

in Puskesmas did not recognize that. Only one village leader remembered that JDR actually served there, so village leaders may be efficient information sources for such interviews. When a mobile-clinic is planned, it is necessary to visit the village repeatedly, and review records of another team's past visits. The exact position of the location must be recorded using GPS. It is almost impossible to perform an appropriate evaluation unless objectives and targets are identified before the mobile-clinic activity begins. Furthermore, if post-activity evaluation is required, it is essential to promote the exact methods and procedures in order to identify the place where services were provided.

Keywords: evaluations; Indonesia; medical relief; mobile clinics; research

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(R99) Development and Implementation of a Participatory Evaluation Method for Assessing Disaster Drill Performance

Mamata V. Kene,¹ Parveen Parmar,¹ John E. Arbo,² Stephanie Rosborough,¹ Satchit Balsari,² Robert B. Bristow,² Hilarie Cranmer¹

1. Brigham and Womens Hospital, Department of Emergency Medicine, Boston, Massachusetts USA
2. New York-Presbyterian Hospital, New York, New York USA

Background: Disaster response evaluation is novel in many developing countries. If thoughtfully evaluated, disaster drills are a means of identifying gaps in planning. Existing methodologies are difficult to use where the availability and training of evaluators is limited. Previously, a United States-based evaluation tool was found to be difficult to use in such a setting. A participatory drill evaluation tool was developed and tested in Mumbai.

Methods: A categorical and open-ended questionnaire was constructed based on five areas of disaster response: (1) command; (2) communication; (3) security; (4) resources; and (5) overall flow. Local input and previous evaluation tools also were used when constructing the questionnaire. All participants in a collaborative citywide disaster drill were asked to complete the tool, immediately after the drill.

Results: A total of 165 individuals (participants and dedicated evaluators) were asked about major systems areas such as security, communications, and command, and provided details in an open-ended follow-up. Evaluators and participants identified many of the same problem areas. The tool is flexible, can be adapted to local contexts and limited literacy, is thorough yet concise, amenable to descriptive or statistical key component analysis, and allows triangulation between groups and serial tracking.

Conclusions: Despite limited evaluator availability and training, this participatory, focused evaluation methodology was efficient and practical for identifying key areas of improvement. Multi-sectoral input, rapid response turnaround, and adaptability to diverse contexts make it a practical evaluation tool. Some differences in evaluators' and participants' responses may be due to experience, expertise, and participation rather than passive observation. Further use of this participatory evaluation may positively impact disaster response planning.

Keywords: disaster; disaster planning; evaluation; participatory; resource-constrained settings

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(R100) European Union Project: Identifying the Needs of Medical First Responders in Disasters

Stepan Vymetal; Chaim Rafalowski

Magen David Adom in Israel, Tel Aviv, Israel

The objective of the NMFRRDisaster project was to identify the areas in need for future research activities, prioritize them, determine a roadmap for future research activities targeted by the European Union. The project is under EU Framework program No. 7, security, coordination, and support action. The concept of this project was to join medical first responders with experts in order to identify the needs and available knowledge in five key areas of activity:

1. Methodology and technology used to train medical first responders for disasters;
2. Understanding the human impact of disasters on first responders;
3. Ethical and legal issues influencing the medical response to disasters;
4. Personal protective equipment used in chemical and biological incidents; and
5. Use of blood and blood products in disasters.

Members of the project consortium include:

Magen David Adom (Israel)—Coordinator
 Al-Quds Nutrition and Health Research Institute (Palestinian Administered Areas)
 AmbulanceZorg (the Netherlands)
 Charles University (Czech Republic)
 Center for Science, Society and Citizenship (Italy)
 Danish Red Cross (Denmark)
 Fundacion Rioja Salud (Spain)
 SAMUR Protection Civil, Madrid (Spain)
 Shield Group Inc. (Netherlands)
 SINGERIE S.r.l (Italy)

Grant Agreement No: 218057

Starting day: 01/05/2008

Project duration: 12 months

Detailed info: <http://www.mdais.com/316/4089.htm>

Keywords: blood; blood product; disasters; ethical and legal issues; European Union project; first responders; human impact; needs; personal protective equipment; security research; training

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(R101) Comparison of Three Methods to Decrease Cardiovascular Responses to Pin Application

Chhavi Papneja; Ashwin Udupa

AIMS Trauma Center, New Delhi, India

Introduction: The Mayfield skull pin head holder application is a cause of increased hemodynamic response in a craniotomy patient. We conducted a randomized prospective study to compare the efficacy of clonidine, pin site infiltration of local anesthetic (LA) and skull block in attenuating this hemodynamic response.

