



EMS in Jeju

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EMS station in Jeju



Single tiered system
1 EMS and Fire Agency
4 Fire stations
21 119 Centers

2 Local 119 Centers in daughter islands

Population and EMS units



Year :2009

Fire station	Population (persons)	Area (km ²)	119 Centers	EMS Unit	EMS vehicles
Jeju	321,793	250.829	7	9	10
Seogwipo	83,533	254.89	4	5	6
West	81,594	556.59	5	6	7
East	80,992	774.023	5	8	9
Total	567,912	1836.332	21	28	32



Dispatch Center of EMS



1 Public-safety answering point for Fire, Rescue and EMS
= Only 1 centralized dispatch center





It's me !!



Dispatch in Jeju



- Call taker : 15
 - No certified medical dispatcher
 - No medical dispatch protocol
 - Response time : about 60 sec
- Address and Phone-number: Auto-tracing
 - “Safety-Call Service” for high-risk patients
 - CRF, Stroke Hx, ACS Hx, Complicated DM, Chronic liver disease
- Computer-aided dispatch system
- GPS and location tracking



EMS call in 2009



95 calls/day

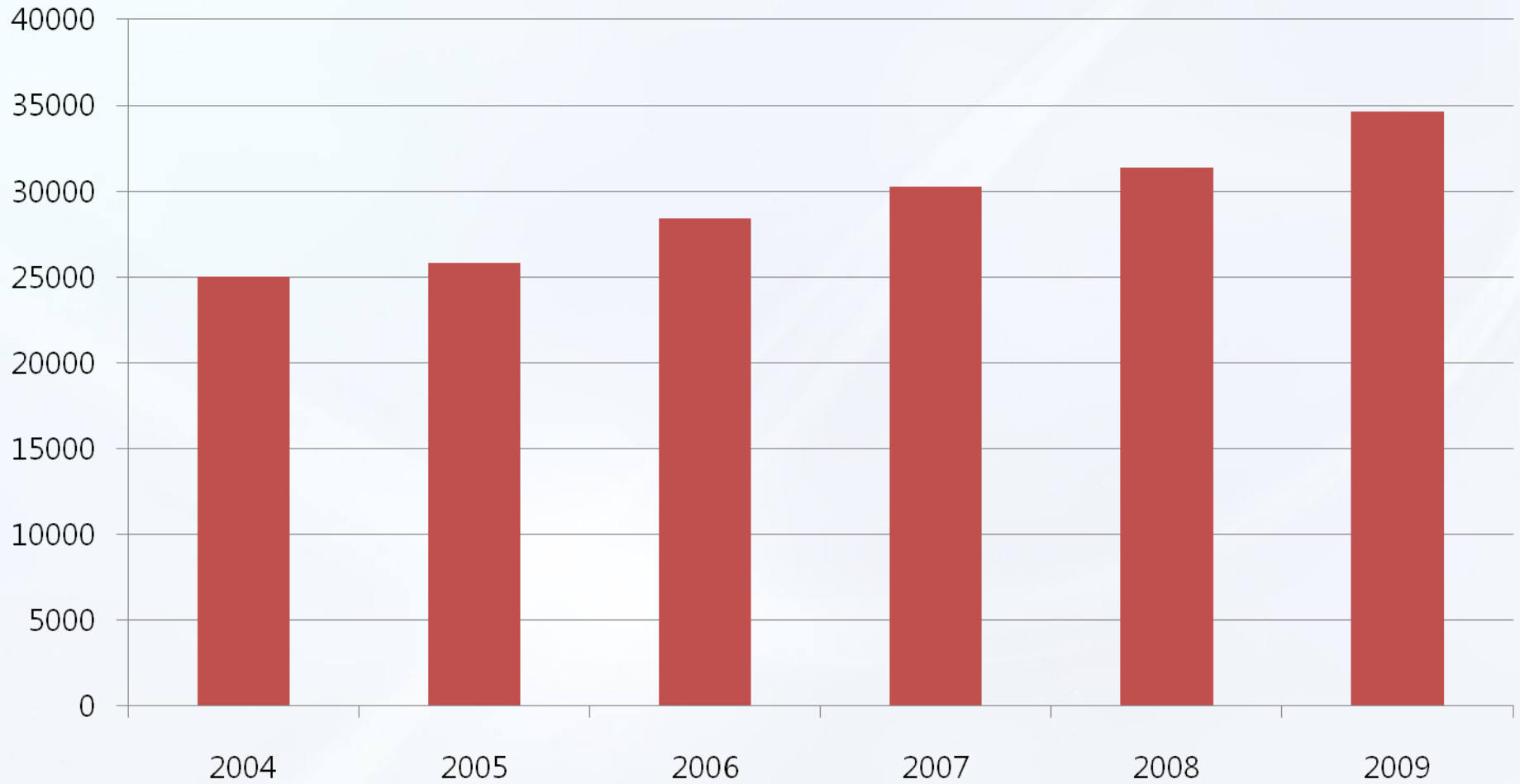
Fire station	Call	No dispatched	Dispatched	Transport to hospital (Patient number)
Total	34,619	7,019	27,600	29,061
Jeju	17191	3797	13394	13991
Seogwipo	5541	1174	4367	4619
West	5560	974	4586	4884
East	6327	1074	5253	5567



