

Bob Waddell II, Aaron Reinert

[Am J Emerg Med.](#) 1994 Jan;12(1):25-31.

[Related Articles, Links](#)

Prehospital recognition of AMI using independent nurse/paramedic 12-lead ECG evaluation: impact on in-hospital times to thrombolysis in a rural community hospital.

[Foster DB](#), [Dufendach JH](#), [Barkdoll CM](#), [Mitchell BK](#).

Department of Emergency Medicine, Waynesboro Hospital, PA 17268.

Because the benefits from thrombolytic therapy in acute myocardial infarction (AMI) are time dependent, multiple strategies have been devised to speed therapy. This study sought to determine whether hospital-based nurse and paramedic advanced life support (ALS) providers could be trained to independently evaluate (sight read) a prehospital 12-lead electrocardiogram (ECG) for the presence of AMI as part of a protocol designed to speed in-hospital administration of thrombolytic agents. Providers were required to determine on the basis of a protocol (1) whether or not AMI was present, and (2) whether or not thrombolytic therapy was indicated. Providers then radioed their impression to the emergency department (ED) and initiated a protocol to prepare identified candidates for thrombolysis. The final decision to initiate thrombolytic therapy was made by the ED physician after patient arrival at the hospital. One hundred fifty-five patients with chest pain were studied. Twenty-one (13.5%) were ultimately proven in-hospital to have AMI. Providers were able to recognize AMI in 17 of 21. Four of 21 did not meet ECG criteria for AMI on the field ECG, but were categorized as having a high index of suspicion for AMI by providers. There were no false-positive diagnoses. Fourteen patients (9%) received thrombolytic therapy. In-hospital times to administration of thrombolytic therapy decreased to an average of 22 +/- 13.8 minutes in the studied group compared with a historical control group average of 51 +/- 50 minutes. It is concluded that hospital-based paramedics and nurses can successfully be taught to evaluate (ie, sight read) a prehospital ECG for the presence of AMI with accuracy. (ABSTRACT TRUNCATED AT 250 WORDS)

Emerg Med J 2003; 20:196-198

© 2003 [BMJ Publishing Group, British Association for Accident & Emergency Medicine, & Faculty of Accident & Emergency Medicine](#)

Developing a community paramedic practitioner intermediate care support scheme for older people with minor conditions

S Mason^{1,2}, J Wardrope^{1,3} and J Perrin¹

¹ Accident and Emergency Department, Northern General Hospital, Sheffield, UK

² Medical Care Research Unit, University of Sheffield, UK

³ South Yorkshire Ambulance Service, UK

Correspondence to:

Dr S Mason, Medical Care Research Unit, University of Sheffield, 30 Regent Street, Sheffield, UK;

s.mason@sheffield.ac.uk

ABSTRACT

Introduction: The Department of Health document *Reforming emergency care* stated that new initiatives need to be developed to improve the care and assessment of patients. The Audit Commission has suggested that ambulance services should be allowed to decide who should be sent to each type of emergency and treat some patients at home.

Aims: This scheme explores a new way of providing clinical assessment of older patients in their homes or in care homes within Sheffield. It sets out to provide a very patient centred model of care by providing community based clinical assessment for patients presenting to the emergency services with minor acute conditions.

Scope, development, and structure of scheme: The scheme trains paramedic practitioners in the assessment and treatment of minor conditions to emergency nurse practitioner level. It consists of a three week full time theory based course and a 45 day period of supervised clinical practice based in the emergency department, minor injury unit, care of the elderly falls clinic, and with community services. Subsequently, the competence of the practitioners is assessed.

Service delivery: The service will be activated by a 999 call between 0800 to 2000 each day. It is anticipated that between 25% to 50% of patients eligible to receive the service will be assessed and treated within the home. This approach to providing emergency care is untested and the frequency of use, patient acceptability, safety, and cost effectiveness are unknown, therefore rigorous assessment is essential through a randomised controlled trial.

Emergency Medicine Journal 2006;23:479-481; doi:10.1136/emj.2005.028803

© 2006 by [BMJ Publishing Group Ltd, and British Association for Accident and Emergency Medicine](#)



PREHOSPITAL CARE

The costs of falls in the community to the North East Ambulance Service

J L Newton¹, P Kyle², P Liversidge², G Robinson², K Wilton¹ and P Reeve¹

¹ Falls and Syncope Service, Royal Victoria Infirmary, Newcastle upon Tyne, NE1 4LP, UK

² North East Ambulance Service NHS Trust, Scotswood House, Amethyst Rd, Newcastle Business Park, Newcastle upon Tyne, NE4 7YL, UK

Correspondence to:

Dr Julia L Newton

Falls and Syncope Service, Royal Victoria Infirmary, Newcastle, NE1 4LP, UK;

Julia.newton@nuth.northy.nhs.uk

ABSTRACT

Background: This study set out to quantify the immediate costs to the North East Ambulance Service (NEAS) of attending to fallers.

Methods: Data from the Newcastle, UK area were collated by NEAS to identify those aged over 65 who had fallen and required an assistance only call or were subsequently transported to an Accident and Emergency (A&E) department. The 2001 census data for the total population served by NEAS in Newcastle were obtained.

Results: The total population of Newcastle over the age of 65 was 41 338. Over 7 months NEAS attended to 1504 falls in Newcastle (at £115 per call out, this equates to £172 960). The faller was transported to A&E on 1339 occasions, while 165 falls required assistance only (11% of total) (36 falls requiring NEAS assistance per 1000 Newcastle population aged over 65 in 7 months). The total time on site for ambulance crews attending to fallers was 377.1 h (15.7 days in 7 months or 2.25 days per month). As the cost of emergency ambulance time is £123/h, the total cost was £46 383.30. Therefore, in Newcastle, attending to fallers in the community costs NEAS £376 018 per year (£145.83 per fall or £9.10 per person over the age of 65 per year).

Conclusion: NEAS attend to a significant number of older people who fall in the community. In Newcastle alone the cost of this service equates to over 2 days of emergency ambulance crew time per month. Studies are needed to determine whether responding to falls in the community differently would be cost effective.



PREHOSPITAL CARE

Setting the scene for the paramedic in primary care: a review of the literature

L Ball

Correspondence to:

L Ball

Senior Lecturer in Health and Social Care Research,
Sheffield Hallam University, Faculty of Health &
Wellbeing, Room A213 Collegiate Hall, Collegiate
Crescent, Sheffield, South Yorkshire S10 2BP, UK;
l.ball@shu.ac.uk ; BallLinny@aol.com 

ABSTRACT

Recognition of the paramedic "profession" began in 2003, with the introduction of statutory registration and the promotion of graduate entry. This paper explores the published evidence which surrounds paramedic practice in an attempt to identify the skills, training, and professional capacity which paramedics of the future will require. A systematic analysis was carried out of key reviews and commentaries published between January 1995 and April 2004, and informal discussions with experts and researchers in the field were undertaken. There remains little high quality published evidence with which to validate many aspects of current paramedic practice. To keep pace with service developments, paramedic training must embrace the complexities of autonomous practice. Undoubtedly in the short term, paramedics must be taught to appropriately identify and manage a far wider range of commonly occurring conditions, minor illnesses, and trauma. However, in the longer term, and more importantly, paramedics must learn to work together to take ownership of the basic philosophies of their practice, which must have their foundation in valid and reliable research.

Quality and Safety in Health Care 2005;**14**:251-257; doi:10.1136/qshc.2004.012195

© 2005 by [BMJ Publishing Group Ltd](#)

This Article

- ▶ [Full Text](#)
- ▶ [Full Text \(PDF\)](#)
- ▶ [Submit a response](#)
- ▶ [Alert me when this article is cited](#)
- ▶ [Alert me when eLetters are posted](#)
- ▶ [Alert me if a correction is posted](#)
- ▶ [Citation Map](#)

Services

- ▶ [Email this link to a friend](#)
- ▶ [Similar articles in this journal](#)
- ▶ [Similar articles in PubMed](#)
- ▶ [Add article to my folders](#)
- ▶ [Download to citation manager](#)
- ▶ [Request Permissions](#)

Google Scholar

- ▶ [Articles by Ball, L](#)
- ▶ [Articles citing this Article](#)

PubMed

- ▶ [PubMed Citation](#)
- ▶ [Articles by Ball, L](#)

Related Collections

- ▶ [Other accident and emergency medicine](#)
- ▶ [Organization of health care](#)
- ▶ [Health Services Research](#)

ORIGINAL ARTICLE

Gaps between policy, protocols and practice: a qualitative study of the views and practice of emergency ambulance staff concerning the care of patients with non-urgent needs

H A Snooks¹, N Kearsley², J Dale³, M Halter⁴, J Redhead⁵ and J Foster⁶

¹ Centre for Health Improvement Research and Evaluation, School of Medicine, Swansea University, Swansea SA2 8PP, UK

² Sheffield Hospitals NHS Trust, UK

³ University of Warwick, UK

⁴ London Ambulance Service, UK

⁵ Ealing Hospitals NHS Trust, UK

⁶ National Patient Safety Agency, London, UK

Correspondence to:

Dr H A Snooks

Centre for Health Improvement Research and Evaluation, School of Medicine, Swansea University, Swansea SA2 8PP, UK;

h.a.snooks@swansea.ac.uk 

Aim: To describe emergency ambulance crews' views about (1) how they make decisions on whether to convey patients to hospital; (2) an intervention enabling them to triage patients to non-conveyance; and (3) their experience of using new protocols for undertaking such triage.

