

However, there is no national study regarding the outcomes from OHVF. Therefore, this study was undertaken to determine the outcomes of OHVF cardiac arrest patients, and to analyze factors that influenced the survival of OHVF patients in the Japanese prehospital setting.

Methods: A survey was distributed to 311 fire defense headquarters throughout the country, and it was analyzed to determine factors that could have influenced the outcomes. A retrospective review of OHVF cardiac arrests from April 1996 through March 1997 was performed. Data obtained from the resuscitation records were evaluated statistically.

Results: 224 fire defense headquarters responded, and data from 643 cases of OHVF on the scene were: Cardiac etiology; 440 (68.4%); 482 (74.9%) were male; average age = 61.5 ±16.2 years; witnessed arrests = 497 (77.3%); bystander CPR = 190 (29.5%); collapse to ambulance arrival interval = 8.8 ±6.5 minutes; call to ambulance arrival interval = 6.0 ±3.6 minutes; call to first shock interval = 19.1 ±10.3 minutes; admitted alive = 186 (28.9%); one month survival = 80 (12.4%), and survival to hospital discharge = 62 (9.6%). Factors that influenced survival to hospital discharge were cardiac etiology ($p < 0.0001$), age ($p < 0.0001$), call to first shock interval ($p = 0.0031$), witnessed arrest ($p = 0.0069$), and call to ambulance arrival interval ($p = 0.011$).

Conclusion: The call to first shock interval was considerably longer than in other reports. This significant delay in defibrillation seems to explain poor survival to discharge of OHVF in this study. Under the current law, the use of a semiautomatic defibrillator by ambulance crews requires permission by physicians via radio. However, this system appears to have a tremendous drawback in saving OHVF patients on the verge of death, because time delays are inevitable under the circumstances in which medical control is required in order to defibrillate. In order to improve survival of OHVF patients in Japan, a revised program in which defibrillation can be performed without any delay, should be implemented.

Keywords: ambulance; Japan; defibrillation; discharge; medical control; out-of-hospital; prehospital; survival; time intervals; ventricular fibrillation

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Mass CPR Teaching as a Method of Instilling Confidence and Comfort in the Performance of CPR Skills

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Introduction: Mass CPR teaching is one way of increasing the number of people in a community who may be prepared to help persons in cardiac arrests.

Methods: A questionnaire survey was conducted during our first mass teaching CPR programme to 200 first-year university students. A total of 196 completed forms were received.

Results: One-hundred ninety-three respondents (98.5%) felt confident that they could perform CPR, 70 (37.5%) felt "very confident", and 123 (62.8%) felt "confident", 181 (92.3%) felt they would be "comfortable" to perform CPR in a real life situation, 29 (14.8%), "very comfortable"; and 152 (77.5%), "comfortable" after the two-hour training session.

Of the 196 respondents, 164 (83.7%) had heard of and/or witnessed CPR (H/W group) while the other 32 (16.3%) had not heard of nor witnessed it (NH & NW group) prior to entering university. In the H/W group ($n = 164$); 162 (98.8%) felt confident, 60 (36.6%), "very confident"; and 102 (62.2%), "confident"; and 153 (93.3%) felt "comfortable" that they could perform CPR in a real life situation; 25 (15.2%), "very comfortable"; and 128 (78.1%), "comfortable". Whereas, in the NH & NW group ($n = 32$), 31(96.8%) were confident; 10 (31.2%), "very confident"; and 21 (65.6%), "confident" and 28 (87.5 %) felt comfortable to perform real life CPR; 4 (12.5 %), "very comfortable"; and 24 (75 %), "comfortable".

Conclusions: From these results, mass CPR teaching seems to be an effective method for instilling confidence and comfort in CPR skill performance. Prior knowledge may be advantageous in achieving the above.

Keywords: CPR; CPR training; effectiveness; experience

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Emergency Life-Guards in Japan Improve Outcome from Out-Of-Hospital Cardiopulmonary Arrest

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Purpose: The aim of this study was to evaluate the emergency medical service (EMS) concerning out-of-hospital cardiopulmonary arrest (oh-CPA) in Japan.

Background: Sudden cardiopulmonary arrest (CPA) patients in Tokorozawa City and the surrounding area (population, approximately one million) are transported to our hospital by Japanese EMS. In the past, ambulance personnel of Japan were permitted to perform only bag-valve mask ventilation and external chest compressions for CPA patients. However, since 1991 specifically trained ambulance personnel, emergency lifeguards (ELGs), have used defibrillators and intubation devices except for endotracheal tubes.

