

*In the name of God*

Report of  
Antibiotic-Susceptibility Profiles of  
Bacterial Pathogens  
Causing Bloodstream Infections  
In Shiraz 1.1.94 - 31.6.94:

Developed by (in alphabetical order):

Pejman Abasie Msc

Manli Amin-Shahidi Msc

Mojtaba Anvarinejad Msc

Mohammad Ali Dehyadegari Bd

Gholamreza Pouladfar MD

Freshteh Fani PhD

Marzieh Hoseini Bsc

Zahra Jafarpour MD

Jalal Mardaneh PhD

Bahman Pourabbas PhD

Nourdin Rafat Pour Bsc

Maryam Sabzehzar

*Professor Alborzi Clinical Microbiology Research Center*

*Shiraz University of Medical Center*

**Table 1: Frequency and percentage of pathogenic bacteria isolated from blood samples based on hospitals in Shiraz, 1.1.94 —31.6.94**

Hospital	Number (%)
Nemazee	195(62)
Amir	49(16)
Dastgheib	16(5)
Dena	15(5)
Hafez	10(3)
Others	30(9)
Total	315

**Other hospitals include** Qadir 5(2%), Rajae 5(2%), MRI 5(2%), Mirhoseini 2(1%), Kosar 1(0.3%), Beheshti 1(0.3%), not determined 11(3.5%)

**Table 2: The most common pathogenic bacteria isolated from blood in Bactec system in Shiraz, 1.1.94 —31.6.94**

Bacteria	Number (%)
<i>Entrococcus spp</i>	46 (14.6)
<i>Pseudomonase spp</i>	44 (13.9)
<i>Acinetobacter baumannii</i>	42 (13.3)
<i>Streptococcus viridance</i>	31 (9.8)
<i>Escherichia coli</i>	30 (9.5)
<i>Stenotrophomonase maltophilia</i>	30 (9.5)
<i>Staphylococcus aureus</i>	21 (6.6)
<i>Klebsiella pneumonia</i>	19 (6)
<i>Pseudomonase aeroginosa</i>	12 (3.8)
<i>Acinetobacter lwoffii</i>	11 (3.5)
Others	29(9.5)

**Table 3: The frequency of Extended-spectrum  $\beta$ -lactamases (ESBLs) - producing bacteria isolated from blood in Bactec system in Shiraz, 1.1.94 —31.6.94**

Bacteria	Number (%)
<i>Entrobacter spp</i>	9/9 (100)
<i>Klebsiella</i>	14/20(70)
<i>Escherichia coli</i>	18/30 (60)

Extended-spectrum  $\beta$ -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 4: Susceptibility of 46 *Enterococcus spp.* isolated from blood by Bactec system in Shiraz, 1.1.94 —31.6.94**

Antibiotics	Number that susceptibility tested	Percentage of Susceptibility		
		Sensitive	Intermediate	Resistance
Oxacillin	45	0	0	100
Cefotaxime	46	0	0	100
Cefixime	9	0	0	100
Ceftriaxone	46	0	0	100
Erythromycin	46	0	2.2	97.8
Cefepime	46	0	2.2	97.8
Azithromycin	43	0	2.3	97.7
Rifampin	46	4.3	2.2	93.5
Clindamycin	44	9.1	0	90.9
Ciprofloxacin	46	0	13	87
Imipenem	46	10.9	2.2	87
Teicoplanin	39	15.4	0	84.6
Penicillin G	45	20	0	80
Ampicillin	44	18.2	4.5	77.3
Trimethoprim/Sulfamethoxazole	45	24.4	2.2	73.3
Vancomycin	46	28.3	0	71.7
Doxycycline	45	28.9	2.2	68.9
Gentamycin high dose	45	46.7	0	53.3
Linezolid	46	100	0	0

**Table 5: Susceptibility of 44 *Pseudomonas spp.* isolated from blood in Bactec system in Shiraz, 1.1.94 —31.6.94**

Antibiotics	Number	Percentage of Susceptibility		
		Sensitive	Intermediate	Resistance
Cefixime	44	2.3	0	97.7
Ampicillin	44	2.3	0	97.7
Tetracycline	44	4.5	6.8	88.6
Ceftriaxone	44	6.8	9.1	84.1
Cefotaxime	41	9.8	9.8	80.5
Aztreonam	40	20	5	75
Cefepime	44	29.5	9.1	61.4
Trimethoprim/Sulfamethoxazole	43	39.5	7	53.5
Amikacin	44	47.7	2.3	50
Tigecycline	36	50	5.6	44.4
Ticarcillin	36	66.7	0	33.3
Pipracillin Tazobactam	44	79.5	0	20.5
Ciprofloxacin	44	54.5	27.3	18.2
Imipenem	44	81.8	0	18.2
Colistin	43	95.3	0	4.7

