

# EMS System in China

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# Overview of EMS in China

## Types of EMS

# Four types of EMS in China

## Model I

- Beijing Model
- Independence Model

## Model II

- Shanghai Model
- Prehospital Model

## Model III

- Guangzhou Model
- Command Model

## Model IV

- Chongqing Model
- Dependence Model

# Independence Model

- An EMS system has one dispatch center , one affiliated emergency hospital and many ambulance stations. All ambulances and EMS staff belong to this EMS system.

# Prehospital Model

- An EMS system has one dispatch center and many ambulance stations with ambulances and EMS staff. There is no hospital affiliated to the EMS system. Patients will be transferred to the nearest network hospital.

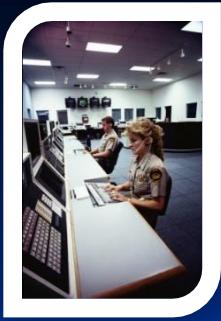
# Command Model

- An EMS system just has a dispatch center with some dispatchers. Ambulance stations are managed by the network hospitals. EMS staff are employed by the network hospitals. Patients are usually transferred to network hospital.

# Dependence Model

- There is no independent EMS system in a city. The local hospital, usually the biggest general hospital in the city is designated as a prehospital facility by local government. The dispatch center is one department of the hospital. Patients who need ambulance service are transferred to this hospital.





Dispatch center

Type I



Type II



Type III



Type IV



Ambulance



Doctor Driver



Hospital



- Prehospital Model is used in most of major cities in China.
- Command Model is used in middle cities.
- Dependence Model is used in most of small cities.



杭州市急救中心120调度指挥大厅视频监控



# Types of Ambulance



<b>Basic Ambulance</b>	<b>Advanced Ambulance</b>
Stretcher	Stretcher
Oxygen	Oxygen
ECG	ECG
Suction	Suction
Drug Box	Drug Box
	Monitor
	Defibrillator
	Ventilator