EMS calls



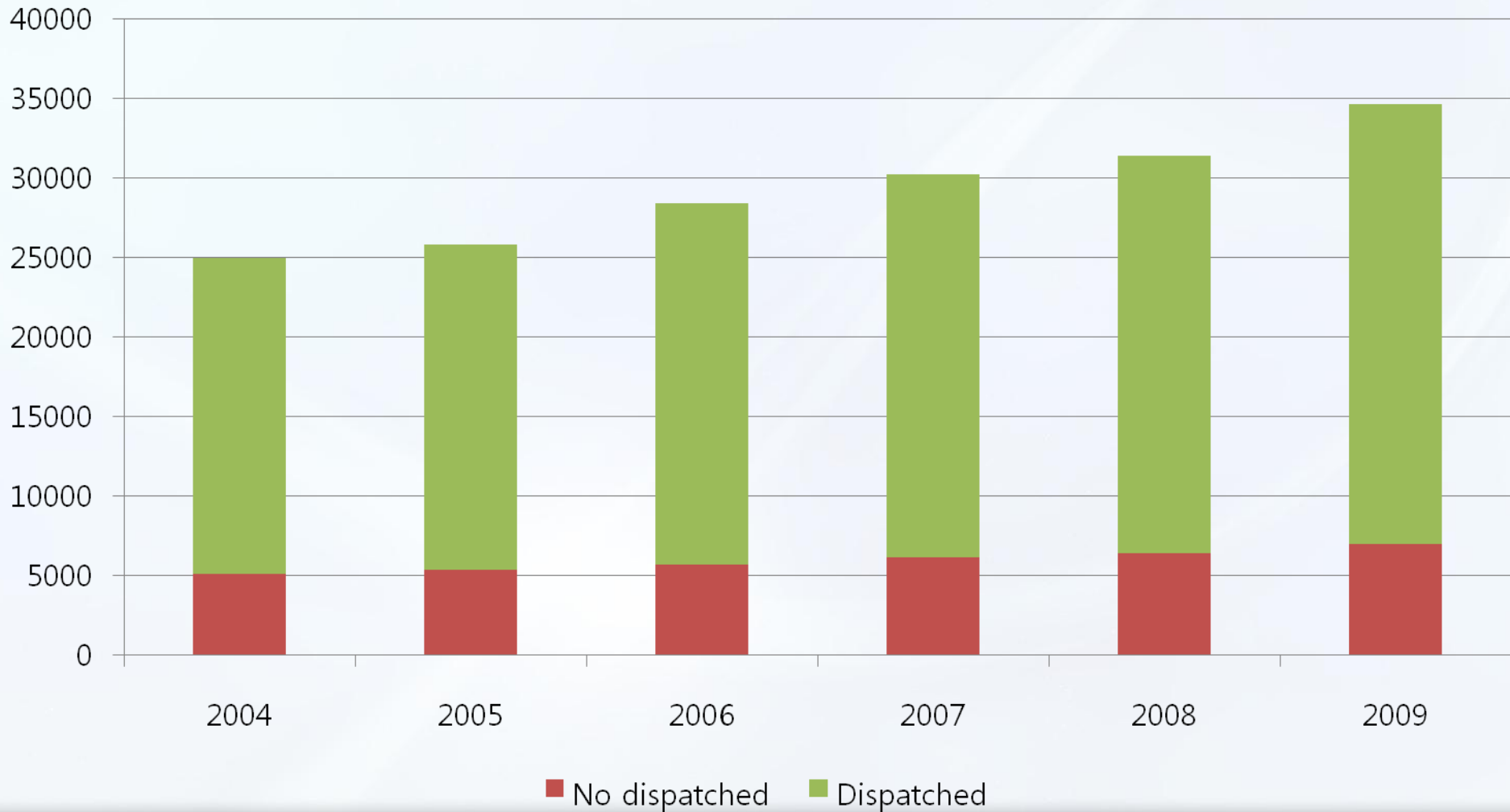
Volume of EMS Calls



EMS dispatch



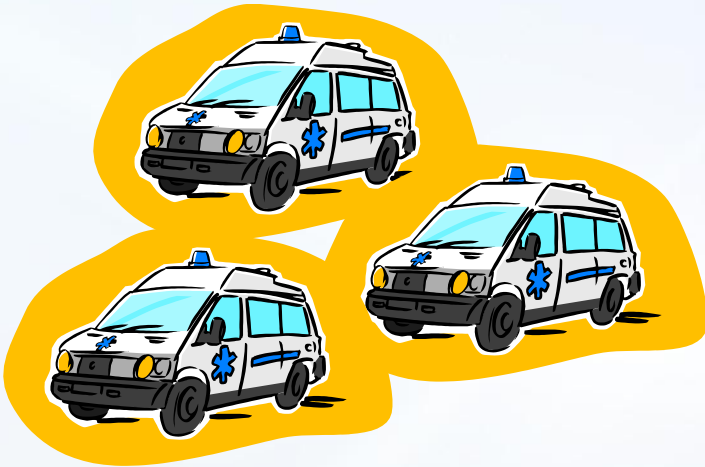
Dipatched number of EMS Call



EMS Vehicle



32 Ambulances
(3 MICU)



EMS Personnel



- Certified EMS personnel: 88 persons
 - Level 1 EMTs(EMT-I) : 39 persons
 - Level 2 EMTs (EMT-B) : 32 persons
 - Nurses: 17 persons
- More than 1 certified EMS personnel per 1 EMS Unit
 - With 1 or 2 general fire fighters



Others...



- No commercial EMS in Jeju
 - Interfacility transfer
 - Hospital ambulance or 119 ambulance
- Patients who is traveling
 - Need to transfer to out of Jeju island
 - Fixed wing transfer : 297 in 2009
 - 2 Private airline companies
 - Helicopter : 3 in 2009
 - National 119 rescue service (at Seoul)