Patients and Methods: A total of 1,151 CPA cases were studied. These patients were transported to this hospital from 1981 to September 1998. Prognostic factors influencing the outcomes (1. Survival; 2. Good recovery) in CPA cases were evaluated using multivariate analysis (quantification theory type). These included: etiology 2) age; 3) gender; 4) witnessed arrest; 5) bystander CPR; 6) crew of EMS (ELG or not); 7) time interval from collapse to arrival; and 8) arrival status (CPA or oh-ROSC). Moreover, we examined the same factors in 235

cardiogenic CPA patients from the total cases.

Results: Spontaneous circulation returned in 447/1151 patients (38.8%), 61 (5.3%) survived, and 17 (1.5%) recovered fully. Among all CPA cases, influential factors for survival included arrival status, etiology, age, and time interval. For those who had a good recovery, the significant factors were arrival status, bystander CPR, and etiology. EMS was not an influential factor in any case. However, among the cardiogenic oh-CPA cases, EMS was a prognostic factor, and ELGs positively influenced both the survival and good recovery.

Discussion: To improve the outcome of CPA patients, spontaneous circulation should be achieved in the prehospital setting, the frequency of bystander CPR should be increased, and the time interval from collapse to hospital arrival diminished. Permitting ELGs to intravenously administer epinephrine and to perform intubation using standard endotracheal tubes may improve the outcomes of oh-CPA further. It also is important to educate the ELGs continuously and to educate the general population regarding the bystander CPR technique.

Conclusion: Japanese ELGs improved the outcomes of cardiogenic oh-CPA cases. Continued ELG education and the amendment of the system are necessary steps to obtain further improvement.

Keywords: advanced airways; bystanders; cardiopulmonary arrest (CPA); cardiopulmonary resuscitation (CPR); emergency life guards (ELGs); emergency medical services (EMS); intubation; Japan; out-of-hospital; prehospital; outcome

General Session XVIII
Education and Training
 Wednesday, 12 May, 8:30–9:45 hours
 Chair: *Richard Aghababian, Yoshiaki Okada*

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Education and Training of Physicians in Emergency Medicine in the Czech Republic

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Introduction: Emergency Medicine (EM) in the Czech Republic (late Czechoslovakia) started its development in the early 1970s originating from the disciplines of anaesthesiology and resuscitation, in parallel with organization of the Emergency Medical Service (EMS) system. Since 1992, all the state territory is covered by the EMS system comprising both surface and air rescue systems. The EMS system operates with physicians on-board of emergency vehicles and helicopters. Physicians are responsible for providing casualties with emergency medical care on-the-spot using the equipment on EMS vehicles/helicopters. Before 1998, these physicians have not been recognized as an appropriate, well-defined, medical specialty.

Education and Training: In 1992, the Minister of Health established in the Institute for Post Graduate Medical Education (IPME) the Department for Emergency and Disaster Medicine (EDM) with the intention

of giving physicians in first contact with patients with acute illness/injury — general practitioners and EMS physicians — education directed exactly to specific problems of prehospital emergency medical care. Until this time, anaesthesiologists proved to be the physicians best suited for providing the life saving interventions. In 1998, the Minister of Health established Emergency Medicine in the country as higher medical specialization.

The Department of EDM in the IPME offers physicians three levels of postgraduate education: 1) Basics of EM: courses and training in CPR and in medical emergencies for general practitioners and all physicians in first contact with acutely ill or injured patients; 2) Courses for EM residents: before examination by specialists; and 3) Continuing education in EM.

Disaster Medicine: Crucial topics such as planning, organization, and management of rescue interventions after events that cause a disaster (mass casualties) are included in the educational plan for Emergency Medicine.

Keywords: disaster medicine; education; emergency medicine; residents; training

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Ethical Considerations of Models for Teaching Emergency Medicine

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There are ethical issues associated with using models to teach medical procedures. Typical ethical questions trade-off the realism of the model against the rights of the model, taking into account the distribution of resources.

Plastic models: Plastic models such as Resusci-Anne®, consume resources, and lack realism. Plastic models have no rights. The ethical issues associated with plastic models are those of resource distribution and skills transfer.

Food Animals: The use of food animals for teaching procedures raises many of the same moral issues as does the use of animals for human consumption or clothing. Procedures commonly taught using parts of food animals include intraosseous needle placement in chicken legs and suturing of pig or turkey skin.

Non-Food Animals: The use of non-food animals raises issues not only of animal rights or suffering, but also didactic issues. Small animals are so different from humans that they almost are useless for teaching medical procedures. Larger animals may be companion animals. Some procedures, such as endotracheal intubation, do not result directly in the animal's death. Others, such as thoracotomy, may. An additional ethical issue is the effect of the use of these animals on the trainee.

Primates: Primates are most like humans in terms of anatomy and physiology, but also most like humans in terms of their understanding of life and death. Many are