## **Equipments in Ambulance**







**EMS staff**



# EMS staff in Ambulance

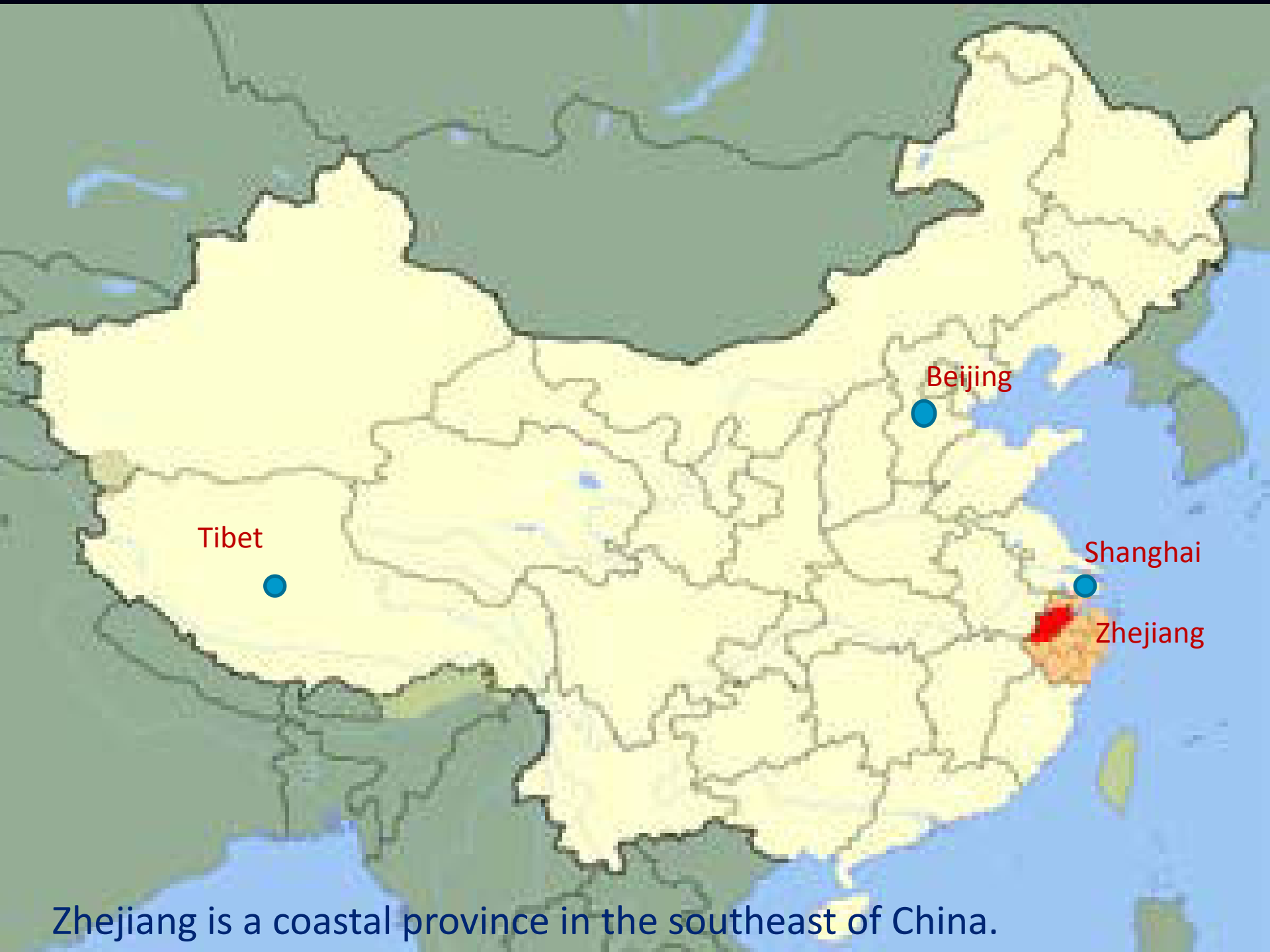
Doctor	1
Driver	1
Stretcher barrier	1~2

Generally, there are 3 to 4 staff working in an ambulance.





# EMS in Zhejiang Province



Tibet

Beijing

Shanghai

Zhejiang

Zhejiang is a coastal province in the southeast of China.