Emergency Medical Centers

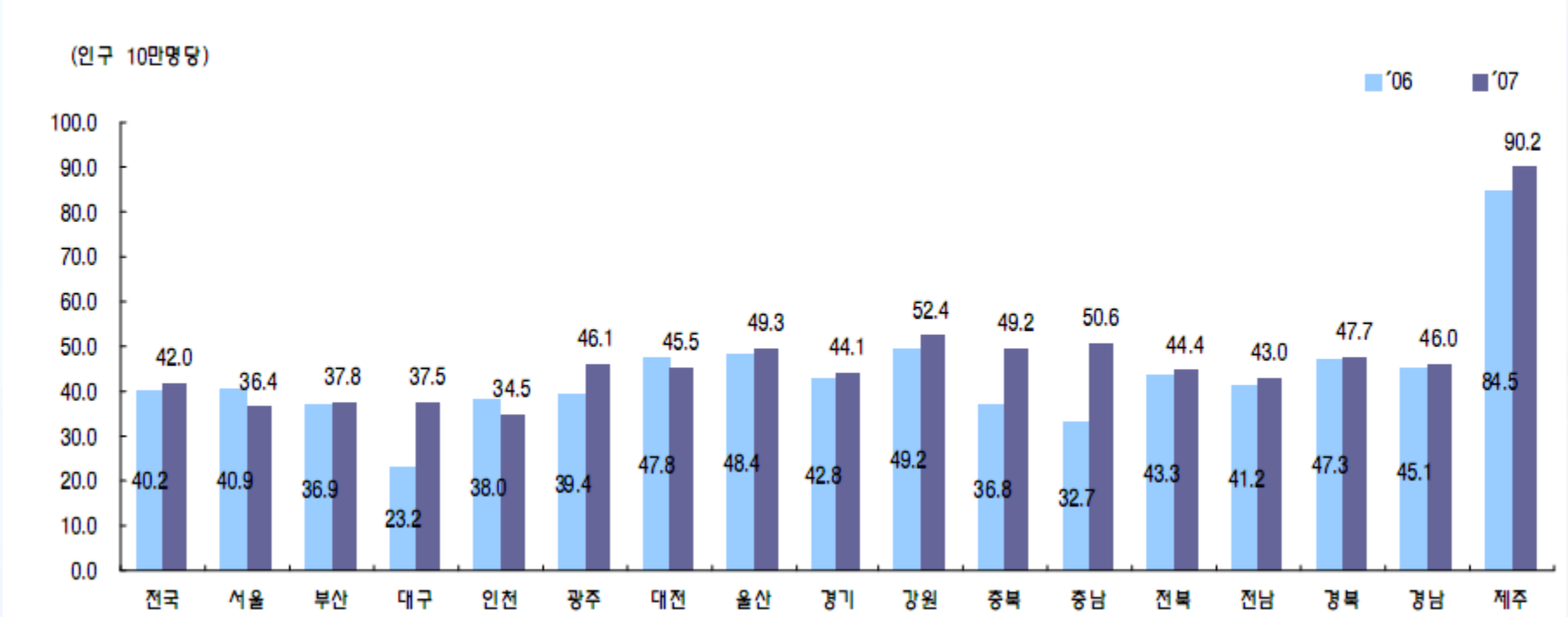


- 5 Local Emergency Medical Centers
 - Specialized Emergency Medical Centers
 - Major trauma: 1 in Jeju
 - Acute heart disease : 1 in Jeju
 - Stroke : 1 in Jeju
 - 4 in Jeju (North) and 1 in Seogwipo (South)
- 1 Local Emergency Medical Facility

OHCA and EMS



그림 17. 5세 연령 구간별-성별 지역별 표준화 심정지 발생률



Incidence rate of OHCA : 90.2/100,000 population in 2007
Cardiogenic: 53.6 , Non-cardiogenic: 36.7
The highest level of incidence in Korea

OHCA and EMS



- Total number of OHCA in 2007: 514
 - Call to field : 6.2 ± 10.3 min
 - Field to Hospital : 26.0 ± 24.2 min
 - Do CPR: 78.2%
 - BVM: 40.7%
 - LMA or Intubation: 3.3%
 - Application of AED : 5.3 %

