Khwaja Yunus Ali University Journal

Publisher homepage: www.kyau.edu.bd

OPEN ACCESS

ISSN: 2791-3759 (Online), 2521-3121 (Print)

Journal homepage: www.journal.kyau.edu.bd

Research Article

Emergence of Resistant Bacterial Pathogens in Wound Infections: A Study from a Tertiary Care Hospital in Bangladesh

Abdullah Akhtar Ahmed[1,2], Nusrat Akhtar Juyee [3], and SA Mohammad Hasan [3] and Mohammad Zakerin Abedin[1]

[1]Department of Microbiology, Laboratory Services, Khwaja Yunus Ali Medical College and Hospital, Sirajganj, Bangladesh

[2]Department of Microbiology, Khwaja Yunus Ali University, Sirajganj, Bangladesh

[3]Comilla Medical College, Comilla.

ABSTRACT

Wound infections remain a major healthcare challenge, particularly in developing countries. The emergence of multidrug-resistant (MDR) bacteria further complicates treatment and recovery. This study assessed the bacteriological spectrum and antimicrobial resistance patterns of wound pathogens in a tertiary care hospital in Bangladesh. A retrospective study was conducted from January to July 2019 in the Microbiology section of Khwaja Yunus Ali Medical College Hospital, Enayetpur, Bangladesh. A total of 295 wound specimens (swabs and pus aspirates) were processed by standard microbiological methods, and antibiotic susceptibility was determined using the Kirby-Bauer disc diffusion method following CLSI guidelines. Of the 295 samples, 217 (73.5%) showed bacterial growth. Escherichia coli (41%) was the predominant gram-negative isolate, while Staphylococcus aureus (31%) and coagulase-negative staphylococci (13%) were the leading gram-positive pathogens. High levels of resistance were observed, though Imipenem, Meropenem, Amikacin, and Nitrofurantoin were effective against gram-negative bacteria. Gram-positive isolates showed higher sensitivity to Amoxiclav, Gentamicin, and Meropenem. The study highlights the emergence of resistant bacterial pathogens in wound infections. Effective antimicrobial stewardship, regular resistance surveillance, and strengthened infection control practices are essential to curb the spread of MDR organisms in healthcare settings.

Keywords: Wound infections; Antimicrobial resistance; Multidrug-resistant bacteria; *Escherichia coli*; *Staphylococcus aureus*; Antibiotic susceptibility; Bangladesh.

1. Introduction

Wound infections, resulting from the colonization of pathogenic microorganisms, remain a major challenge for healthcare systems worldwide. They are commonly associated with surgical procedures, traumatic injuries, or underlying skin conditions, often leading to increased morbidity, prolonged hospital stays, and higher healthcare costs. In resource-limited settings like Bangladesh, inadequate infection control practices and irrational antibiotic use have accelerated the emergence of multidrug-resistant (MDR) pathogens.

Several studies from tertiary care hospitals in Bangladesh have reported a high prevalence of MDR bacteria in wound infections. For instance, Jobayer *et al*. (2022) found that 72% of wound specimens yielded bacterial growth, with *Pseudomonas spp.* (43.8%), *Escherichia coli* (16.6%), and *Staphylococcus aureus* (11.8%) as the predominant isolates. Alarmingly, 14.9% of gram-negative bacteria were extended-spectrum beta-lactamase (ESBL) producers, underscoring their resistance to commonly used antibiotics. Similarly, Ahmed *et al.* (2020), Abedin MZ *et al*., (2020) and Begum *et al*. (2020) reported *S. aureus* (42.86%) as the leading pathogen, showing resistance to ciprofloxacin and azithromycin but retaining sensitivity to linezolid and rifampicin.

The global health community has also raised concerns over antimicrobial resistance (AMR). A recent report in *The Lancet Infectious Diseases* highlighted that fewer than 7% of patients in low- and middle-income countries receive effective antibiotics for severe drug-resistant infections, contributing to higher mortality and wider AMR dissemination.

In this context, continuous surveillance of bacteriological profiles and antimicrobial susceptibility patterns of wound infections is critical. Such data are essential for guiding empirical therapy, promoting antibiotic stewardship, and strengthening infection control strategies. This study investigates the bacteriological spectrum and resistance trends in wound infections in a tertiary care hospital in Bangladesh, contributing to national and global efforts against AMR.