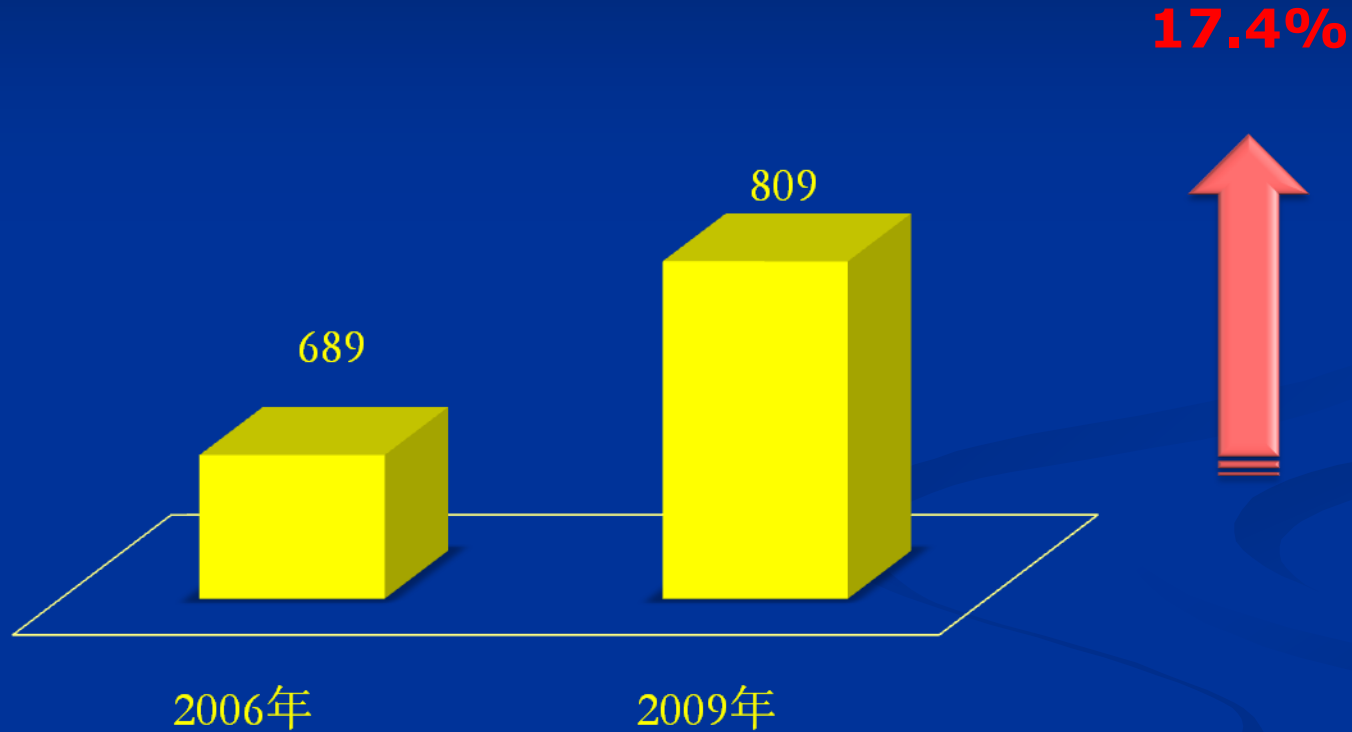


The province covers a total land area of 101,800 square kilometers. The population of the province reached to 51 million by the end of 2009. There are 11 major cities and 88 county-level and town-level cities in Zhejiang province.

## Number of prehospital facilities in Zhejiang Province

	Number	%
Prehospital Model	2	2.9%
Command Model	8	11.7%
Dependence Model	58	85.4%
<b>Total</b>	<b>68</b>	<b>100%</b>