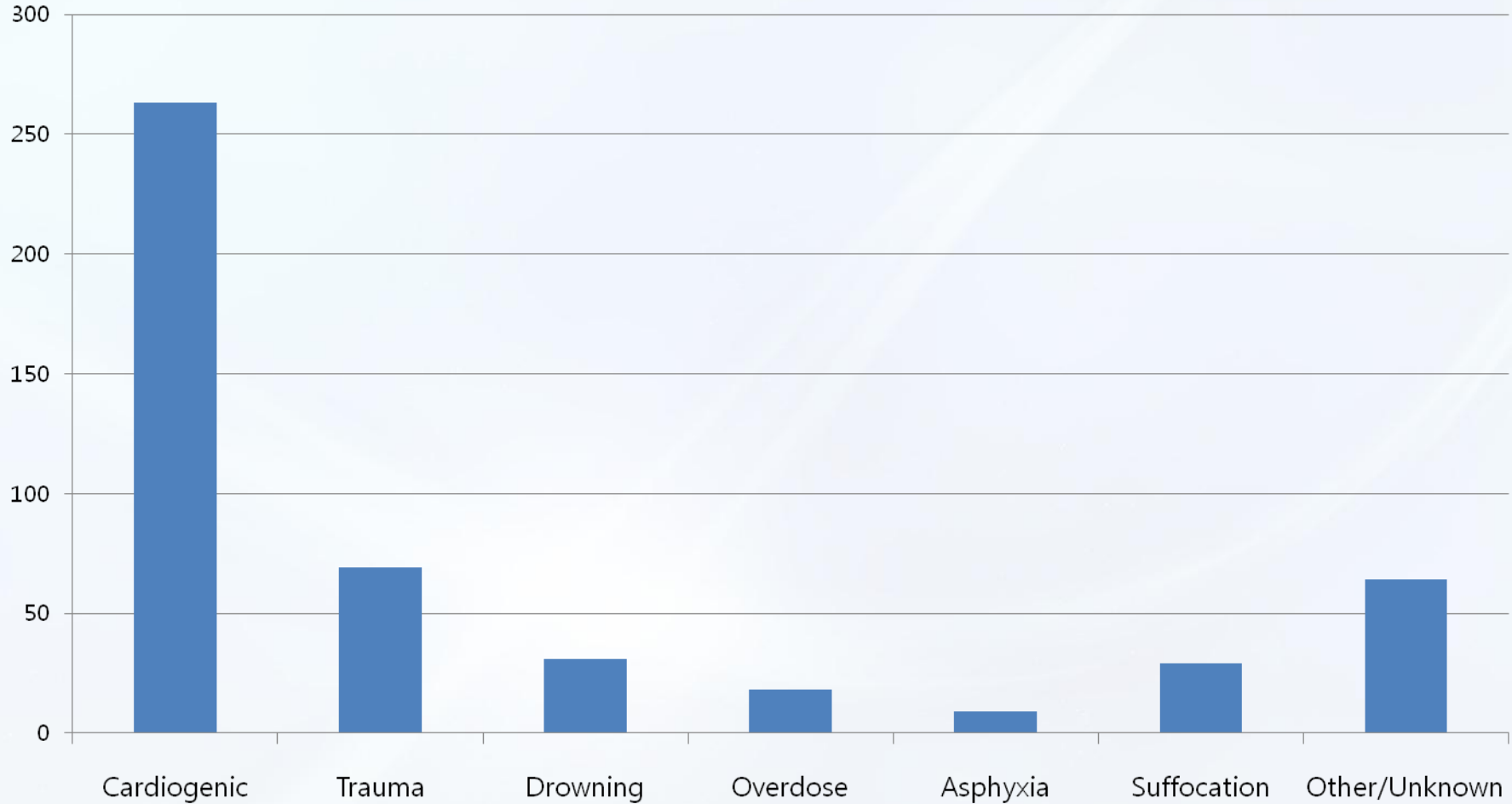


OHCA and EMS: Cause



Cause of OHCA

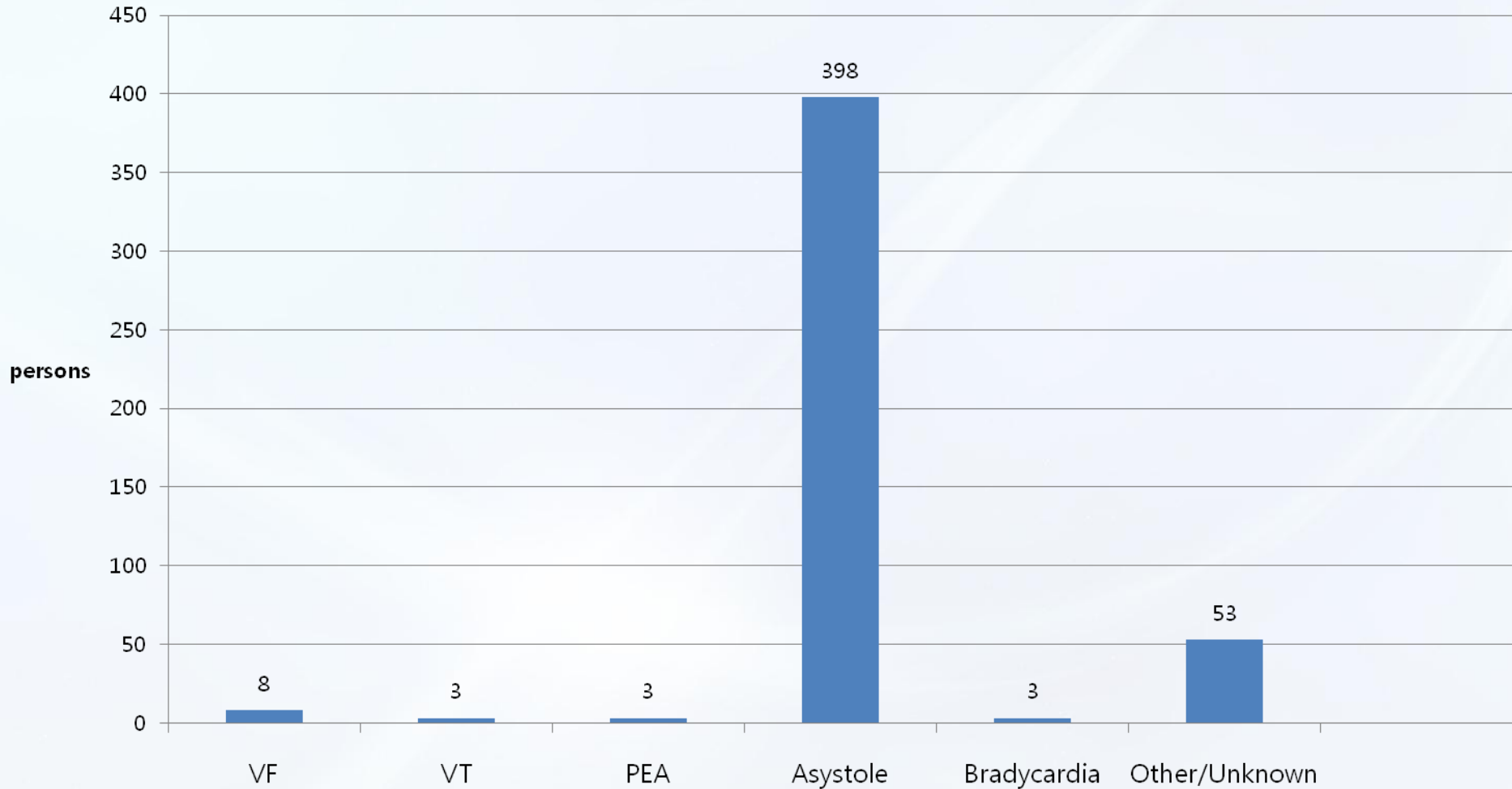
persons



OHCA and EMS: ECG



ECG classification of OHCA



OHCA and EMS: Outcome



		Total	Jeju
Total		18,063	483
Death		16,918(93.7%)	457 (94.6%)
Survival		470 (2.6%)	14 (2.9%)
Cerebral performance category	CPC1	87 (0.5%)	5 (1.0%)