2. Materials and Methods

2.1 Study Design and Setting

This retrospective study was conducted in the Microbiology Section of the Department of Laboratory Services, Khwaja Yunus Ali Medical College Hospital, Enayetpur, Bangladesh, from January to July 2019.

2.2 Sample Collection

A total of 295 wound specimens, including 203 wound swabs and 92 pus aspirates, were collected aseptically. For each case, two swabs were obtained: one for Gram staining and direct microscopic examination, and the other for bacterial culture.

2.3 Microbiological Analysis

Specimens were inoculated onto Blood Agar, Chromogenic UTI Agar, and MacConkey Agar plates, followed by incubation at 37 °C for 24 hours. Bacterial isolates were identified based on colony morphology and standard microbiological procedures.

2.4 Antimicrobial Susceptibility Testing (AST)

Antibiotic susceptibility of the isolates was determined using the BD Phoenix™ M50 Automated System. The results were interpreted according to the Clinical and Laboratory Standards Institute (CLSI) guidelines.

3. Results and Discussion

3.1 Sample Distribution and Culture Positivity

Out of 295 pus samples collected from patients suspected of wound infections (Table 1):

Table 1: Distribution Pattern of Pus Sample in Total Patients.

Types of samples	Number	Percent
Pus swab	203	68.8
Pus aspirate	92	31.2
Total	295	100

Upon culturing, bacterial growth patterns of the samples in the table 2. Among culture-positive samples: Pus swabs yielded 154 isolates (71%) and Pus aspirates yielded 63 isolates (29%). These findings demonstrate a relatively high yield of bacterial growth from swab specimens, although aspirates are typically considered more reliable in deep tissue infections (Brook, 2008).

The predominance of pus swab samples (68.8%) reflects their ease of collection; however, aspirates are generally recommended for deep or chronic wounds to avoid contamination from skin flora. Despite this, both sample types produced comparable growth rates, supporting their diagnostic relevance in routine clinical microbiology (Abedin *et al.,*2020).

Table 2: Growth pattern in Total Sample

Types of samples	Growth		No Growth		Total
	Number	Percent	Number	Percent	
Pus swab	154	71	49	62.8	203
Pus aspirate	63	29	29	37.2	92
Total	217	100	78	100	295

3.2. Age and Gender Distribution of Wound Infections

Among the 217 culture-positive patients, Male patients were 118 (54 %) and female patients were 99 (46 %). The most affected age groups were 21–30 years: 46 cases (21.1%), 41–50 years: 45 cases (21.0%), 31–40 years: 41 cases (19.0%), and 51–60 years: 38 cases (17.5%) (Table 3). The age group 21–60 years collectively represented ~78.6% of all infections, indicating that the working-age population is the most affected. This may be attributed to increased exposure to physical activities, occupational hazards, surgical interventions, or trauma in this demographic (Bowler *et al.,* 2001).

Table 3: Gender and age-wise distribution of wound infection patients. (*n*=217)

Age group (in years)	Male		Female		Total (no. of cases)	Percentage (n=217)
	No. of cases	% Age	No. of cases	% Age		
0-10	5	2	4	2	9	4
11-20	8	4	11	5	19	9
21-30	23	11	23	11	46	21
31-40	19	9	22	10	41	19
41-50	31	14	14	6	45	21
51-60	22	10	16	7	38	18
>60	10	5	9	4	19	9
Total	118	54	99	46	217	100

The finding that 21–60 years age group accounted for the majority of wound infections is notable. This age bracket corresponds to the most physically active segment of the population and may also correlate with increased exposure to surgical procedures, trauma, and diabetes-related ulcers (Lipsky *et al*., 2006). The slightly higher infection rate in males (54 %) may be linked to increased risk factors such as occupational exposure and trauma, while the near-equal distribution suggests that wound infections are not highly gender-biased, corroborating findings from previous studies (Grover *et al.,* 2004).

3.3. Bacteriological Profile of Wound Infections

Five types of bacterial isolates were identified among the 217 culture-positive cases (Table 4). E. coli was the most prevalent organism (41%), followed by Staphylococcus aureus (31%), both of which are commonly associated with wound infections in both community and healthcare settings. The high proportion of Gram-negative bacilli (56 %) is consistent with the literature suggesting a shift in wound pathogens towards Gram-negative organisms, especially in chronic and hospital-acquired infections (Siddiqui & Bernstein, 2010).