**Table 6: Susceptibility of 42 *Acinetobacter baumani* isolated from blood by Bactec system in Shiraz, 1.1.94 —31.6.94**

Antibiotics	Percentage of Susceptibility			
	Number	Sensitive	Intermediat e	Resistance
Cefixime	41	2.4	0	97.6
Ampicillin	42	7.1	0	92.9
Aztreonam	41	2.4	4.9	92.7
Ceftriaxone	42	7.1	2.4	90.5
Amikacin	40	10	0	90
Tetracycline	40	2.5	7.5	90
Pipracillin Tazobactam	40	2.5	7.5	90
Ciprofloxacin	41	12.2	0	87.8
Cefotaxime	41	2.4	9.8	87.8
Ticarcillin	31	12.9	0	87.1
Imipenem	42	14.3	0	85.7
Gentamicin	42	14.3	0	85.7
Cefepime	41	7.3	7.3	85.4
Tigecycline	31	16.1	0	83.9
Trimethoprim/Sulfamethoxazole	42	33.3	16.7	50
Colistin	42	97.6	0	2.4

**Table 7: Susceptibility of 31 *Streptococcus viridance* isolated from blood by Bactec system in Shiraz, 1.1.94 —31.6.94**

Antibiotics	Percentage of Susceptibility			
	Number	Sensitive	Intermediate	Resistance
Oxacillin	29	10.3	0	89.7
Cefixime	9	22.2	0	77.8
Tetracycline	15	26.7	0	73.3
Trimethoprim/Sulfamethoxazole	27	25.9	3.7	70.4
Doxycycline	29	27.6	17.2	55.2
Gentamicin	31	35.5	12.9	51.6
Erythromycin	31	29	22.6	48.4
Azithromycin	28	35.7	17.9	46.4
Clindamycin	30	53.3	3.3	43.3
Cefotaxime	31	48.4	12.9	38.7
Ceftriaxone	28	60.7	10.7	28.6
Ampicillin	29	44.8	31	24.1
Rifampin	28	85.7	0	14.3
Penicillin G	30	40	46.7	13.3
Cefepime	31	71	16.1	12.9
Vancomycin	29	93.1	0	6.9
Imipenem	31	90.3	6.5	3.2
Linezolid	30	100	0	0
Teicoplanin	9	100	0	0

**Table 8: Susceptibility of 30 *Escherchia coli* isolated from blood by Bactec system in Shiraz, 1.1.94 —31.6.94**

Antibiotics, (Number that susceptibility tested)	Percentage of Susceptibility			
	Number	Sensitive	Intermediate	Resistance
Ampicillin	29	10.3	0	89.7
Ticarcillin	24	8.3	4.2	87.5
Trimethoprim/Sulfamethoxazole	29	20.7	0	79.3
Tetracycline	29	20.7	3.4	75.9
Ciprofloxacin	29	34.5	0	65.5
Cefixime	28	39.3	0	60.7
Ceftriaxone	29	44.8	3.4	51.7
Cefotaxime	29	37.9	13.8	48.3
Aztreonam	29	41.4	20.7	37.9
Cefepime	29	41.4	24.1	34.5
Gentamicin	29	72.4	0	27.6
Pipracillin Tazobactam	27	66.7	7.4	25.9
Amikacin	27	88.9	0	11.1
Imipenem	29	96.6	0	3.4
Colistin	29	100	0	0



**Table 9: Susceptibility of 30 *Stenotrophomonas maltophilia* isolated from blood by Bactec system in Shiraz, 1.1.94 —31.6.94**

Antibiotics	Percentage of Susceptibility			
	Number	Sensitive	Intermediate	Resistance
Cefepime	30	0	0	100
Ceftriaxone	30	0	0	100
Cefotaxime	30	0	0	100
Imipenem	30	0	0	100
Ticarcillin	25	0	0	100
Ampicillin	30	3.3	0	96.7
Aztreonam	30	3.3	0	96.7
Cefixime	28	3.6	0	96.4
Pipracillin Tazobactam	29	17.2	20.7	62.1
Tetracyclin	30	23.3	23.3	53.3
Amikacin	30	53.3	0	46.7
Gentamicin	30	50	3.3	46.7
Ciprofloxacin	30	76.7	6.7	16.7
Trimethoprim/Sulfamethoxazole	30	86.7	6.7	6.7
Colistin	30	93.3	0	6.7
Tigecycline	27	92.6	3.7	3.7

