

In the name of God

Report of
Antibiotic-Susceptibility Profiles of
Bacterial Pathogens
Causing Bloodstream Infections
in Shiraz in 1393:

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Table 1: Frequency and percentage of pathogenic bacteria isolated from blood samples based on hospitals in Shiraz, 1393

Hospital	Number(%)
Nemazee	186(52)
Amir	115(32)
Dena	10(3)
MRI	9(3)
Dastgheib	8(2)
Ghadir	5(1)
Rajae	5 (1)
Others	17(4.79)
Total	355

Table 2: The most common pathogenic bacteria isolated from blood in Bactec system in Shiraz, 1393

Bacteria	Number (%)
<i>Staphylococcus aureus</i>	55 (15.5)
<i>Escherichia coli</i>	43 (12.11)
<i>Pseudomonase spp</i>	37 (10.42)
<i>Entrococcus spp</i>	34 (9.58)
<i>Acinetobacter baumannii</i>	30 (8.45)
<i>Stenotrophomonase maltophilia</i>	25 (7.04)
<i>Klebsiella pneumonia</i>	23 (6.48)
<i>Entrobacter spp</i>	18 (5.07)
<i>Pseudomonase aeroginosa</i>	14 (3.94)
<i>Streptococcus viridance</i>	14 (3.94)
Streptococcus pneumoniae	5 (1.41)
Others	29(16.05)

Table 4: The frequency of Extended-spectrum β -lactamases (ESBLs) - producing bacteria isolated from blood in Bactec system in Shiraz, 1393

Bacteria	Number(%)
<i>Entrobacter spp</i>	28 (7.89)
<i>Klebsiella</i>	23 (6.48)
<i>Escherichia coli</i>	43 (12.11)

Extended-spectrum β -lactamases (ESBLs) are enzymes that mediate resistance to extended-spectrum (third generation) cephalosporins (e.g., ceftazidime, cefotaxime, and ceftriaxone) and monobactams (e.g., aztreonam) but do not affect cephamycins (e.g., cefoxitin and cefotetan) or carbapenems (e.g., meropenem or imipenem). The presence of an ESBL-producing organism in a clinical infection can result in treatment failure if one of the above classes of drugs is used.

Table 5: Susceptibility of 14 *Pseudomonas aeruginosa* isolated from blood in Bactec system in Shiraz, 1393

Antibiotics	Percentage of Susceptibility			
	Number	Sensitive	Intermediate	Resistance
Ampicillin	14	0	0	100
Ceftizoxime	6	0	16.7	83.3
Cefotaxime	14	0	28.6	71.4
Cefixime	13	0	0	100
Tigecycline	2	0	0	100
Ceftriaxone	14	7.1	0	92.9
Tetracycline	14	7.1	7.1	85.7
Trimethoprim/Sulfamethoxazole	14	7.1	21.4	71.4
Ticarcillin	14	28.6	7.1	64.3
Imipenem	14	50	0	50
Aztreonam	14	57.1	14.3	28.6
Cefepime	14	64.3	7.1	28.6
Ciprofloxacin	14	71.4	0	28.6
Gentamicin	14	71.4	0	28.6
Colistin	14	100	0	0

Table 6: Susceptibility of 55 *Pseudomonas spp.* isolated from blood in Bactec system in Shiraz, 1393

Antibiotics	Percentage of Susceptibility			
	Number	Sensitive	Intermediate	Resistance
Cefixime	42	0	7.1	92.9
Ampicillin	52	3.8	0	96.2
Cefotaxime	54	7.4	9.3	83.3
Ceftriaxone	53	7.5	1.9	90.6
Ceftizoxime	12	8.3	8.3	83.3
ESBL	45	8.9		91.1
Tetracycline	54	11.1	11.1	77.8
Cefepime	50	24	4	72
Aztreonam	53	24.5	5.7	69.8
Trimethoprim/Sulfamethoxazole	54	25.9	9.3	64.8
Ticarcillin	54	33.3	1.9	64.8
Ciprofloxacin	50	52	16	32
Tigecycline	10	60	10	30
Imipenem	54	61.1	7.4	31.5