Table 4: Distribution Pattern of Bacterial Isolates of wound infection (n= 217).

Bacterial Isolate	Frequency	Percentage (%)
Escherichia coli	89	41%
Staphylococcus aureus	68	31%
Coagulase-Negative Staphylococci (CONS)	28	13%
Pseudomonas aeruginosa	26	12%
Klebsiella spp.	6	3%

The dominance *of E. coli* (41%) and *Staphylococcus aureus* (31%) underscores the need to tailor empirical therapy to these organisms. E. coli is increasingly recognized in wound infections, particularly in polymicrobial and diabetic foot ulcers (Abedin *et al*., 2022a, 2022b). *Staphylococcus aureus*, including MRSA strains, remains a leading cause of skin and soft tissue infections. Its high prevalence highlights the importance of screening and decolonization strategies in hospital settings (Klevens et al., 2007). The presence of *Pseudomonas aeruginosa* (12%) and *Klebsiella spp*. (3%) further stresses the need to monitor multidrug resistance, as these pathogens are associated with poor treatment outcomes in chronic wounds and burns (Abedin *et al*., 2022b).).

3.4 Antimicrobial Susceptibility Profile

A panel of 23 antibiotics was tested across these isolates. The results demonstrated varying degrees of resistance and sensitivity, detailed below:

High Resistance Rates (>85%) were observed for:

- Ampicillin, Amoxicillin: *E. coli, S. aureus,* CONS, and *Klebsiella spp*. showed >90% resistance.
- Cefuroxime, Cephradine, Cefotaxime, Cefixime: Exhibited significant resistance, especially among *E. coli,* CONS, and *P. aeruginosa.*

Moderate Resistance (40–60%):

- Ciprofloxacin, Levofloxacin, Azithromycin: Most isolates showed 35–60% resistance.
- Amoxiclav: Showed variable resistance – 75% in *E. coli,* 85% in *P. aeruginosa,* and 67% in *Klebsiella spp.*

High Sensitivity Rates (>70%) were seen for:

- Imipenem (93.1%) and Meropenem (80.6%): Effective across all isolates, especially *E. coli, P. aeruginosa*, and *Klebsiella spp.*
- Amikacin (76.5%) and Gentamicin (56.2%): Broad-spectrum efficacy was observed.
- Doxycycline (93%) and Nitrofurantoin (56.7%) showed higher activity against S. aureus, CONS, and *E. coli.*
- Cotrimoxazole (88%) showed moderate effectiveness against most isolates.

Antibiotic resistant pattern of isolated microorganism in wound infection in 2019:

Table: Antibiotic Susceptibility of Bacterial Isolates from Wound Infections (n=217)

Antibiotic	E. coli (n=89)	S. aureus (n=68)	CONS (n=28)	P. aeruginosa (n=26)	Klebsiella spp (n=6)	Total (n=217)
Ampicillin	87 (98%)	55 (80%)	18 (64%)	25 (96%)	6 (100%)	191 (88%)
Amoxicillin	85 (95%)	56 (82%)	20 (71%)	25 (96%)	6 (100%)	192 (88%)
Amoxiclav	67 (75%)	28 (41%)	8 (28%)	22 (85%)	2 (33%)	127 (58%)
Amikacin	29 (32%)	10 (15%)	4 (14%)	7 (27%)	1 (17%)	51 (23%)
Azithromycin	71 (80%)	55 (81%)	21 (75%)	11 (42%)	3 (50%)	161 (74%)
Ceftazidime	68 (76%)	51 (75%)	11 (39%)	17 (65%)	2 (33%)	149 (69%)
Ceftriaxone	68 (76%)	38 (56%)	8 (28%)	8 (31%)	3 (50%)	125 (58%)
Cefixime	81 (91%)	64 (94%)	21 (75%)	23 (88%)	3 (50%)	192 (88%)
Cefotaxime	80 (90%)	66 (97%)	24 (86%)	17 (65%)	4 (67%)	191 (88%)
Cefuroxime	74 (83%)	40 (59%)	8 (28%)	24 (92%)	4 (67%)	150 (69%)
Cephradine	84 (94%)	45 (66%)	11 (39%)	24 (92%)	5 (83%)	169 (78%)
Ciprofloxacin	72 (81%)	43 (63%)	15 (53%)	10 (38%)	2 (33%)	142 (65%)
Doxycycline	80 (90%)	65 (95%)	26 (93%)	26 (100%)	6 (100%)	203 (93%)
Gentamicin	53 (59%)	53 (78%)	19 (68%)	23 (88%)	6 (100%)	154 (71%)
Imipenem	10 (11%)	28 (41%)	1 (3%)	12 (46%)	1 (17%)	52 (24%)
Meropenem	21 (23%)	12 (18%)	5 (18%)	3 (11%)	1 (17%)	42 (19%)
Levofloxacin	71 (80%)	37 (54%)	15 (53%)	10 (38%)	1 (17%)	134 (62%)
Nitrofurantoin	41 (46%)	41 (60%)	22 (78%)	5 (19%)	4 (67%)	113 (52%)
Oxacillin	88 (99%)	65 (95%)	3 (11%)	25 (96%)	6 (100%)	187 (86%)
Teicoplanin	74(83%)	66 (97%)	4 (14%)	26 (100%)	6 (100%)	102 (47%)
Cotrimoxazole	81 (91%)	58 (85%)	23 (82%)	25 (96%)	4 (67%)	191 (88%)