Methods: Thirty ASA grade patients requiring elective craniotomy (age 18–65) years were allocated randomly into a clonidine group, a LA pin site infiltration group, and a skull block group. Clonidine group patients were premedicated with Tab. Clonidine 2–3 µg/kg, 90 minutes prior to

surgery. Those in the LA group received a mixture of 0.5% bupivacaine (2 mg/kg) and 2% lignocaine (4 mg/kg) at the pin insertion sites 10 minutes prior to fixation. The skull block group received circumferential scalp infiltration for supraorbital, supratrochlear, auriculotemporal, greater auricular and occipital nerves with 0.5% bupivacaine (2 mg/kg) plus 2% lignocaine (4mg/kg), 10 minutes prior to fixation. Heart rate (HR), systolic (SBP), and diastolic blood pressures (DBP), and mean arterial pressure (MAP) before induction, baseline (before placement of skull pins following induction), and the highest reading during pin placement up to three minutes were recorded.

Results: The increase in the hemodynamics was less in the local anesthesia infiltration group as compared to the other groups ($p < 0.05$). DBP increase was lesser in the pin infiltration group as compared to the clonidine or skull block groups ($p < 0.05$) and SBP, MAP, and HR were comparable among all the groups.

Conclusions: Local anesthetic infiltration at the pin application site is more effective than the others.

Keywords: blood pressure; bupivacaine; cardiovascular; clonidine; heart rate; lignocaine; pin application; skull pin

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(R102) Efficacy and Safety of a Novel Abdominal Tourniquet Device for the Control of Pelvic and Lower Extremity Hemorrhage

Eric M. Greenfield; Richard B. Schwartz;
John M. Croushorn; Dewitt A. Pittman; Stephen A. Shiver;
Jeffrey R. Lee

Medical College of Georgia, Augusta, Georgia USA

Introduction: Hemorrhage from the pelvis and lower extremities is a significant and potentially preventable cause of death and morbidity. Currently, there are few effective field techniques available to control bleeding in these areas. This preliminary study examines the efficacy and safety of a novel, externally applied pneumatic abdominal tourniquet to significantly decrease or halt blood flow from the abdominal aorta.

Methods: Two anesthetized, Yorkshire swine models were utilized. Pressure transducers were inserted into the internal jugular vein, carotid and femoral arteries, and urinary bladder. The device was deployed continuously for 90 minutes. Serum potassium and lactate levels were obtained at baseline, five minutes before and five minutes after release. Distal blood flow was assessed by femoral artery pressure monitoring and color flow Doppler ultrasound. Open laparotomy was performed and the abdominal viscera were examined for evidence of gross and histological signs of injury.

Results: Mean central arterial pressure rose by 48.4%, central venous pressure by 10.8%. Bladder pressure rose by an average of 302.5%. Potassium levels rose to a peak of 5.8 and 9.3 mg/L, respectively. Lactate rose to 5.8 and 8.1 mg/%.

Arterial monitoring and Doppler ultrasound demonstrated complete cessation of flow in Subject 1 and near complete cessation in Subject 2. Gross and histological examination revealed no signs of significant ischemia or necrosis.

Conclusions: This preliminary study demonstrated efficacy of a novel, abdominal tourniquet device. While there were no signs of direct injury, the rise in potassium in one animal is concerning. Further studies are needed to determine significance.

Keywords: abdominal tourniquet; hemorrhage; lower extremities; pelvis

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(R103) Using GRADE to Assess Quality of Prehospital Medicine Literature

Ayan Sen;¹ Sandra I. Castelblanco Betancourt²

1. Department of Emergency Medicine, Henry Ford Hospital, Detroit, Michigan USA

2. District Health Secretariat, Risk Management Office, Bogotá, Bogotá, Colombia

Introduction: Guideline developers use a variety of systems to rate the quality of the evidence underlying their recommendations. The Grading of Recommendations Assessment, Development, and Evaluation (GRADE) Working Group has been working on the GRADE approach for developing and presenting recommendations to prepare a highly structured, transparent, and informative system for rating quality of evidence. This has been incorporated in the Cochrane Collaboration's assessment of clinical evidence, which extends to prehospital literature. GRADE offers four levels of evidence quality: high, moderate, low, and very low. In this study the quality of prehospital literature published in journals over the previous five years based on the GRADE recommendations was explored.

Methods: Ten emergency and prehospital medicine journals with a high impact factor were searched for publication of prehospital studies over the past five years. They include *Academic Emergency Medicine* (AEM), *Annals of Emergency Medicine*, *American Journal of Emergency Medicine* (AJEM), *Emergency Medicine Journal* (UK) (EMJ), *Canadian Journal of Emergency Medicine* (CJEM), *Emergency Medicine Journal of Australasia* (EMJA) and *European Journal of Emergency Medicine* (EJEM), *Prehospital and Disaster Medicine* (PDM), *Prehospital Emergency Care* (PHEC), and *Disaster and Public Health Preparedness*. The quality of the studies was assessed using GRADE criteria.

Results: The work is on going and results will be presented at the conference.

Conclusions: A systematic and explicit approach to making judgments about the benefits of prehospital care interventions using a uniform grading of quality of information can help to prevent errors, facilitate critical appraisal of these judgments, and can help to improve communication of this information.

Keywords: Grading of Recommendations Assessment, Development, and Evaluation (GRADE); literature; prehospital; quality; research

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