**Table 10: Susceptibility of 21 *Staphylococcus aureus* isolated from blood by Bactec system in Shiraz, 1.1.94 —31.6.94**

Antibiotics	Number	Percentage of Susceptibility		
		Sensitive	Intermediate	Resistance
Penicillin G	21	9.5	0	90.5
Erythromycin	21	52.4	0	47.6
Oxacillin	21	57.1	0	42.9
Cefoxitin	21	57.1	0	42.9
Cefepime	21	52.4	4.8	42.9
Clindamycin	21	61.9	0	38.1
Gentamicin	19	63.2	0	36.8
Ciprofloxacin	19	68.4	0	31.6
Rifampin	21	76.2	0	23.8
Trimethoprim/Sulfamethoxazole	19	84.2	5.3	10.5
Vancomycin	21	100	0	0
Linezolid	20	100	0	0

*Methicillin-resistant Staphylococcus aureus* (MRSA): 42.9%

**Table 11: Susceptibility of 19 *Klebsiella pneumoniae* isolated from blood by Bactec system in Shiraz, 1.1.94 —31.6.94**

Antibiotics	Percentage of Susceptibility			
	Number	Sensitive	Intermediate	Resistance
Ampicillin	18	0	0	100
Ticarcillin	16	12.5	0	87.5
Aztreonam	18	38.9	5.6	55.6
Cefixime	18	27.8	0	72.2
Ceftriaxone	17	35.3	0	64.7
Cefotaxime	18	38.9	0	61.1
Cefepime	18	38.9	0	61.1
Trimethoprim/Sulfamethoxazole	18	44.4	0	55.6
Ciprofloxacin	18	44.4	5.6	50
Gentamicin	18	50	0	50
Amikacin	18	44.4	11.1	44.4
Tetracycline	18	22.2	44.4	33.3
Pipracillin Tazobactam	17	52.9	17.6	29.4
Imipenem	18	83.3	5.6	11.1
Colistin	18	100	0	0

**Table 12: Susceptibility of *12Pseudomonas aeruginosa* isolated from blood in Bactec system in Shiraz, 1.1.94 —31.6.94**

Antibiotics	Number	Percentage of Susceptibility		
		Sensitive	Intermediate	Resistance
Ampicillin	12	0	0	100
Cefixime	12	0	0	100
Tetracycline	12	0	0	100
Tigecycline	11	0	0	100
Trimethoprim/Sulfamethoxazole	11	0	9.1	90.9
Cefotaxime	11	0	27.3	72.7
Ceftriaxone	12	0	33.3	66.7
Imipenem	12	75	0	25
Ticarcillin	11	81.8	0	18.2
Gentamicin	12	91.7	0	8.3
Aztreonam	9	77.8	22.2	0
Cefepime	12	75	25	0
Ciprofloxacin	12	100	0	0
Amikacin	12	100	0	0
Pipracillin Tazobactam	12	100	0	0
Colistin	12	100	0	0

**Table 13: Susceptibility of 9 *Enterobacter spp.* isolated from blood by Bactec system in Shiraz, 1.1.94 —31.6.94**

Antibiotics, Number that susceptibility tested	Percentage of Susceptibility			
	Number	Sensitive	Intermediate	Resistance
Ampicillin	9	0	0	100
Ticarcillin	5	0	0	100
Cefotaxime	9	11.1	0	88.9
Aztreonam	9	11.1	0	88.9
Cefixime	9	0	11.1	88.9
Ceftriaxone	9	11.1	0	88.9
Cefepime	9	11.1	0	88.9
Trimethoprim/Sulfamethoxazole	9	22.2	0	77.8
Gentamicin	9	22.2	0	77.8
Tetracycline	9	0	33.3	66.7
Ciprofloxacin	9	55.6	11.1	33.3
Amikacin	9	44.4	22.2	33.3
Pipracillin Tazobactam	9	55.6	11.1	33.3
Imipenem	9	88.9	11.1	0
Colistin	9	100	0	0

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**Prof. Alborzi**  
Clinical Microbiology Research Center  
Center of Excellence for Clinical Microbiology in Iran