Table 3: Antimicrobial sensitivity profile of bacterial isolates from the burn wound patients

Antibiotic	*E. coli*	*S. aureus*	*CONS*	*P. aeruginosa*	*Klebsiella spp*	Total
Ampicillin	2/89 = 2.2%	12/68 = 17.6%	10/28 = 35.7%	1/26 = 3.8%	0/6 = 0%	25/217 = 11.5%
Amoxicillin	3/89 = 3.4%	9/68 = 13.2%	8/28 = 28.6%	1/26 = 3.8%	0/6 = 0%	21/217 = 9.7%
Amoxiclav	22/89 = 24.7%	40/68 = 58.8%	20/28 = 71.4%	4/26 = 15.4%	4/6 = 66.7%	90/217 = 41.5%
Amikacin	60/89 = 67.4%	58/68 = 85.3%	24/28 = 85.7%	19/26 = 73.1%	5/6 = 83.3%	166/217 = 76.5%
Azithromycin	18/89 = 20.2%	13/68 = 19.1%	7/28 = 25.0%	15/26 = 57.7%	3/6 = 50.0%	56/217 = 25.8%
Ceftazidime	21/89 = 23.6%	17/68 = 25.0%	17/28 = 60.7%	19/26 = 73.1%	4/6 = 66.7%	78/217 = 35.9%
Ceftriaxone	21/89 = 23.6%	30/68 = 44.1%	20/28 = 71.4%	18/26 = 69.2%	3/6 = 50.0%	92/217 = 42.4%
Cefixime	8/89 = 9.0%	4/68 = 5.9%	7/28 = 25.0%	3/26 = 11.5%	3/6 = 50.0%	25/217 = 11.5%
Cefotaxime	9/89 = 10.1%	2/68 = 2.9%	4/28 = 14.3%	9/26 = 34.6%	2/6 = 33.3%	26/217 = 12.0%
Cefuroxime	15/89 = 16.9%	28/68 = 41.2%	20/28 = 71.4%	2/26 = 7.7%	2/6 = 33.3%	67/217 = 30.9%
Cephradine	5/89 = 5.6%	23/68 = 33.8%	17/28 = 60.7%	2/26 = 7.7%	1/6 = 16.7%	48/217 = 22.1%
Ciprofloxacin	17/89 = 19.1%	25/68 = 36.8%	13/28 = 46.4%	16/26 = 61.5%	4/6 = 66.7%	75/217 = 34.6%
Doxycycline	9/89 = 10.1%	15/68 = 22.1%	9/28 = 32.1%	3/26 = 11.5%	0/6 = 0%	36/217 = 16.6%
Gentamicin	36/89 = 40.4%	40/68 = 58.8%	27/28 = 96.4%	14/26 = 53.8%	5/6 = 83.3%	122/217 = 56.2%
Imipenem	79/89 = 88.8%	65/68 = 95.6%	28/28 = 100%	23/26 = 88.5%	6/6 = 100%	202/217 = 93.1%
Meropenem	68/89 = 76.4%	56/68 = 82.4%	23/28 = 82.1%	23/26 = 88.5%	5/6 = 83.3%	175/217 = 80.6%
Levofloxacin	18/89 = 20.2%	31/68 = 45.6%	13/28 = 46.4%	16/26 = 61.5%	5/6 = 83.3%	83/217 = 38.2%
Nitrofurantoin	48/89 = 53.9%	46/68 = 67.6%	23/28 = 82.1%	4/26 = 15.4%	2/6 = 33.3%	123/217 = 56.7%
Oxacillin	1/89 = 1.1%	3/68 = 4.4%	25/28 = 89.3%	1/26 = 3.8%	0/6 = 0%	30/217 = 13.8%
Teicoplanin	0/89 = 0%	2/68 = 2.9%	4/28 = 14.3%	0/26 = 0%	0/6 = 0%	6/217 = 2.8%
Cotrimoxazole	8/89 = 9.0%	10/68 = 14.7%	5/28 = 17.9%	1/26 = 3.8%	2/6 = 33.3%	26/217 = 12.0%

