangunkusumo," *Sari Pediatri* 23, no. 6 (2022).

[11] {Citation}