

**Table 1** Patients transported by Shiraz emergency medical services during study period 2012–2013

	Indicator	Number	Percent
Missions	Missions	81,541	100 %
	Missions by permanent stations (PS)	79,970	98 %
	Missions by temporary stations (TS)	1571	2 %
	Sex		
Patient characteristics	Male	52,051	61 %
	Female	29,490	39 %
	Age		
	Age group 1–10	1735	2.7 %
	Age group 10–20	7250	11.2 %
	Age group 21–40	25,565	39.5 %
	Age group 41–60	15,668	24.2 %
	Age group 61–up	14,509	22.4 %
Locations	Total	64,727	100 %
	Mean $\pm$ SD	42.59 $\pm$ 21.49	
	Urban	57,774	95 %
	Rural	3043	5 %

decreased level of consciousness, cardiovascular diseases, and neurological causes (including cerebrovascular diseases), respectively.

In order to evaluate the impact of different deployment of ambulances (TS vs PS), the outcomes were calculated statistically by looking at the response times and mortality rates. To avoid bias due to unequal sizes of our samples, three different evaluation approaches were used (see also Appendix A) [18–23].

Table 3 shows the time intervals in the two groups of ambulances. A 2-min reduction in response time in favor of TS was recorded ( $P < 0.001$ –[95 % CI, 1.975, 2.025]).

Differences between the response times in two groups comparing missions in urban vs. rural areas based on

pre-calculated 8 and 15 min response thresholds is presented in Table 4. Pre-calculated response thresholds are official figures set by the Iranian Department of Health and Welfare. For urban missions, results of logistic regression showed that the odds of the response time less than 8 min for PS vs. TS decreased by 14 % (OR = 0.86,  $P < 0.02$ ) (Table 5). The rural missions were excluded from the analysis because of the few number of missions in this category.

Table 6 compares the outcome of patients transported by PS and TS. In general, only around 45 % of patients were transferred to the hospitals (44.6 % in PS compared to 44.8 % in TS). The remaining number of patients received definitive treatment at scene, i.e., were treated and left on place or sent home (36.2 % in

**Table 2** The cause of dispatching an ambulance grouped in different disease categories

Reason for call	Temporary	%	Permanent	%
Trauma including orthopedic	684	43.68	32382	42.30
Decreased level of consciousness	195	12.45	11207	14.63
Cardiovascular	201	12.85	10699	13.97
Neurological including cerebrovascular	188	12.00	7748	10.12
Internal medicine including poisoning	155	9.90	6643	8.68
Respiratory	94	6.00	4967	6.48
Surgical include abdominal pain	37	2.36	1897	2.48
Psychological	7	0.45	546	0.71
Gynecology	5	0.31	486	0.63
Total	1566		76575	

In both groups of TS and PS ambulances, trauma is the most common cause of dispatching an ambulance, followed by neurological causes including cerebrovascular diseases and cardiovascular diseases