3.5 Prevalence and Antimicrobial Resistance of Pathogens

The study revealed a high prevalence of multidrug-resistant (MDR) bacteria, particularly among Gram-negative isolates such as *E. coli*, *Klebsiella spp.*, and *Pseudomonas aeruginosa*, reflecting global trends in wound and UTI infections. *E. coli*, the most frequent isolate, showed high resistance to first-line antibiotics including ampicillin (97.8%) and amoxicillin (96.7%), limiting their empirical use.

Resistance to third-generation cephalosporins (ceftriaxone, ceftazidime, cefotaxime) exceeded 60% in several isolates, indicating the presence of extended-spectrum β-lactamase (ESBL) producers. Carbapenems—imipenem (93.1%) and meropenem (80.6%)—remained highly effective, while aminoglycosides (amikacin and gentamicin) showed moderate to good activity against Gram-negative pathogens. *Pseudomonas aeruginosa* exhibited resistance to β-lactams, cephalosporins, and fluoroquinolones but retained high susceptibility to imipenem (88.4%), meropenem (88.4%), and amikacin (73%).

Among Gram-positive isolates, *S. aureus* and coagulase-negative staphylococci demonstrated resistance to ampicillin, oxacillin, and cephalosporins, suggesting possible MRSA strains. They remained largely sensitive to gentamicin, doxycycline, imipenem, teicoplanin, and nitrofurantoin, supporting their role in managing resistant Gram-positive infections.

4.0 Conclusion

This analysis reveals that: Most wound infections occur in adults aged 21–60 years. Males are slightly more affected than females. E. coli and S. aureus are the predominant pathogens, indicating the need for routine susceptibility testing to inform empirical therapy. Early identification of wound pathogens and their resistance profiles is crucial for improving patient outcomes and guiding antibiotic stewardship practices. The antibiotic resistance profile observed in this study highlights a critical public health concern. The high resistance to β-lactams and cephalosporins, particularly in *E. coli* and *Klebsiella spp.,* suggests the need for routine surveillance, rational prescribing practices, and the promotion of antibiotic stewardship programs. Carbapenems and aminoglycosides remain effective for severe cases but should be reserved for confirmed resistant infections to preserve their efficacy.

5.0Acknowledgment

The authors would like to express their sincere gratitude to the Department of Microbiology, Khwaja Yunus Ali Medical College and Hospital, for providing laboratory facilities and support throughout the study.

6.0 Authors' Contributions

Abdullah Akhtar Ahmed developed the research concept and design. Nusrat Akhtar Juyee managed materials and data collection. Mohammad Zakerin Abedin performed data analysis and interpretation. The literature review and manuscript drafting were done by Abdullah Akhtar Ahmed and Mohammad Zakerin Abedin, while critical review and editing were carried out by Mohammad Zakerin Abedin, Abdullah Akhtar Ahmed, and SA Mohammad Hasan. All authors approved the final manuscript.

7.0 Disclosure

The authors declare that they have no competing interests or conflicts of interest related to this study.