Methods: Two focus groups were held at the outset of an evaluation of Treat and Refer (T&R) protocols: one with staff based at an ambulance station who were to implement the new service (intervention station), and the other with staff from a neighbouring station who would be continuing their normal practice during the study (control station). A third

This Article

- ▶ [Full Text](#)
- ▶ [Full Text \(PDF\)](#)
- ▶ [Submit a response](#)
- ▶ [Alert me when this article is cited](#)
- ▶ [Alert me when eLetters are posted](#)
- ▶ [Alert me if a correction is posted](#)
- ▶ [Citation Map](#)

Services

- ▶ [Email this link to a friend](#)
- ▶ [Similar articles in this journal](#)
- ▶ [Similar articles in PubMed](#)
- ▶ [Add article to my folders](#)
- ▶ [Download to citation manager](#)
- ▶ [Cited by other online articles](#)
- ▶ [Request Permissions](#)

Google Scholar

- ▶ [Articles by Snooks, H A](#)
- ▶ [Articles by Foster, J](#)
- ▶ [Articles citing this Article](#)

PubMed

- ▶ [PubMed Citation](#)
- ▶ [Articles by Snooks, H A](#)
- ▶ [Articles by Foster, J](#)

Related Collections

- ▶ [Community nursing / community based care](#)
- ▶ [Decision making](#)

session was held with staff from the intervention station following training and 3 months' experience of protocol usage.

Results: Before the introduction of the T&R protocols, crews reported experience, intuition, training, time of call during shift, patient preference, and home situation as influencing their decisions concerning conveyance. Crews were positive about changing practice but foresaw difficulties with advising patients who wanted to go to hospital, and with referral to other agencies. Following experience of T&R protocol use, crews felt they had needed more training than had been provided. Some felt their practice and job satisfaction had improved. Problems with referral and with persuading some patients that they did not need to go to hospital were discussed. There was consensus that the initiative should be introduced across the service.

Conclusions: With crews generally positive about this intervention, an opportunity to tackle this difficult area of emergency care now exists. This study has, however, highlighted the complexity of the change in practice and service delivery, and professional and organisational constraints that need to be considered.

Emerg Med J 2004; 21:724-727

© 2004 [BMJ Publishing Group Ltd, British Association for Accident & Emergency Medicine, & Faculty of Accident & Emergency Medicine](#)

PREHOSPITAL CARE

Developing alternative ambulance response schemes: analysis of attitudes, barriers, and change

J P Squires¹ and S Mason²

¹ Faculty of Medicine, University of Sheffield, Sheffield, UK

² Emergency Department, Northern General Hospital, Sheffield and Medical Care Research Unit, University of Sheffield, Sheffield, UK

Correspondence to:

Mr J Squires

PO Box 6490, Baslow, Bakewell DE45 1XR, UK; justin.squires@derwentassociates.com 

ABSTRACT

Objectives: Alternative response schemes for emergency calls are being set up by many UK ambulance services. The barriers to such developments from the perspective of ambulance service staff have not been formally investigated. The aims of this study are to identify attitudes and barriers to the development of alternative response schemes and ways of easing the transition as they are implemented.

Methods: South Yorkshire Ambulance Service crews and control room staff were interviewed, using South Yorkshire's paramedic practitioner (PP) scheme as a model of an alternative response scheme.

Results: 55 ambulance crew and 17 control staff were interviewed. Most (97%, n = 70) thought that the PP scheme was a good way of dealing with patients who call 999 but may not need urgent transport and hospital treatment. The perceived effect of the PP scheme on traditional ambulance service duties was equally divided between a third who thought there had been no effect, a third who perceived an improvement, and a third a deterioration. Recurrent difficulties with the scheme were found relating to the AMPDS methodology of ambulance dispatch, and ambulance service performance targets.

Conclusions: Flexibility of AMPDS and dispatch targets will need to be reviewed to permit the successful implementation of alternative responses to 999 calls. Careful consideration needs to be given to communicating the aims and value of such schemes to all staff and ensuring a common understanding of, and commitment to, a shared vision. The effect of implementation on the remaining service function must be well planned.

Abbreviations: PP, paramedic practitioner; SYAS, South Yorkshire Ambulance Service; AMPDS, advanced medical priority dispatch system; RCT, randomised controlled trial; EMT, emergency medical technician; EMD, emergency medical dispatcher; NGH, Northern General Hospital

Effect of a Community Intervention on Patient Delay and Emergency Medical Service Use in Acute Coronary Heart Disease

The Rapid Early Action for Coronary Treatment (REACT) Trial

Russell V. Luepker, MD; James M. Raczynski, PhD; Stravoula Osganian, MD, MPH; Robert J. Goldberg, PhD; John R. Finnegan, Jr, PhD; Jerris R. Hedges, MD; David C. Goff, Jr, MD, PhD; Mickey S. Eisenberg, MD, PhD; Jane G. Zapka, ScD; Henry A. Feldman, PhD; Darwin R. Labarthe, MD, PhD; Paul G. McGovern, PhD; Carol E. Cornell, PhD; Michael A. Proschan, PhD; Denise G. Simons-Morton, MD, PhD; for the REACT Study Group

JAMA. 2000;284:60-67.

Context Delayed access to medical care in patients with acute myocardial infarction (AMI) is common and increases myocardial damage and mortality.

Objective To evaluate a community intervention to reduce patient delay from symptom onset to hospital presentation and increase emergency medical service (EMS) use.

Design and Setting The Rapid Early Action for Coronary Treatment Trial, a randomized trial conducted from 1995 to 1997 in 20 US cities (10 matched pairs; population range, 55,777-238,912) in 10 states.

Participants A total of 59,944 adults aged 30 years or older presenting to hospital emergency departments (EDs) with chest pain, of whom 20,364 met the primary population criteria of suspected acute coronary heart disease on admission and were discharged with a coronary heart disease-related diagnosis.

Intervention One city in each pair was randomly assigned to an 18-month intervention that targeted mass media, community organizations, and professional, public, and patient education to increase appropriate patient actions for AMI symptoms (primary population, n=10,563). The other city in each pair was randomly assigned to reference status (primary population, n=9801).

Main Outcome Measures Time from symptom onset to ED arrival and EMS use, compared between intervention and reference city pairs.

Results General population surveys provided evidence of increased public awareness and knowledge of program messages. Patient delay from symptom onset to hospital arrival at baseline (median, 140 minutes) was identical in the intervention and reference communities. Delay time decreased in intervention communities by -4.7% per year (95% confidence interval [CI], -8.6% to -0.6%), but the change did not differ significantly from that observed in reference communities (-6.8% per year; 95% CI, -14.5% to 1.6%; $P=.54$). EMS use by the primary study population increased significantly in intervention communities compared with reference communities, with a net effect of 20% (95% CI, 7%-34%; $P<.005$). Total numbers of ED presentations for chest pain and patients with chest pain discharged from the ED, as well as EMS use among patients with chest pain released from the ED, did not change significantly.

Conclusions In this study, despite an 18-month intervention, time from symptom onset to hospital arrival for patients with chest pain did not change differentially between groups, although increased appropriate EMS use occurred in intervention communities. New strategies are needed if delay time from symptom onset to hospital presentation is to be decreased further in patients with suspected AMI.

Author Affiliations: Division of Epidemiology, School of Public Health, University of Minnesota, Minneapolis-St Paul (Drs Luepker, Finnegan, and McGovern); Department of Preventive Medicine, University of Alabama, Birmingham (Drs Raczynski and Cornell); New England Research Institutes, Watertown, Mass (Drs Osganian and Feldman); Department of Cardiology, University of Massachusetts Medical School, Worcester (Drs Goldberg and Zapka); Department of Emergency Medicine, Oregon Health Sciences University, Portland (Dr Hedges); Department of Public Health Sciences, Wake Forest University School of Medicine, Winston-Salem, NC (Dr Goff); Department of Medicine, University of Washington Medical Center, Seattle (Dr Eisenberg); Department of Epidemiology, University of Texas Health Science Center, Houston (Dr Labarthe); and National Heart, Lung, and Blood Institute, Bethesda, Md (Drs Proschan and Simons-Morton). A complete list of the REACT Study Group was published previously (*Acad Emerg Med*. 1998;5:726-738).

CLINICAL INVESTIGATION

A Community Intervention by Firefighters to Increase 911 Calls and Aspirin Use for Chest Pain

Hendrika Meischke, PhD, MPH, Paula Diehr, PhD, Sharon Rowe, BS, Anthony Cagle, PhD and Mickey Eisenberg, MD, PhD

From the Department of Health Services (HM, PD), Department of Biostatistics (PD), and Department of Medicine (ME), University of Washington; and King County Emergency Medical Services Division (SR, AC), Seattle, WA.