	CPC2	24 (0.2%)	2 (0.4%)
	CPC3	70 (0.4%)	3 (0.6%)
	CPC4	159 (0.9%)	1 (0.2%)
	CPC5	76 (0.4%)	0 (0.0%)
	Unknown	36 (0.2%)	3 (0.6%)



Indirect Medical Oversight

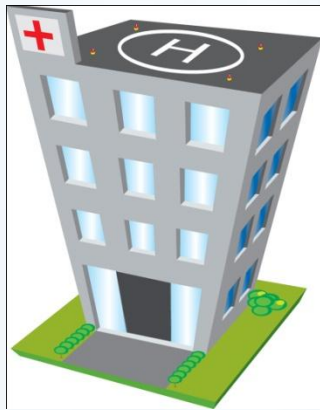


- Community EMS council
 - 6 hospital in Jeju
 - To decide important issues of EMS
 - 2 time/year
 - Perfunctory Vs. Practical
- Education (since 2006)
 - 3~4 times/year : certified EMTs and nurses
 - Lecture (4 hours)
 - 1 time/year: Level 1 EMTs
 - Lecture with hand-on : 2 ~3 days course

Direct Medical oversight



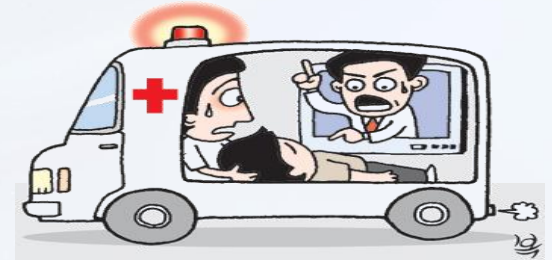
- Audio-Visual Communication System (2010)
 - Vital sign: ECG, RR, HR, BT, SaO₂, BST
 - Audio-visual information
 - 3 ambulances
 - 5 hospital and 1 dispatch center