Table 8: Susceptibility of 43 *Escherchia coli* isolated from blood by Bactec system in Shiraz, 1393

Antibiotics, (Number that susceptibility tested)	Percentage of Susceptibility			
	Number	Sensitive	Intermediate	Resistance
Ampicillin	43	4.7	4.7	90.7
Trimethoprim/Sulfamethoxazole	42	11.9	2.4	85.7
Ticarcillin	42	11.9	0	47.6
Tetracycline	43	20.9	9.3	69.8
Ciprofloxacin	42	23.8	2.4	73.8
Cefixime	37	24.3	8.1	67.6
Cefotaxime	41	26.8	0	73.2
Ceftriaxone	43	27.9	2.3	69.8
Aztreonam	43	30.2	20.9	48.8
Cefepime	42	33.3	16.7	50
Ceftizoxime	18	66.7	0	33.3
Gentamicin	43	74.4	0	25.6
Imipenem	43	93	4.7	2.3
Colistin	43	97.7	0	2.3

Table 10: Susceptibility of 28 *Enterobacter spp.* isolated from blood by Bactec system in Shiraz, 1393

Antibiotics, Number that susceptibility tested	Percentage of Susceptibility			
	Number	Sensitive	Intermediate	Resistance
Ampicillin	18	0	0	100
Ticarcillin	18	0	11.1	22.2
Cefotaxime	18	27.8	22.2	50
Ceftizoxime	7	28.6	14.3	57.1
Cefixime	14	28.6	7.1	64.3
Tetracycline	18	33.3	11.1	55.6
Cefepime	17	41.2	11.8	47.1
Trimethoprim/Sulfamethoxazole	18	44.4	5.6	50
Aztreonam	18	50	0	50
Ceftriaxone	18	50	0	50
Gentamicin	17	70.6	0	29.4
Imipenem	18	72.2	22.2	5.6
Ciprofloxacin	17	88.2	0	11.8
Colistin	28	96.4	0	3.6

Table 11: Susceptibility of 55 *Staphylococcus aureus* isolated from blood by Bactec system in Shiraz, 1393

Antibiotics	Number	Percentage of Susceptibility		
		Sensitive	Intermediate	Resistance
Penicillin G	53	7.5	0	71.7
Cefixime	47	8.5	0	91.5
Cefepime	54	37	5.6	57.4
Erythromycin	55	40	9.1	50.9
Clindamycin	55	50.9	3.6	45.5
Oxacillin	55	50.9	1.8	47.3
Ciprofloxacin	52	61.5	5.8	32.7
Gentamicin	55	63.6	1.8	34.5
Trimethoprim/Sulfamethoxazole	52	75	0	25
Rifampin	54	81.5	0	18.5
Vancomycin	50	100	0	0
Linezolid	54	100	0	0

Methicillin-resistant Staphylococcus aureus (MRSA):

Table 14: Susceptibility of 34 *Enterococcus spp.* isolated from blood by Bactec system in Shiraz, 1393

Antibiotics	Percentage of Susceptibility			
	Number that susceptibility tested	Sensitive	Intermediate	Resistance
Ceftizoxime	13	0	0	100
Cefotaxime	34	0	2.9	97.1
Cefixime	30	0	0	100
Ciprofloxacin	33	0	6.1	93.9
Oxacillin	33	0	0	72.7
Ticarcillin	3	0	0	100
Azithromycin	34	2.9	0	97.1
Clindamycin	34	2.9	0	97.1
Ceftriaxone	33	3	3	93.9
Erythromycin	33	3	0	97
Rifampin	33	3	6.1	90.9
Cefepime	32	3.1	0	96.9
Imipenem	33	9.1	6.1	84.8
Penicillin G	34	14.7	0	85.3
Ampicillin	33	21.2	0	78.8
Trimethoprim/Sulfamethoxazole	33	21.2	3	75.8
Gentamycin high dose	31	25.8	0	74.2
Doxycycline	34	29.4	2.9	67.6
Vancomycin	33	30.3	3	66.7
Teicoplanin	11	45.5	0	54.5
Linezolid	34	91.2	2.9	5.9