Address for correspondence and reprints: Hendrika Meischke, PhD, MPH, Department of Health Services, Box 357660, University of Washington, Seattle, WA 98195. Fax: 206-296-4866; e-mail:

hendrika@u.washington.edu 

Objectives: To test the effectiveness of an intervention, delivered face-to-face by local firefighters, designed to increase utilization of 911 and self-administration of aspirin for seniors experiencing chest pain.

Methods: King County, Washington was divided into 126 geographically distinct areas that were randomized to intervention and control areas. A mailing list identified households of seniors within these areas. More than 20,000 homes in the intervention areas were contacted by local firefighters. Data on all 911 calls for chest pain and self-administration of aspirin were collected from the medical incident report form (MIRF). The unit of analysis was the area. Firefighters delivered a heart attack survival kit (that included an aspirin) and counseled participants on the importance of aspirin and 911 use for chest pain. Main outcome measures were 911 calls for chest pain and aspirin ingestion for a chest pain event, obtained from the MIRFs that are collected by emergency medical services personnel for 2 years after the intervention.

This Article

- ▶ [Full Text](#)
- ▶ [Full Text \(PDF\)](#)
- ▶ [Alert me when this article is cited](#)
- ▶ [Alert me if a correction is posted](#)

Services

- ▶ [Similar articles in this journal](#)
- ▶ [Similar articles in PubMed](#)
- ▶ [Alert me to new issues of the journal](#)
- ▶ [Download to citation manager](#)

Google Scholar

- ▶ [Articles by Meischke, H.](#)
- ▶ [Articles by Eisenberg, M.](#)
- ▶ [Articles citing this Article](#)

PubMed

- ▶ [PubMed Citation](#)
- ▶ [Articles by Meischke, H.](#)
- ▶ [Articles by Eisenberg, M.](#)

Results: There were significantly more calls (16%) among seniors on the mailing list in the intervention than control areas in the first year after the intervention. Among the seniors who were not on the mailing list, there was little difference in the intervention and control areas. The results were somewhat sensitive to the analytical model used and to an outlier in the treatment group.

Conclusions: A community-based firefighter intervention can be effective in increasing appropriate response to symptoms of a heart attack among elders.

Emerg Med J 2005; 22:216-219

© 2005 [BMJ Publishing Group Ltd, and British Association for Accident and Emergency Medicine](#)

PREHOSPITAL CARE

Have the implementation of a new specialised emergency medical service influenced the pattern of general practitioners involvement in pre-hospital medical emergencies? A study of geographic variations in alerting, dispatch, and response

B Vaardal¹, H M Lossius¹, P A Steen² and R Johnsen³


¹ Regional Centre for Emergency Medical Research and Development, Rogaland Central and University Hospital, 4068 Stavanger, Norway

² Department of Anaesthesiology, Ulleval University Hospital, N-0407 Oslo

³ Department of Public Health and General Practice, Norwegian University of Science and Technology, N-7489 Trondheim

Correspondence to:

Dr B Vaardal

Ganddal legesenter, Olabakken 5, N-4322 Sandnes, Norway; birger.vaardal@hesbynett.no 

ABSTRACT

Objectives: Emergency medical service systems in Norway are based on equity and equality. A toll free number (113) and criteria based dispatch are crucial components. The establishment of an emergency medical system (EMS) manned by an air and ground emergency physician (EP) has challenged the role of the general practitioner (GP) in emergency medical care. We investigated whether there were any geographical differences in the use of 113, alerts to GPs by the emergency medical dispatch centres (EMDCs), and of the presence of GPs on scene in medical emergencies leading to a turnout of the EP manned EMS.

Methods: This was a prospective, observational cohort study of 385 000 inhabitants covered by the two EMDCs of Rogaland county, Norway, including 1035 on scene missions of the EP manned EMS during the period 1998–99.

Results: The proportion of emergency calls routed through 113 was significantly lower, the proportion of alerts to GPs significantly higher, and the proportions of GPs on scene significantly higher in rural than urban areas.

Conclusion: We found geographical differences in the involvement of GPs in pre-hospital emergency medical situations, probably caused by a specialised emergency medical service system including an EMDC and an air and ground EP manned EMS. There were geographical differences in public use of the toll free 113, and alerts to GPs by the EMDCs, which is likely to result from geographical conditions and proximity to medical resources. Future organisation of the EMS has to reflect this to prevent unplanned and unwanted autonomously emerging EMS systems.

Abbreviations: CBD, criteria based dispatch; EMDC, emergency medical dispatch centre; EMS, emergency medical service; EP, emergency physician; GP, general practitioner; LDC, local dispatch centre

Health Promotion International Advance Access originally published online on November 1, 2004
Health Promotion International 2004 19(4):437-444;
doi:10.1093/heapro/dah405

This Article

- ▶ [Full Text](#) **FREE**
- ▶ [FREE Full Text \(PDF\)](#) **FREE**
- ▶ **All Versions of this Article:**
19/4/437 *most recent*
[dah405v1](#)
- ▶ [Alert me when this article is cited](#)
- ▶ [Alert me if a correction is posted](#)


Services

- ▶ [Email this article to a friend](#)
- ▶ [Similar articles in this journal](#)
- ▶ [Similar articles in ISI Web of Science](#)
- ▶ [Similar articles in PubMed](#)
- ▶ [Alert me to new issues of the journal](#)
- ▶ [Add to My Personal Archive](#)
- ▶ [Download to citation manager](#)
- ▶ **Search for citing articles in:**
[ISI Web of Science \(6\)](#)
- ▶ [Request Permissions](#)

Acceptability and feasibility of a community-based screening programme for melanoma in Australia

John B. Lowe¹, Jacqueline Ball², Brigid M. Lynch³, Louise Baldwin⁴, Monika Janda^{3,5}, Warren R. Stanton⁶ and Joanne F. Aitken^{3,7}

¹Department of Community and Behavioral Health, College of Public Health, University of Iowa, USA, ²Information and Communications Division, Commonwealth Department of Health and Ageing, Australia, ³Queensland Cancer Fund, Brisbane, Queensland, Australia, ⁴Queensland Health, Brisbane, Queensland, Australia, ⁵School of Public Health, Queensland University of Technology and Queensland Cancer Fund, Brisbane, Queensland, Australia, ⁶School of Health and Rehabilitation Sciences, Department of Physiotherapy, University Queensland, Queensland, Australia and ⁷School of Population Health, University of Queensland, Queensland, Australia

Address for correspondence: J. F. Aitken, Queensland Cancer Fund, PO Box 201, Spring Hill, Queensland 4004, Australia E-mail: joannea@qcfepi.org.au 

The evaluation of a community-based screening programme for melanoma (*SkinWatch*) in 18 regional communities (total adult population >30 years 63 035) in Queensland, Australia is described. The aim of the *SkinWatch* programme was to promote whole-body skin screening for melanoma by primary care physicians. The programme included community education, education and support for local medical practitioners and open-access skin screening clinics. Programme delivery was achieved through assistance of local volunteers. All programme activities and resources were recorded for process evaluation. A baseline telephone survey ($n = 3110$) and a telephone survey four months after programme launch ($n = 680$) assessed community awareness of the *SkinWatch* programme and, 37 face-to-face interviews with community members, doctors and community leaders were conducted to assess satisfaction with the programme. A sample of 1043 of 16 383 residents who attended the skin screening clinics provided as part of the programme were interviewed to assess reasons for attending, and positive and negative aspects of *SkinWatch* programme. Community awareness of the *SkinWatch* programme increased by over 30% ($p < 0.001$) within four months of the start of the programme. Interview participants described the *SkinWatch* programme as a useful service for the communities and 90% stated they would revisit the clinics. A total of 43% of all attendees were over 50 years old, and nearly 50% were men. These findings demonstrate the acceptability and feasibility of a community-based screening programme

► [Disclaimer](#)

Google Scholar

► [Articles by Lowe, J. B.](#)

► [Articles by Aitken, J. F.](#)

PubMed

► [PubMed Citation](#)

► [Articles by Lowe, J. B.](#)

► [Articles by Aitken, J. F.](#)

for melanoma in rural areas. Volunteers were instrumental in increasing community ownership of and involvement in the *SkinWatch* programme.

Evaluation & the Health Professions, Vol. 27, No. 1, 3-21 (2004)
DOI: 10.1177/0163278703261199
© 2004 SAGE Publications

Evaluation of a Public Education Program Delivered by Firefighters on Early Recognition of a Heart Attack

Hendrika Meischke

University of Washington

Paula Diehr

University of Washington

Sharon Rowe

King County Emergency Medical Services Division

Anthony Cagle

King County Emergency Medical Services Division

Mickey Eisenberg

University of Washington

The Heart Attack Survival Kit (HASK) project is a prospective, randomized trial, testing the effectiveness of an intervention delivered door-to-door by firefighters to increase use of 911 and ingestion of aspirin for symptoms of acute myocardial infarction (AMI) among seniors in King County, Washington. Firefighters visited 24,582 seniors in King County, Washington and delivered a Heart Attack Survival Kit. Another 24,191 senior households served as the control group. Outcomes of the program were measured by tracking 911 calls as well as survey data. This study reports on the results of the telephone survey with a random sample of seniors (N = 323) to assess their knowledge of and intentions to act during a heart emergency. Results of a logistic regression analysis showed that being female, being younger, and remembering the kit was significantly related to intentions to act appropriately to AMI symptoms. The results are discussed in terms of public education around AMI.