8.0 References

1. Ahmed AA, Juyee NA, Hasan SMA, and Abedin MZ. (2020). Microbiological screening and antimicrobial sensitivity profiling of wound infections in a tertiary care hospital of Bangladesh, Eur. J. Med.Health Sci., 2(5), 101-106. https://doi.org/10.34104/ejmhs.020.01010106
2. Abedin MZ, Aktar MB, Zaman MSU, Jarin L, Miah MAS, Ahmed AA, et al. (2020) Predominance of nosocomial pathogens among patients with post-operative wound infections and evaluation of the antibiotic

susceptibility patterns in rural hospitals in Bangladesh. Recent Advances in Biology and Medicine. 6(4): 9800005. https://doi.org/10.18639/RABM.2020.9800005

3. Abedin, M.Z., Islam, M.I., Farnaz, N., Afrin, M.N., Fatema-Tuz-Zohora, Anjum, F *et al.* (2022a). Bacteriological profiles and multi-drug susceptibility patterns of wounds infecting bacterial isolates in rural hospital of Bangladesh. Pharmacotherapy & Pharmascience Discovery, 2(1), 16-24. http://dx.doi.org/10.13140/RG.2.2.33662.87362

   Abedin MZ, et al. Multi-Drug Resistance Patterns of Wound Causing Bacterial Infections in a
4. Rural Hospital, Sirajganj, Bangladesh. Public H Open Acc (2022b), 6(1): 000196. http://dx.doi.org/10.23880/phoa-16000196
5. Bowler, P. G., Duerden, B. I., & Armstrong, D. G. (2001). Wound microbiology and associated approaches to wound management. *Clinical Microbiology Reviews*, 14(2), 244–269. https://doi.org/10.1128/CMR.14.2.244-269.2001
6. Begum, M. F.., Nasrin, M, karim, R.., & Alam, M. S. (2020). Bacteriological profile and antibiotic susceptibility patterns of wound infections at Uttara Adhunik Medical College Hospital, Dhaka. Bangladesh Journal of Medical Microbiology, 14(1), 15–19. https://doi.org/10.3329/bjmm.v14i1.57762
7. Brook, I. (2008). Microbiology and management of soft tissue and muscle infections. *international journal of surgery*, *6*(4), 328-338.
8. Gupta, K., Hooton, T. M., Naber, K. G., Wullt, B., Colgan, R., Miller, L. G. & Soper, D. E. (2011). International clinical practice guidelines for the treatment of acute uncomplicated cystitis and pyelonephritis in women: a 2010 update by the Infectious Diseases Society of America and the European Society for Microbiology and Infectious Diseases. *Clinical infectious diseases*, *52*(5), e103-e120. https://doi.org/10.1093/cid/ciq257
9. Jobayer, M., Rahman, M., Akter, N., Shareef, N., Rana, R. A., & Shamsuzzaman, S. (2022). Organisms isolated from wound swab and pus with their antibiotic susceptibility pattern in a tertiary care hospital in Bangladesh.: Antibiogram of organisms from wound infection. Bangladesh Medical Research Council Bulletin, 47(2), 181–187. https://doi.org/10.3329/bmrcb.v47i2.57777
10. Klevens, R. M., Morrison, M. A., Nadle, J., Petit, S., Gershman, K., Ray, S., ... & Active Bacterial Core surveillance (ABCs) MRSA Investigators. (2007). Invasive methicillin-resistant Staphylococcus aureus infections in the United States. *Jama*, *298*(15), 1763-1771.
11. Elamenya, L. K. (2015). *Antimicrobial susceptibility of bacteria that cause wound sepsis in the paediatric surgical patients at Kenyatta national hospital* (Doctoral dissertation, University of Nairobi).
12. Lipsky, B. A., Berendt, A. R., Deery, H. G., Embil, J. M., Joseph, W. S., Karchmer, A. W. & Tan, J. S. (2006). Diagnosis and treatment of diabetic foot infections. *Plastic and reconstructive surgery*, *117*(7S), 212S-238S.
13. Grover, S. S., Sharma, M., Pasha, S. T., Singh, G., & Lal, S. (2004). Antimicrobial susceptibility pattern and prevalence of extended spectrum beta-lactamase (ESBLs) producing strains of Klebsiella pneumoniae from a major hospital in New Delhi. *The Journal of Communicable Diseases*, *36*(1), 17-26.
14. World Health Organization. (2022). *Global antimicrobial resistance and use surveillance system (GLASS) report 2022*. World Health Organization.

Citation: Ahmed AA, Juyee NA, Hasan SAM and Abedin MZ. (2025). Emergence of Resistant Bacterial Pathogens in Wound Infections: A Study from a Tertiary Care Hospital in Bangladesh. *Khwaja Yunus Ali Uni. J.*8(1):01-07: https://doi.org/10.61921/kyauj.v08i01.001