Table 15: Susceptibility of 14 *Streptococcus viridans* isolated from blood by Bactec system in Shiraz, 1393

Antibiotics	Percentage of Susceptibility				%NS
	Number	Sensitive	Intermediate	Resistance	
Gentamicin	14	14.3	7.1	78.6	
Trimethoprim/Sulfamethoxazole	13	15.4	0	84.6	
Cefixime	12	16.7	8.3	75	
Ampicillin	14	21.4	35.7	42.9	
Oxacillin	14	21.4	0	78.6	
Tetracycline	7	28.6	14.3	57.1	
Ciprofloxacin	13	30.8	38.5	30.8	
Erythromycin	13	30.8	23.1	46.2	
Azithromycin	14	42.9	0	57.1	
Cefotaxime	14	42.9	35.7	21.4	
Doxycycline	13	46.2	15.4	38.5	
Penicillin G	13	46.2	53.8	0	
Ceftriaxone	14	50	28.6	21.4	
Teicoplanin	3	66.7	33.3	0	
Cefepime	14	71.4	14.3	14.3	
Clindamycin	13	84.6	0	15.4	
Imipenem	13	92.3	7.7	0	
Vancomycin	13	92.3	0	0	7.7
Linezolid	13	100	0	0	
Rifampin	14	100	0	0	

Table 16: Susceptibility of 30 *Acinetobacter baumani* isolated from blood by Bactec system in Shiraz, 1393

Antibiotics	Percentage of Susceptibility			
	Number	Sensitive	Intermediat e	Resistance
Ampicillin	30	0	0	100
Aztreonam	30	0	0	100
Cefepime	29	0	0	100
Ceftizoxime	9	0	0	100
Ceftriaxone	30	0	0	100
Cefotaxime	29	0	0	100
Cefixime	26	0	0	100
Imipenem	29	0	0	100
Ticarcillin	30	0	0	100
Tigecycline	2	0	0	100
Tetracycline	30	3.3	10	86.7
Ciprofloxacin	30	6.7	0	93.3
Trimethoprim/Sulfamethoxazole	30	6.7	6.7	86.7
Gentamicin	30	26.7	3.3	70
Colistin	29	51.7	0	0

Table 18: Susceptibility of 23 *Klebsiella pneumonia* isolated from blood by Bactec system in Shiraz, 1393

Antibiotics	Percentage of Susceptibility			
	Number	Sensitive	Intermediate	Resistance
Ampicillin	22	0	0	100
Ticarcillin	22	0	0	68.2
Cefotaxime	23	30.4	8.7	60.9
Cefepime	22	31.8	9.1	59.1
Trimethoprim/Sulfamethoxazole	23	34.8	0	65.2
Aztreonam	22	36.4	4.5	59.1
Cefixime	19	36.8	0	63.2
Tetracycline	23	39.1	26.1	34.8
Ceftizoxime	10	40	0	60
Ceftriaxone	22	40.9	0	59.1
Ciprofloxacin	22	63.6	4.5	31.8
Gentamicin	23	69.6	0	30.4
Imipenem	23	82.6	13	4.3
Colistin	23	95.7	0	4.3

Table 18: Susceptibility of 25 *Stenotrophomonas maltophilia* isolated from blood by Bactec system in Shiraz, 1393

Antibiotics	Percentage of Susceptibility			
	Number	Sensitive	Intermediate	Resistance
Ampicillin	24	0	0	100
Aztreonam	24	0	0	100
Cefepime	23	0	8.7	91.3
Ceftizoxime	7	0	0	100
Ceftriaxone	24	0	0	100
Cefotaxime	23	0	0	100
Cefixime	22	0	0	100
Imipenem	24	0	0	100
Tetracycline	24	0	16.7	83.3
Ticarcillin	24	0	0	79.2
Gentamicin	24	20.8	4.2	75
Trimethoprim/Sulfamethoxazole	25	64	8	28
Ciprofloxacin	25	84	12	4
Colistin	23	91.3	0	8.7
Tigecycline	7	100	0	0