This Article

- ▶ [Full Text \(PDF\)](#)
- ▶ [References](#)
- ▶ [Alert me when this article is cited](#)
- ▶ [Alert me if a correction is posted](#)
- ▶ [Citation Map](#)

Services

- ▶ [Similar articles in this journal](#)
- ▶ [Similar articles in PubMed](#)
- ▶ [Alert me to new issues of the journal](#)
- ▶ [Download to citation manager](#)
- ▶ [Reprints and Permissions](#)

Google Scholar

- ▶ [Articles by Meischke, H.](#)
- ▶ [Articles by Eisenberg, M.](#)
- ▶ [Articles citing this Article](#)

PubMed

- ▶ [PubMed Citation](#)
- ▶ [Articles by Meischke, H.](#)
- ▶ [Articles by Eisenberg, M.](#)

Education Fails to Reduce Delay from Chest Pain Onset to Hospital Arrival

Journal Watch Emergency Medicine 2000;2000:10-10.

Circulation. 2001;104:1210.)

© 2001 American Heart Association, Inc.

Editorial

Timing Is Everything

Motivating Patients to Call 9-1-1 at Onset of Acute Myocardial Infarction

David Faxon, MD; Claude Lenfant, MD

From the American Heart Association, Dallas, Tex (D.F.), and the National Heart, Lung, and Blood Institute, Bethesda, Md (C.L.).

Correspondence to David Faxon, MD, President, American Heart Association, 7272 Greenville Ave, Dallas, TX 75231.

Key Words: Editorials • myocardial infarction • treatment

Over the past 20 years, advances in reperfusion therapy with angioplasty and thrombolysis have revolutionized the management of acute myocardial infarction (MI). Use of these therapies has led to impressive reductions in mortality from acute MI.¹ Unfortunately, their full potential has not been realized, because many patients do not reach the hospital in time to benefit from them.

Studies show that only ≈1 in 5 patients gets to the hospital within 1 hour of the onset of acute MI symptoms; this is the time frame in which they would obtain the greatest benefit from reperfusion.² We can greatly decrease death and disability among our patients (≈40% of the 1.1 million heart attacks in the United States each year are fatal³) if we motivate and educate them to call 9-1-1 at the earliest suggestion of an acute MI.

Data from the Fibrinolytics Therapy Trialists' Collaborative Group⁴ indicate that for every hour of delay, 2 lives per 1000 patients are lost. The GUSTO I trial⁵ and others demonstrated that mortality was 2 times as great if thrombolytic treatment occurred 4 to 6 hours after onset compared with 1 to 2 hours after onset (8.9% versus 4.3%). The GUSTO IIb study⁶ also showed a time dependency for primary angioplasty, with a 30-day mortality of 1% when angioplasty was performed within 60 minutes of hospital arrival and of 6.4% when it was delayed >90 minutes. In the Myocardial Infarction Triage

and Intervention Trial, the rate of death among patients with acute MI who were treated within 70 minutes after the onset of symptoms was 1.3% compared with 8.7% among patients who were treated later.⁷

Many Reasons for Patient Delays

Research has identified a number of reasons for patient delay in seeking medical treatment for an acute MI. In many cases, patients expect the type of heart attack that they often see in movies and medical television shows: the kind with crushing chest pain that drops a person to the ground. The reality, of course, is that many heart attacks are much "quieter," causing only mild chest pain or discomfort or other symptoms such as shortness of breath or diaphoresis.

The Rapid Early Action for Coronary Treatment (REACT) trial, a community intervention study funded by the National Heart, Lung, and Blood Institute (NHLBI),⁸ documented the public's lack of awareness about heart attack symptoms. Researchers conducted random phone surveys in 20 US communities and found that although 90% of the respondents knew that chest discomfort or pain is a symptom of a heart attack and 67% could identify arm pain as a symptom, only half knew that shortness of breath can be a symptom of acute MI. Awareness of sweating (21%) and other heart attack symptoms was even less common. Overall, the average REACT respondent could identify only 3 of 11 heart attack symptoms.⁹

Calling 9-1-1 Saves Lives

Patients need to understand that they should never attempt to drive themselves to the hospital if they think they are having a heart attack; they should not even let a friend or relative drive them. Rather, they should call 9-1-1 if they suspect they are having a heart attack.

In a study published in the July 10, 2000, issue of *Circulation*,¹⁰ REACT researchers found that people recognize the benefit of calling 9-1-1 for others but delay calling for their own heart attack symptoms. Respondents to the telephone survey were asked, "If you thought someone was having a heart attack, what would you do?" and given a choice of 2 responses: (1) call 9-1-1 or an ambulance or (2) drive the person to the hospital. Approximately 89% said they would call 9-1-1 if they witnessed a person having a heart attack; this is the action recommended by the American Heart Association and by the NHLBI. About 8% said they would consider driving someone with possible heart attack symptoms to the hospital.

The REACT investigators also collected information on 875 individuals in the same communities who arrived at the emergency department with chest pain. These people were asked how they arrived at the hospital and what factors influenced their decision to seek medical help quickly or wait to go to the hospital. Only 23% of the chest pain sufferers had called 9-1-1. About 60% were driven to the hospital by someone else, and an astonishing 16% drove themselves to the hospital.

The study revealed that many of the chest pain patients delayed calling 9-1-1 because they took aspirin or attributed their symptoms to heartburn and took an antacid instead. Others put off calling 9-1-1 after speaking with their physicians. This finding highlights the important and often delicate role that physicians play in relieving their patients' anxiety while, at the same time, motivating them to make haste to the emergency room.

Helping Your Patients Create a Heart Attack Survival Plan

Fewer than 10% of heart attack patients in the REACT trial reported that they had ever spoken with a physician about what to do in case of an acute MI. While recovering in the hospital, less than half of the patients reported that someone had talked to them about acute MI symptoms and the need to get to the hospital quickly (J.R. Finnegan, unpublished data, 1999). Yet such discussions can deliver a powerful message about key symptoms and appropriate actions to take to minimize treatment delays.

The American Heart Association and the NHLBI are working to reduce the time-to-treatment for acute MI through cooperative educational efforts designed to achieve the goals of Healthy People 2010, the federal government's blueprint for building a healthier nation. Healthy People 2010 includes 4 objectives that specifically address improving the awareness of heart attack symptoms, action time to treat potential heart attack patients, and access to emergency medical care. Both organizations are calling on physicians and other healthcare providers to engage their patients in potentially lifesaving discussions about heart attack warning signs and the need to call 9-1-1 immediately when such symptoms occur.

In support of physicians' efforts the NHLBI, through its National Heart Attack Alert Program, and the American Heart Association, through its Operation Heartbeat, have developed programs to reduce the time between the onset of symptoms and treatment. Specifically, the American Heart Association's strategic plan includes the goal of increasing the unaided awareness of cardiac warning signs by 20% by 2003. The association is also working to increase by 15% the awareness of the need to call 9-1-1 first when experiencing symptoms of a heart attack. Additionally, because many of the awareness issues are similar for stroke patients, the American Heart Association has established Operation Stroke and has set parallel goals for stroke awareness.

The NHLBI's *Act in Time to Heart Attack Signs* campaign calls on healthcare providers to deliver messages about heart attack awareness, risk, and survival. Both the American Red Cross and the National Council on the Aging are partnering with the NHLBI and the American Heart Association in this effort. By launching the campaign on September 11, 9-1-1 day, which was created by the National Emergency Number Association, we hope to emphasize the importance of calling 9-1-1.

The *Act in Time* campaign encourages primary care physicians, internists, and cardiologists to use the TIME method developed by the REACT researchers. It has the following 4 key components:

Talk to patients about their risk of heart attack, how to recognize symptoms of acute MI, and the proper action to take if they think they are having a heart attack. Investigate patients' feelings about heart attack and any barriers that may prevent them from seeking prompt medical help if they are experiencing one. Make, in conjunction with your patients, a plan of action for dealing with a heart attack and rehearse the plan. Evaluate your patients' understanding of the risks involved in delaying treatment for acute MI.

When in Doubt, Check It Out

Often patients are unsure about whether the symptoms they are experiencing are due to a life-threatening situation, such as a heart attack, or something much less severe. Fear of being wrong or being embarrassed keeps many patients from receiving the treatments that can save their hearts and their lives.

Patients need to be encouraged to seek treatment if they have any reason to suspect that they are having a heart attack. They need to understand that emergency medical personnel are accustomed to dealing with false alarms. "Better safe than sorry" has no truer application than when it comes to a heart attack.