# Number of Ambulance in Zhejiang Province



Ambulance increased from 689 in 2006 to 809 in 2009. Increased 17.4% during the 3 years



## There are 809 ambulances in Zhejiang

	Ambulance	Response Time (min)
City	25	7.29
County	4.53	4.33
Average	6.13	4.69

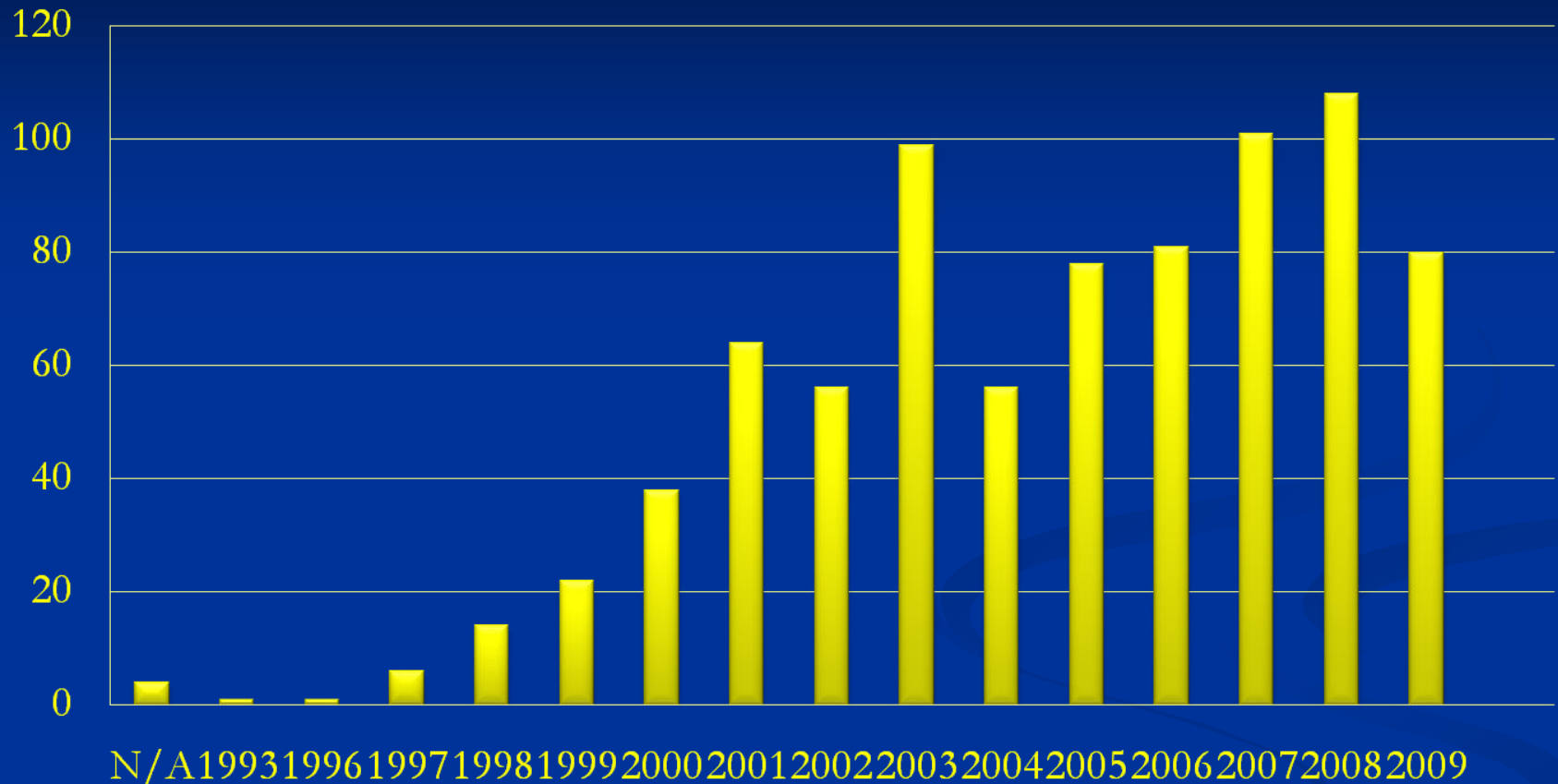
The number of ambulance is unbalanced in big and small cities. Every big city has 25 ambulance compare with 4-5 in small city.