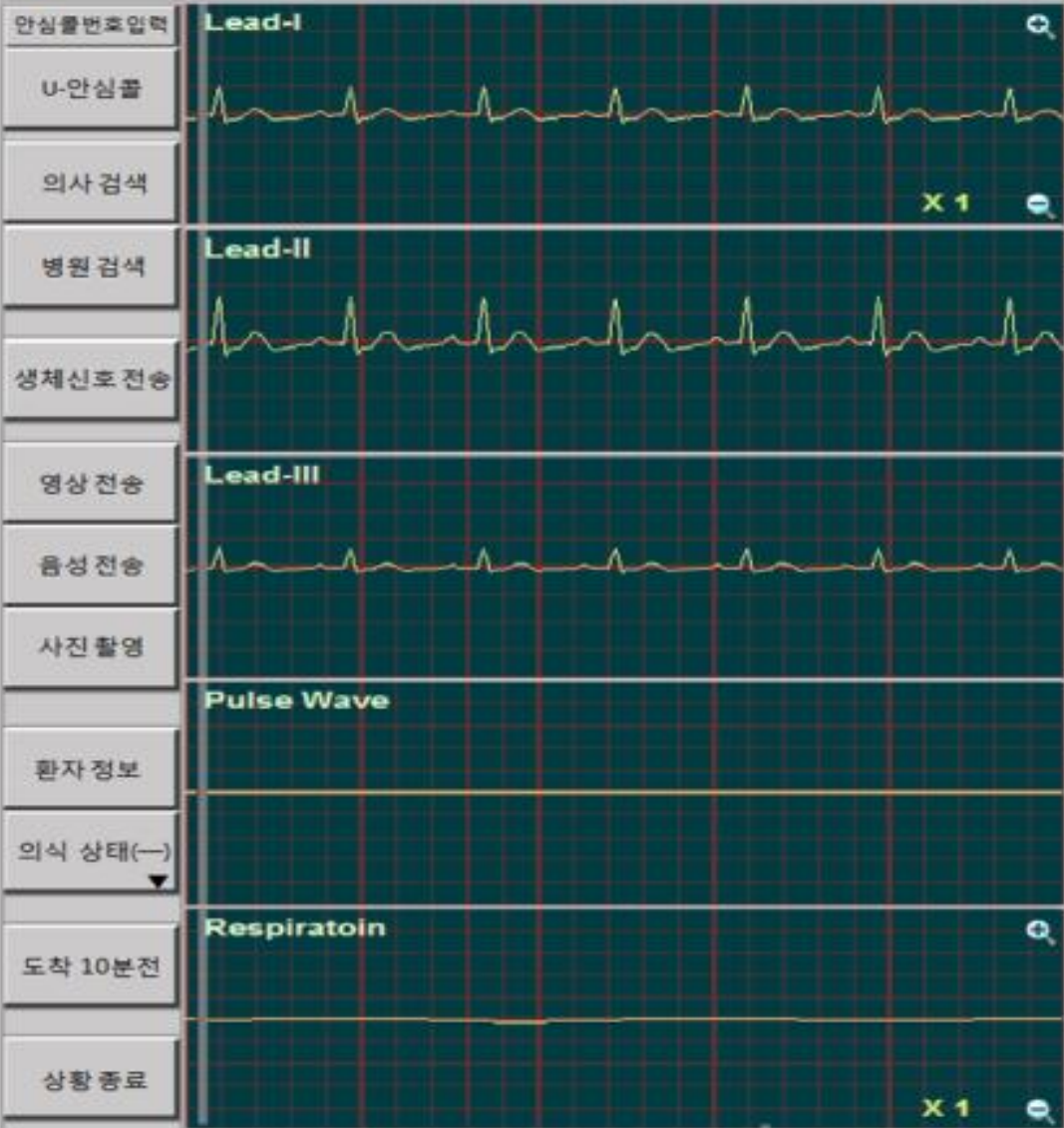
Vital sign and Information



Medical direction



원격화상응급처치 시스템



125	혈압 측정
89	혈압 입력
80	맥박 입력
100	SPO2 입력
29	호흡 입력
38.5	체온 입력
56	혈당 입력

생체장비 연결성공

처치 지시

Message

- 통신전문 서버 연결 시도 : 연결 시도중
- 통신전문 서버 연결 시도 : 연결 성공
- 사건전문 서버 연결 시도 : 연결 시도중
- 통신전문 서버 연결 시도 : 연결 성공
- 날짜,시간 일치 처리 : 성공
- 사건전문 서버 연결 시도 : 연결 성공
- 통신전문 로그인 시도 : 성공
- 사건전문 로그인 시도 : 성공
- 생체전문 로그인 시도 : 성공

Send

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Direct Medical Oversight



- Since 2010. 4.
- Mobile phone contact
 - From field to Emergency physician
 - For 24 hours
 - Hospital based
- Medical director in dispatch center
 - Emergency physician and resident
 - For 3~4 hours everyday
 - In dispatch center



Summary



- Large area
- Small population : dispersed
- Dispatch: no medical control
- EMS service and outcome : similar to other in Korea
- Medical Oversight
 - Just beginning state
 - Leadership and Harmony
 - To improve the level of prehospital care





**THANK YOU FOR YOUR
ATTENTION!!**