Physicians can also remind patients regularly that coronary heart disease is the top killer of both men and women. Women in particular are not getting this message and still mistakenly believe that cancer is their leading health threat.^{[11](#)}

Healthcare providers also need a better understanding about why patients fail to use 9-1-1 and new methods to motivate patients to do so. It is highly likely that the messages and techniques that are effective will differ depending on the age, sex, socioeconomic status, and cultural background of individual patients.

In concert with this country's leading healthcare organizations, physicians can and should play a pivotal role in encouraging patients to have a plan of action that can be followed in the event they or a loved one appears to be having a heart attack. This critical patient education can go a long way toward saving hearts and, thereby, saving lives.

Effect of a Community Intervention on Patient Delay and Emergency Medical Service Use in Acute Coronary Heart Disease

The Rapid Early Action for Coronary Treatment (REACT) Trial

Russell V. Luepker, MD; James M. Raczynski, PhD; Stravoula Osganian, MD, MPH; Robert J. Goldberg, PhD; John R. Finnegan, Jr, PhD; Jerris R. Hedges, MD; David C. Goff, Jr, MD, PhD; Mickey S. Eisenberg, MD, PhD; Jane G. Zapka, ScD; Henry A. Feldman, PhD; Darwin R. Labarthe, MD, PhD; Paul G. McGovern, PhD; Carol E.

Cornell, PhD; Michael A. Prosschan, PhD; Denise G. Simons-Morton, MD, PhD; for the REACT Study Group

JAMA. 2000;284:60-67.

Context Delayed access to medical care in patients with acute myocardial infarction (AMI) is common and increases myocardial damage and mortality.

Objective To evaluate a community intervention to reduce patient delay from symptom onset to hospital presentation and increase emergency medical service (EMS) use.

Design and Setting The Rapid Early Action for Coronary Treatment Trial, a randomized trial conducted from 1995 to 1997 in 20 US cities (10 matched pairs; population range, 55,777-238,912) in 10 states.

Participants A total of 59,944 adults aged 30 years or older presenting to hospital emergency departments (EDs) with chest pain, of whom 20,364 met the primary population criteria of suspected acute coronary heart disease on admission and were discharged with a coronary heart disease-related diagnosis.

Intervention One city in each pair was randomly assigned to an 18-month intervention that targeted mass media, community organizations, and professional, public, and patient education to increase appropriate patient actions for AMI symptoms (primary population, n=10,563). The other city in each pair was randomly assigned to reference status (primary population, n=9801).

Main Outcome Measures Time from symptom onset to ED arrival and EMS use, compared between intervention and reference city pairs.

Results General population surveys provided evidence of increased public awareness and knowledge of program messages. Patient delay from symptom onset to hospital arrival at baseline (median, 140 minutes) was identical in the intervention and reference communities. Delay time decreased in intervention communities by -4.7% per year (95% confidence interval [CI], -8.6% to -0.6%), but the change did not differ significantly from that observed in reference communities (-6.8% per year; 95% CI, -14.5% to 1.6%; $P=.54$). EMS use by the primary study population increased significantly in intervention communities compared with reference communities, with a net effect of 20% (95% CI, 7%-34%; $P<.005$). Total numbers of ED presentations for chest pain and patients with chest pain discharged from the ED, as well as EMS use among patients with chest pain released from the ED, did not change significantly.

Conclusions In this study, despite an 18-month intervention, time from symptom onset to hospital arrival for patients with chest pain did not change differentially between groups, although increased appropriate EMS use occurred in intervention communities. New strategies are needed if delay time from symptom onset to hospital presentation is to be decreased further in patients with suspected AMI.

Developing a Foundation for the Evaluation of Expanded-Scope EMS: A Window of Opportunity That Cannot Be Ignored. *Annals of Emergency Medicine*, Volume 30, Issue 6, Pages 791-796 D. Spaite, E. Criss, T. Valenzuela, H. Meislin

Published online before print June 16, 2005,
doi:10.1161/01.STR.0000170700.45340.39

(*Stroke*. 2005;36:1512.)


© 2005 American Heart Association, Inc.

Original Contributions

Houston Paramedic and Emergency Stroke Treatment and Outcomes Study (HoPSTO)

Anne W. Wojner-Alexandrov, PhD; Andrei V. Alexandrov, MD; Diana Rodriguez; David Persse, MD James C. Grotta, MD

From the University of Texas-Houston, Stroke Program (A.W.W.-A., A.V.A., J.C.G.), Department of Neurology, Houston Tex; and the Houston Fire Department Emergency Medical Services (D.A., D.P.), Houston, Tex.

Correspondence to Anne W. Wojner-Alexandrov, Stroke Program, Dept of Neurology, University of Texas-Houston Health Science Center, 6431 Fannin, MSB 7.044, Houston, TX 77030. E-mail: anne.wojner@health-outcomes-institute.com 

Background and Purpose—Establishment of stroke centers, combined with accurate paramedic diagnosis and rapid transport, is essential to deliver acute stroke therapy. We wanted to measure and improve paramedic and hospital performance through implementation of the Brain Attack Coalition and American Stroke Association guidelines.

Methods—Pre-intervention and active-intervention phases with parallel data measurement points were used. The study involved six hospitals comprising the majority of

This Article

- ▶ [Full Text](#)
- ▶ [Full Text \(PDF\)](#)
- ▶ **All Versions of this Article:**
36/7/1512 *most recent*
[01.STR.0000170700.45340.39v1](#)
- ▶ [Alert me when this article is cited](#)
- ▶ [Alert me if a correction is posted](#)
- ▶ [Citation Map](#)

Services

- ▶ [Email this article to a friend](#)
- ▶ [Similar articles in this journal](#)
- ▶ [Similar articles in PubMed](#)
- ▶ [Alert me to new issues of the journal](#)
- ▶ [Download to citation manager](#)
- ▶ [Cited by other online articles](#)
- ▶ [Request Permissions](#)

Google Scholar

- ▶ [Articles by Wojner-Alexandrov, A. W.](#)
- ▶ [Articles by Grotta, J. C.](#)
- ▶ [Articles citing this Article](#)

PubMed

- ▶ [PubMed Citation](#)
- ▶ [Articles by Wojner-Alexandrov, A. W.](#)
- ▶ [Articles by Grotta, J. C.](#)

Related Collections

- ▶ [Thrombolysis](#)
- ▶ [Emergency treatment of Stroke](#)

acute-stroke admissions in Houston, Tex. Hospital, paramedic, and patient data were collected prospectively pre-intervention and during the active-intervention phase on all suspected acute-stroke patients admitted by Houston Fire Department-Emergency Medical Services. A multilevel educational intervention included paramedic, hospital, and community education. Paramedic diagnostic accuracy, hospital-performance efficiency, and thrombolytic treatment rates were the main outcome measures of the study.

Results— Four hundred forty-six patients (74 per month) were transported in the pre-intervention phase to participating hospitals (59.8% of all suspected stroke patients transported city wide by Houston Fire Department—Emergency Medical Services), compared with 1072 patients (89 per month, or 68.7%) transported in the active-intervention phase ($P<0.001$). Accuracy of paramedic diagnosis of stroke increased from 61% to 79%. Admission within 2 hours of symptom onset increased from 58% to 62% ($P=0.002$). Thrombolysis rates increased in 4 of 6 centers, with 1 post-tissue plasminogen activator hemorrhage (3.7%) reported.

Conclusions— A multilevel educational program improves rapid hospitalization and paramedic diagnostic accuracy and increases the number of patients presenting for evaluation within the 3-hour tissue plasminogen activator window. Stroke center development supports safe thrombolytic practice in community settings.

The Role of Emergency Medical Services in Primary Injury

Prevention?, ??, ?, ??, ?. Annals of Emergency Medicine, Volume 30, Issue 1, Pages 84-91 H. Garrison, G. Foltin, L. Becker, J. Chew, M. Johnson, G. Madsen, D. Miller, B. Ozmar

[Resuscitation](#). 2005 Jun;65(3):279-83.

Related Articles,  [Links](#)



Evolution of a community-wide early defibrillation programme experience over 13 years using police/fire personnel and paramedics as responders.

[White RD](#), [Bunch TJ](#), [Hankins DG](#).

Department of Internal Medicine, Division of Cardiovascular Diseases, Mayo Clinic College of Medicine, 200 First Street SW, Rochester, MN 55905, USA.
white.roger@mayo.edu

BACKGROUND: In November 1990, a 2-year trial period was initiated in which police officers in the city of Rochester, Minnesota, were trained in the operation of automated external defibrillators (AEDs). Following the trial, the program was expanded as the city grew in population and area. In 1998 firefighters also were equipped with AEDs, bringing to a total 18 AEDs with police and fire personnel,

in addition to paramedic capability. **METHODS:** From November 1990 to December 2003, all adult patients with atraumatic cardiac arrest with ventricular fibrillation (VF) as the presenting rhythm were included for analysis. Call-to-shock time intervals, restoration of spontaneous circulation after defibrillation shocks only (without need for vasoactive or inotropic drug administration), and neurologically intact survival (overall performance category (OPC) 1 or 2) were study end-points. **RESULTS:** One hundred and ninety-three patients presented in VF. Of these, 80 (41%) were discharged neurologically intact. Of the 159 VF patients whose arrest was bystander-witnessed 73 (46%) were discharged. Survival from non-VF arrest was very low (5%). Assessment of VF survivors demonstrated a quality of life, adjusted for age, gender, and disease, similar to that of the general population. **CONCLUSIONS:** These data demonstrate that a relatively high survival can be obtained in a city of this size and area employing a non-tiered community-wide approach within the emergency medical services (EMS) system.