# Types of Ambulance

Types	Number	%
A (basic)	542	67.0
B (advanced)	194	24.0
C (special)	24	3.0
E (others)	49	6.1
Total	809	100%

Among the 809 ambulances, 67% are basic ambulance

# Number of New Ambulance by Year



About 100 ambulance were bought in 2003 because of SARS epidemic.  
Another peak of new ambulance was found in 2008 for the earthquake in Sichuan Province.

# Equipments in Ambulance

Equipment	Number	(%)
ECG	289	37.9
Monitor	313	41.0
Blood sugar kit	175	22.9
Pulse Oximeter	196	25.7
Defibrillator	241	31.6
Ventilator	195	25.6
Laryngoscope	231	30.3
GPS	296	38.8

Ambulance are poorly equipped. Only 41% of these ambulance equipped with ECG monitor.

- There are 1626 staff members working in Zhejiang Province

Doctors: 38.79%

Nurses: 26.06%

Drivers: 25.58%

Others: 9.57%

- Among them 36.65% trained at least once

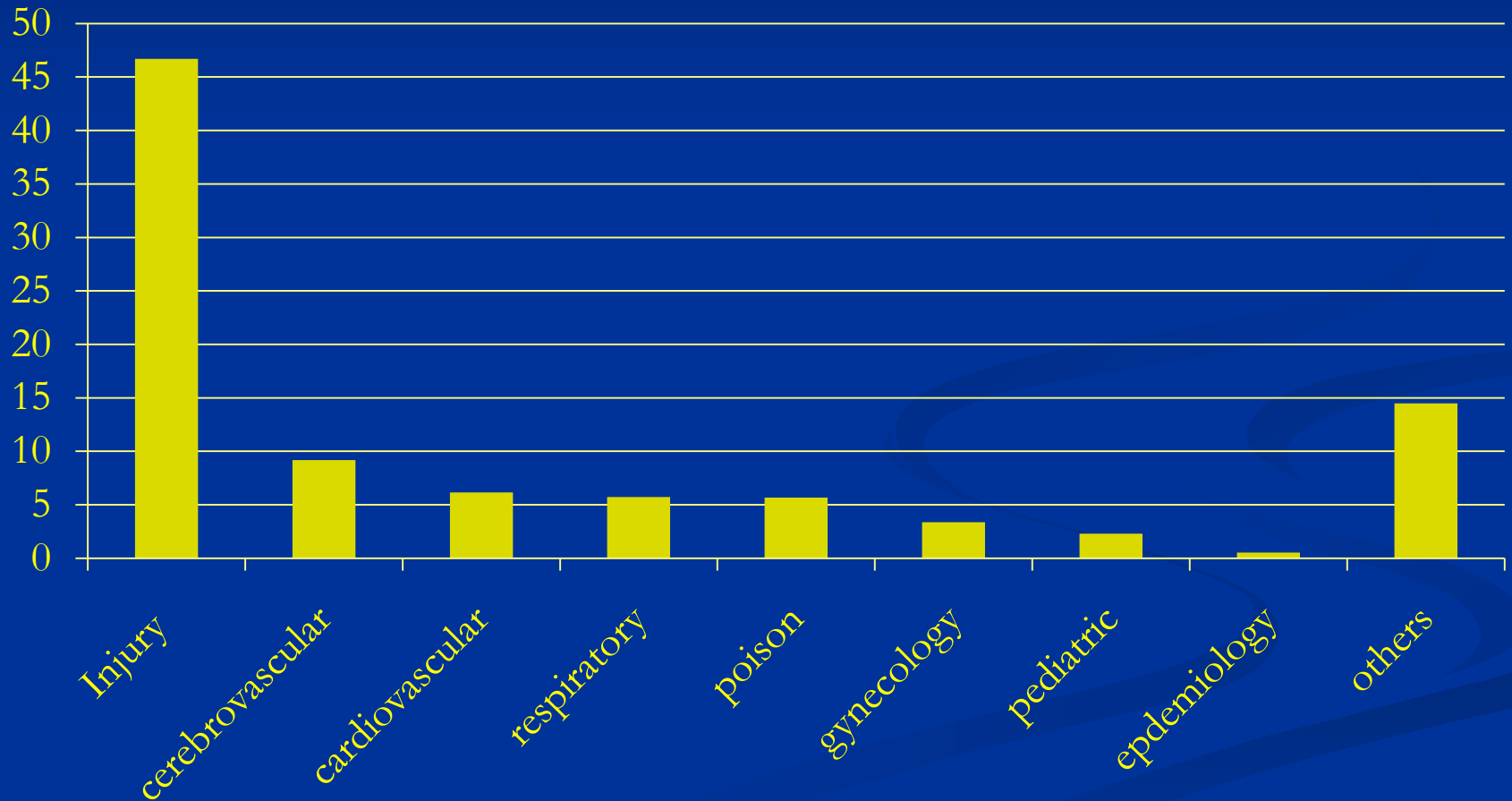
## Skills of the EMS staff in Zhejiang (%)

	Never	Once	Normal	Skillful	Other
CPR	6.09	2.68	6.98	63.25	21.00
Open Airway	10.32	2.15	6.92	58.11	22.49
Intubation	35.50	8.77	15.63	16.47	23.63
Heimlich Maneuver	35.98	6.03	17.24	16.41	24.34
Cricothyrotomy	51.97	3.88	14.08	5.25	24.82
Depression of tension Pneumothorax	36.40	6.03	14.02	18.14	25.42
Immobilization	10.20	8.17	19.39	40.04	22.2
Control bleeding	8.29	5.79	17.78	45.82	22.32
Burn Management	14.50	7.22	28.40	25.18	24.7
Shock Management	10.74	2.03	13.54	50.12	23.57
Monitor	10.62	3.16	12.23	50.54	23.45
DF	18.56	3.82	15.04	38.6	23.99
IV	13.13	4.47	15.33	42.66	24.4
Central IV	48.21	7.34	11.87	6.38	26.19
Spain immobilization	14.08	4.53	18.14	39.08	24.16

# Characteristics of Emergency calls in Zhejiang Province in 2010

- 2,090,958 calls/year
- 76% nondispatch required (1582225 false calls )
- 24% dispatch required (498733 calls)
- 373,374 ambulance runs
- 318,454 patients transferred

# The distribution of medical reasons of dispatch





# EMS in Hangzhou City

Hangzhou is the capital of Zhejiang Province with population of 4 million

- One dispatch center
- 49 sub-center and ambulance stations
- 132 ambulance
  - 54 advanced ambulance
  - 78 basic ambulance
- 160 EMS staff

- 767,920 calls in 2010
- 196,366 dispatch required
- 133,717 ambulance runs
- 111,708 patients transferred

# Problems

- After 30 years of development , EMS in China has gradually become more mature and now is in its fastest development period. But there are still many issues
- The development of EMS is unbalanced in the nation.
- There are no national standards for emergency care management.
- Multiple EMS co-exist, and they are often in unhealthy and disorderly competition