THE STRENGTH OF SPECIFIC EMS DISPATCHER QUESTIONS FOR IDENTIFYING PATIENTS WITH IMPORTANT CLINICAL FIELD FINDINGS

Keith W. Neely ^{A1}, Robert L. Norton ^{A1}, Terri A. Schmidt ^{A1}

^{A1} Department of Emergency Medicine, Oregon Health Sciences University, Portland, Oregon (KWN, RLN, TAS).

Abstract:

Introduction. There is growing interest in more efficiently matching emergency medical services (EMS) resources to patient need. Emergency medical services dispatchers may be asked to distinguish between callers with an immediate need for EMS and those who may safely use alternative services. New dispatcher protocols are required or existing protocols must be shown to be reliable for this new task. **Objective.** To examine whether answers to currently asked dispatcher questions in one urban center can identify callers with important clinical field findings (ICFFs). **Methods.** Audio recordings of EMS dispatcher-caller conversations within three nature codes (falls, sick, trauma) were retrospectively reviewed. Specifically scripted "cardinal" questions, asked of all callers, identify what happened, whether the patient is breathing okay, and whether the patient is conscious. "Key" questions are specific to each nature code and further specify patient circumstances. Compliance with protocol and caller answers were documented. Researchers developed a list of ICFFs that, if present on the corresponding EMS record, were judged to justify an immediate EMS response. Logistic regression was used to analyze the relationship between caller answers and the presence of ICFFs. A p-value of 0.10 was used. **Results.** Of 430 recordings, 383 (89%) were usable. Falls: 103 (26%); trauma: 136 (37%); sick: 144 (37%). The caller was the patient 41 (11%) times. There were 198 (52%) females in the sample. There was no matching EMS record for 96 (25%) cases. An ICFF was determined to be present in 191 (67%) of the 287 recordings with matching EMS data. Compliance across the cardinal and key questions ranged from 62% to 88%. Age alone was suggestive of a patient who may be identified at dispatch as having an ICFF [adjusted OR 1.01 (90% CI: 0.999–1.025), $p \leq 0.10$]. No other key or cardinal questions were related to ICFFs. **Conclusion.** Cardinal questions are most often asked. Implied or volunteered information is often relied upon to answer key questions. Key questions for certain nature codes are not answered about one third of the time. Increasing age may suggest a stronger likelihood for an ICFF to be identified at dispatch. Otherwise, in this sample, caller answers to currently asked questions do not appear useful if the goal is to identify at dispatch those without an ICFF.

The impact of paramedics on out-of-hospital cardiac arrests in a rural community.

[Kriegsman WE Jr](#), [Mace SE](#).

City of Ketchikan Fire Department, Alaska, USA.

OBJECTIVE: To determine whether paramedics influence the outcome of cardiac arrest patients in a rural area. **METHODS:** Retrospective analysis of cardiorespiratory arrest patients in rural southeast Alaska from 1987 to 1996. **RESULTS:** Paramedics treated 37 patients and advanced life support emergency medical technicians (EMT-IIIs) treated 34 patients. Demographics/CPR variables of the two groups were similar. Return of spontaneous circulation (ROSC) was 46% (17/37) for the paramedic-treated patients and 18% (6/34) for the EMT-III-treated patients ($p = 0.01$). Intensive care unit (ICU) admission was 38% (14/37) for the paramedic-treated patients and 15% (5/34) for the EMT-III-treated patients ($p < 0.03$). Discharge from the hospital neurologically intact was 20% (7/35) for the paramedic-treated patients and 9% (3/34) for the EMT-III-treated patients ($p = \text{NS}$). Two patients in the paramedic-treated group had ROSC and survived in the local hospital ICU for several days before being transferred to a tertiary care hospital in another state and were lost to follow-up for the discharge-from-hospital-neurologically-intact category but were included in the ROSC and ICU admission analysis. **CONCLUSION:** In this rural setting, a paramedic on the scene significantly improved the ROSC (paramedics = 46% vs 18% for EMT-III, $p = 0.01$) and survival to ICU admission (38% vs 15%, $p = 0.03$). The presence of a paramedic on the scene increased survival to hospital discharge neurologically intact (20% vs 9%), although this was not statistically significant.

[JAMA](#). 1973 Oct 8;226(2):156-60.

Related Articles,  [Links](#)

A community program for emergency cardiac care. A three-year coronary ambulance-paramedic evaluation.

[Graf WS](#), [Polin SS](#), [Paegel BL](#).

CAN CURRENT EMS DISPATCH PROTOCOLS IDENTIFY LAYPERSON-REPORTED SENTINEL CONDITIONS?

Keith W. Neely MPA ^{A1}, Jayant Eldurkar MD ^{A1}, Markley E.R. Drake MBA ^{A1}

^{A1} Department of Emergency Medicine, Oregon Health Sciences University, Portland, Oregon (KWN); the Department of Family Practice, Wayne State University, Detroit, Michigan (JE); and the Portland Fire Bureau EMS, Portland, Oregon (MERD). Dr. Drake is currently a private EMS consultant.

Abstract:

Introduction. Managed care organizations are seeking opportunities to capitate for emergency medical services (EMS). These and others pressures are motivating EMS planners to find innovative ways to redeploy existing EMS resources. A successful redeployment of resources implies a mechanism for more carefully matching EMS resources to need than currently exists. **Objective.** To determine whether the methods dispatchers currently use to assign nature codes (NCs) and severity codes (SCs) also can distinguish between patients with important sentinel conditions and those without. **Methods.** This was a six-month prospective study (June to November 1997). Portland Fire Bureau (PFB) paramedic units documented dispatcher-assigned NCs and SCs and the presence or absence of study-established sentinel findings. The PFB paramedics also verified or corrected dispatcher-assigned NCs and SCs using dispatch algorithms identical to those in use at this urban dispatch center. Cross-tabulation tables (SPSS version 6.1) with chi-square statistics were established to illustrate the relationship between SC strata within specific NCs and the presence or absence of sentinel findings. **Results.** One thousand two hundred eighty-five usable cases fell into 25 unique NCs. The designation SC 1 (emergent) was assigned by the dispatcher 307 (24%) times, SC 3 (urgent) was assigned 907 (71%) times, and SC 9 (neither emergent nor urgent) was assigned 26 (2%) times. The SC was missing 45 (3%) times. The PFB records were matched to 1,040 (82%) dispatch records. Sentinel conditions were identified in 411 (40%) of these cases. Eight (32%) of 25 NCs were stratified into two or more levels of dispatcher-determined SCs. One cross-tabulation table for each of these eight NCs was developed to display the relationship between SC strata and the presence or absence of a sentinel condition. Five tables produced statistically significant chi-square tables ($p < 0.05$). None achieved the study-specified level of 95% sensitivity. **Conclusion.** Current dispatcher-assigned NCs and SCs do not appear adequate to detect callers with study-developed sentinel criteria.

[Prehospital Disaster Med.](#) 1997 Apr-Jun;12(2):154-7.

Related Articles,  [Links](#)

An eight-year review of legal cases related to an urban 9-1-1 paramedic service.

[Maguire BJ](#), [Porco FV](#).

George Washington University EMS Degree Program, Washington, DC 20037, USA. maguire@gwis2.circ.gwu.edu

INTRODUCTION: An eight year retrospective analysis was conducted to determine the type and outcome of lawsuits related to the provision of 9-1-1 paramedic service in an urban environment. **METHODS:** For the evaluation period of May 1986 to March 1994, all litigation cases related to Ambulance Service or paramedics were collected and analyzed. This urban 9-1-1 Paramedic Service has an estimated call volume of > 60,000 assignments resulting in > 30,000 patient encounters during the evaluation period. **RESULTS:** Seven lawsuits were filed against the service. No lawsuits were related to tardy response, failure to transport, or patient care negligence of any kind. All of the litigation was related to motor vehicle collisions (MVC). **CONCLUSIONS:** The data suggest that motor vehicle collisions are a significant medical-legal risk to the EMS community. In addition, it was found that the use and lack of use of seatbelts was an important component in many of the suits.

CMAJ. 1992 July 15; 147(2): 191-199.

[Copyright notice](#)

Cardiac arrest in Ontario: circumstances, community response, role of prehospital defibrillation and predictors of survival.

R J Brison, J R Davidson, J F Dreyer, G Jones, J Maloney, D P Munkley, H M O'Connor, and B H Rowe

Division of Emergency Medicine, Queen's University, Kingston, ON.

►See letter "[Improving the treatment of out-of-hospital cardiac arrest.](#)" on page 1427b.

►This article has been [cited by](#) other articles in PMC.

Abstract

OBJECTIVES: To describe the patient characteristics, circumstances and community response in cases of out-of-hospital cardiac arrest; to evaluate the effect on survival of the introduction of prehospital defibrillation; and to identify factors that predict survival. **DESIGN:** Population-based before-and-after clinical trial. **SETTING:** Five Ontario communities: London, Sudbury, the Greater Niagara region, Kingston and Ottawa. **PATIENTS:** A consecutive sample of 1510 primary cardiac arrest patients who were transported to hospital by ambulance over 2 years. **INTERVENTION:** The use of defibrillators by ambulance attendants. **MAIN OUTCOME MEASURES:** Patient characteristics (sex and age), circumstances of arrest (place, whether arrest was witnessed and cardiac rhythm), citizen response (whether cardiopulmonary resuscitation [CPR] was started by a bystander, time to access to emergency medical services and time to initiation of CPR), emergency medical services response (ambulance response time, time to initiation of CPR and time to rhythm analysis with defibrillator) and survival rates. **MAIN RESULTS:** A total of 92.1% of the patients were 50 years of age or older, and 68.3% were men. Overall, 79.6% of the arrests occurred in the home. The average ambulance response time for witnessed cases was 7.8 minutes. The overall survival rate was 2.5%. The survival rates before and after defibrillators were introduced were similar, and the general functional outcome of the survivors did not differ significantly between the two phases. Factors predicting survival included patient's age, ambulance response time and whether CPR was started before the ambulance arrived. **CONCLUSIONS:** The survival rate was lower than expected. The availability of prehospital defibrillation did not affect survival. To improve survival rates after cardiac arrest ambulance response times must be reduced and the frequency of bystander-initiated CPR increased. Once these changes are in place a beneficial effect from advanced manoeuvres such as prehospital defibrillation may be seen.

Indian Journal of Surgery, Vol. 65, No. 1, Jan.-Feb. 2003, pp. 60-65

Surgical Training

Human Resource Development in Rural Surgery: Developing the Paramedic Training Programme

Shipra Banerjee

Rural Medicare Centre, Khasra No. 242, Village Saidulajalb, P. O. Box-10830, Mehrauli, New Delhi-110030.

Address for correspondence: Dr. Shipra Banerjee, Rural Medicare Centre, Khasra No. 242, Village Saidulajalb, P. O. Box-10830, Mehrauli, New Delhi-110030.

Paper received: July 2002

Paper accepted: November 2002

Code Number: is03012

INTRODUCTION

The population of India is more than one billion. More than seventy percent of the population still lives in rural areas, or small town on slums. These areas are economically backward and lack in infrastructure development, including electricity, proper housing sanitation, health facilities, educational facilities and trained manpower. It is in such situations that many rural surgeons have set up their practices and have started small hospitals.¹ They provide appropriate care that is affordable to the people and try to use the resources efficiently and innovate if necessary. The paying capacity of the people is very little, there is no social security, and private insurance agencies do not cater to people with such an uncertain financial status. It is very important that the services these doctors provide should be cost-effective despite lack of infrastructure development and shortage of trained manpower.

In India there is an acute shortage of trained registered nurses. Whereas, the recommended ratio is 3 nurses for 1 doctor, in reality it is only 3 nurses for 4 doctors.² Since there is a scarcity of nurses they easily get employment in city hospitals and many migrate to Arab countries for better salaries. Like the doctors of modern medicine, these nurses are trained in modern nursing based on the curriculum, which is followed in the west. They learn the skills, attitudes and practices of western countries. As a result the common rural people have difficulty in understanding the culture of these nurses and very often they do not feel free while interacting with them. The nurses also fail to understand the behaviour of the common people and try to avoid interactions that depend on the behavioral aspects of the patient. Generally, basic nursing as well as physical care and emotional support to the patients are supposed to be provided by the nursing aids or sweepers. Planning and teaching the patient and his family about restoration and promotion of health as well as prevention of disease is generally not done.

Most of the rural surgeons in India have not been able to motivate the registered trained nurses to work in their hospitals. Since the hospital services cannot be run without nurses, many of these doctors have trained local people to work as paramedics / nurses in their institutions.^{3,4} This strategy also helps to provide useful employment to the rural people. The training is generally based on the needs of the rural hospital as well as its clients. In this paper, the training programme that has been conceptualized and conducted at the Rural Medical Centre, Mehrauli, Delhi is presented. Most rural surgeons conduct similar programmes with some variations.

The Rural Medicare Centre is a 25 bed hospital run by a voluntary organization, Rural Medicare Society, providing comprehensive health care including second level surgical care to the people living in rural, periurban areas and in the urban slums of Delhi. It was started in 1976 with the intention of providing need based health and surgical care to the community at a price affordable

to the people. In the beginning some qualified registered nurses were employed but their attrition rate was very high and it was difficult to provide nursing care to the patients. The institution, therefore, started employing people from the community and training them as paramedics for nursing care and day-to-day management of the hospital and it has been successfully providing services to the community ever since.

DEVELOPMENT OF THE PARAMEDIC TRAINING PROGRAMME IN THE INITIAL PHASES

It was necessary for our institution to define the role of the personnel to be trained so that we could develop a meaningful and flexible training programme which could be modified after evaluation.

In this context it is important to define the role of nurses in rural areas. Service to the mankind is the primary role of the nurses and paramedics. The nurses must know their patients, their problems in the context of the socio-cultural, economic and emotional aspects and should be able to interact and communicate with them, and most important, should be able to identify with the community. So besides the conventional role of nurses, we emphasized on the following local needs :

- a) Helping patients and their relatives to use various facilities in the hospital with which they are not familiar.
- b) Training the patient's relatives in basic nursing care and therapeutic care so that the relatives are able to carry out the same when the patients go home.
- c) Acting as health guides and advisers to the community.
- d) Participating in hospital management.

TRAINEES IN THE PRELIMINARY PHASES

Initially when we started the training programme, the criterion was to admit any person who was willing to learn to provide care in the hospital. We got the following categories of people:

- a) boys and girls who had finished schooling
- b) boys and girls who were still in school
- c) School drop-outs
- d) women with no formal education.
- e) girls with B-grade training in nursing from South India.

This assorted group of people were termed paramedics.

INITIAL PROCESS OF TRAINING

With the help of a trained registered tutor nurse we trained everybody in practical basic nursing. We found that the whole group learnt the procedures quite well. After 2-4 months of intensive training and supervision there was not much difference in the performance of the illiterate women, literate boys and girls and the girls with different categories of training in nursing. Alongside the training in basic nursing, we started training everybody in certain basic skills like drug administration including setting up of drips, intramuscular injections, sterilisation, autoclaving of linen, bandages and gloves, familiarisation with operation theatre techniques like knowledge of basic instruments, their maintenance and sterilization, maintenance of the operation theatre, baby bath, monitoring of labour cases, care of the normal new born baby, etc. We noticed that most of the different categories of trainees learnt all the skills equally well. But the illiterate women very often could not remember tasks in the proper sequence and in the proper context. These were tasks that needed recording. We segregated them and decided to use them as nursing aids or to work in the outpatients under the direct observation of doctors. Besides practical education at the

bedside, in the operation theatre, outpatients, office, etc. some didactic training in the local language (Hindi) was also given. At this point we decided to have two categories of paramedics, junior and senior. Those who were literate and were willing to advance in learning all categories of skills including office work could be gradually promoted as senior paramedics with better pay scales and prospects. Those who did not show any inclination to learn to write proper records remained as junior paramedics with a pay scale which was lower than senior paramedics.

Thus, over a period we have developed three types of curricula for the paramedics :

A. Common curriculum for junior and senior paramedics

- Basic Science including physics, chemistry and biology
- Application of scientific methods in health services
- Concepts of Health and Disease
- Environmental Health
- Team Building and leadership
- Communication and Interpersonal Relationships
- Resuscitation and First aid
- Material Management-Preliminary
- Maintenance of equipments and furnitures
- Sterilisation and Autoclaving procedures
- Basic nursing

Duration : 2-3 Hours per week for 3 months.

B. Curriculum for senior paramedic nursing

- Anatomy : basic
- Physiology : basic
- Operation Theatre Techniques and Management
- Reporting and Record-keeping
- Different procedures and the role of nurses in the preparation and management of cases in Surgery, Orthopaedics, fractures and accidents, Gyne-Obstetric, Eye, ENT, Internal Medicine, Paediatrics

Duration : 3 Hours per weeks for 3 months.

C. Curriculum for working in Administration

- Material Management-advanced training
- Accounting
- Typing and Computer Skill
- Reporting and Record-Keeping-advanced

Duration : 3 Hours per week for 3 months or more

PRESENT TRAINING PROGRAMME

(I) Paramedic Training Programme

All training is on the job training. Trainees are from the Rural Medicare Centre and / or are sponsored by other organizations.

Trainees

- a) Junior paramedics consisting of nursing aids, sweepers and porters. Candidates must preferably be literate. If not they have to undergo training in functional literacy
- b) Junior paramedics (nursing) : Junior secondary school or senior secondary school or nursing with B grade or A grade diplomas.
- c) Junior paramedics (technicians) : Senior secondary school preferably with training in laboratory sciences or radiography.
- d) Junior paramedics (administration) : Junior or Senior secondary school
- e) Senior paramedics (administration) : Graduates with training in typing, computers or accounts.
- f) Senior paramedics (nursing, technicians) :

All categories are given 'on the job' training. Every individual has to follow curriculum A. Category (b) has to have initial training in curriculum B as well. Categories (d) and (e) have initial training and continuing education in curriculum C. All the categories have continuing education after evaluation.

Method of Teaching

Curriculum A

Since many of the students are unable to take notes because of low levels of literacy, participative learning in various ways is practiced. Audiovisual methods are used quite frequently.

Introduction to the topic is provided by the instructor and the lesson is developed with the help of the learners. Strictly didactic lectures are not used. Simple tasks based on a topic are given to the learners which they have to present in the class the next day.

Group work and workshops are commonly adopted for management topics. Problems are identified and discussed in groups with the help of the moderator. Solutions are presented by the different groups and later discussed together. Feasible solutions which are accepted by all are adopted for practical implementation.

Practical 'on the job' training is provided for topics like basic nursing, sterilization and autoclaving, maintenance of equipments, material management, resuscitation and first aid, and administration of drugs. Corrective supervision is provided by the trainers.

Curriculum B

Didactic lectures on various topics are provided by the respective specialists. Free use of models, charts and other audiovisual aids is encouraged. Practical 'on the job' training is provided for the various procedures required to be done by the nurses. Corrective supervision is provided by the doctors concerned.

For Reporting and Record-Keeping, group work and participative training is provided by the trainer. Practical training is provided at various locations. Corrective supervision is provided during practical work by the doctors.

Curriculum C

Topics are introduced in the form of lectures with participation of the students. Workshops and group work are organized to train and develop innovativeness. Practical training along with corrective supervision is provided by the trainers and the managers in charge of stores, accounts and administration, etc.

(II) Training of Patient's Relatives

Whenever a new patient is admitted, he or she is accompanied by relatives. It is a socio-cultural behaviour pattern of the Indian masses that they must accompany the sick relative, empathise and sympathise with the sick and help them in whatever way they can, including financial help. We initially found it difficult to deal with them. Then we discussed with the people and with the paramedics about the kind of role relatives could play in nursing the patient. The paramedics thought they could be involved in monitoring the intravenous drips, and could watch serious patients with regard to colour, falling back of tongue after anaesthesia, any abnormal behaviour or convulsions, etc and report to the paramedic concerned so that immediate attention, could be provided.

We decided to evolve a strategy of telling the people about the consequences of overcrowding, noise and the unhygienic conditions that may result in the hospital and we pleased with them to cooperate with us to provide the best service to the patient. Instead of allowing all of them at the same time, we allowed one relative at a time with each patient. The rest of the anxious relatives could wait in the open lounge outside the hospital. The paramedics started teaching the relatives in the areas already identified. With this involvement, relatives became more responsive and amenable to other suggestions like prevention of overcrowding, stopping smoking, observing hygiene and silence in the hospital, etc. Gradually the relatives also started taking an interest in helping to clean the patients, turning them, helping them cough and breathe with the aid of paramedics and helping them to use the toilets as well. We found that they were also training relatives of new patients with regard to hospital behaviour and the role the relatives must play.

Another cultural aspect which we took advantage of was concerned with food. The relatives liked to bring some kind of nutritious food for patients and they always asked the doctor about the kind of food that should be brought for the patient. The doctors guided them to identify a proper nutritious diet, including high protein diet and vitamins and to avoid beverages like aerated drinks. They were also told about the harmful effects of smoking and alcohol.

However, there is no fixed course for relatives. Instinctive and socio-cultural values are respected and used to make the relatives participate in the treatment of the patient.

TRAINERS

Initially for training in nursing we got the help of a nursing sister tutor who taught the doctors and the assorted group of paramedics, basic nursing. Later on when she left, the doctors did the training for some time. Later they selected committed and efficient paramedics to provide initial practical training under the overall supervision of the doctor in charge of training.

EVALUATION

In the beginning we laid much stress on a written examination with objective type of questions following completion of each topic. The trainees generally scored poorly but improved in performance and were willing to do better. So we decided to change the pattern of evaluation.

The following methods were adopted :

(I) Curriculum A and C

Immediate Evaluation-(Graded and A, B and C)

Assessed by the trainer

Criteria assessed were as follows :

- a) Active participation by students in developing the teaching programme
- b) Participation during the teaching process
- c) Presentation of group work and self-assessment of group work
- d) Developing schemes to improve the performance and environment
- e) Willingness to implement schemes developed

Evaluation on the job-(Graded as A, B and C)

Assessed by the doctors and administrator

Criteria assessed were as follows :

- a) Improvement in performance
- b) Clarity in understanding and explaining procedures
- c) Interest in work
- d) Enhancement of team spirit
- e) Implementation of schemes developed in the workshops with innovativeness
- f) Patient's satisfaction and relative's satisfaction

(II) Curriculum B

Immediate Evaluation-(Graded as A, B and C)

Assessed by the trainer

Criteria assessed were as follows :

- a) Participation during the teaching process
- b) Written examination at the end of the topic

(III)Evaluation of the training of Relatives

Immediate evaluation and long-term evaluation were conducted.

The following criteria were evaluated, again using a scale of A, B, C

Immediate evaluation

- a) Patient's and relative's satisfaction
- b) Interest to observe the rules of the hospital
- c) Observation of hygienic principles
- d) Avoidance of overcrowding
- e) Improved nursing care

Long-term Evaluation

Assessment in community and hospital with interviews using questionnaires. Certain guidelines which could be obtained from this approach are :

- a) Awareness of the community about patient care, nutrition and environmental hygiene
- b) Satisfaction with the care provided in the hospital
- c) Hospital infection rates
- d) Patient turnover rates
- e) Cost-effectiveness
- f) Community participation in hospital care and health-related programmes in the community.

Depending on the evaluation, content and approach to training were modified.

CONTINUING EDUCATION

We have observed that even after initial training, with the passage of time, the paramedics start doing work mechanically and the performance tends to fall. So every year the course is repeated with modifications depending on the evaluation. Continuing 'on the job' training is provided with corrective supervision.

OUTCOME OF THE PARAMEDIC TRAINING PROGRAMME

By developing the locally available manpower, preventive care in surgery has improved. There is more involvement of the community in early detection of surgical cases, including acute abdomen, cancer breast, cervix, cellulites and complicated fractures, infected wounds of labourers and farmers, complications of pregnancy, etc. ^{3,5} Length of hospital stay of surgical patients has

diminished considerably and there is an early recovery in patients because of the participation of relatives in the treatment.⁶

VARIATIONS

In many Rural Hospitals regular annual courses may not be conducted. But paramedics selected from the community are provided continuing education and on the job training with corrective supervision till they become experts. Any new concept or method introduced in the hospital is also explained and taught to the nurses / paramedics.

CONCLUSION

It is indeed important to adopt nursing practices according to the social and cultural practices of the community as a part of the total appropriate health care amongst developing communities. By adopting such an appropriate training programme, Rural Medicare Centre as well as the rural surgeons in India have developed the required manpower, culturally acceptable to the local community to provide need-based care in hospitals and in the community.

References

1. Prabhu RD. Surgery in rural India. Indian J Surg 2001; 63: 269-72.
2. Mani MK. Monsoon delights. Natl Med J India 1998; 11: 36-7.
3. Banerjee JK. Concept and practice of rural surgery. 1st ed. New Delhi: Churchill Livinstone: 1993: p 45-48.
4. Tongaonkar RR. Profile of rural surgery in voluntary sector in India and need for special training for rural surgeons. Rural Surg 2000; 7: 72.
5. Banerjee S. Length of hospital stay of surgical patients. Rural Surg 2001; 8: 25-27.

Copyright 2003 - Indian Journal of Surgery. Also available online at <http://www.indianjsurg.com>

Acad Emerg Med Volume 10, Number 10 1100-1108,
© 2003 [Society for Academic Emergency Medicine](#)

This Article

- ▶ [Full Text](#)
- ▶ [Full Text \(PDF\)](#)
- ▶ [Alert me when this article is cited](#)
- ▶ [Alert me if a correction is posted](#)

Services


- ▶ [Similar articles in this journal](#)
- ▶ [Similar articles in PubMed](#)
- ▶ [Alert me to new issues of the journal](#)
- ▶ [Download to citation manager](#)

SPECIAL CONTRIBUTION

National EMS Research Agenda: Proceedings of the Implementation Symposium

**Michael R. Sayre, MD, Lynn J. White, MS,
Lawrence H. Brown, EMT-P and Susan D. McHenry, MS for the Implementation
Symposium Participants**

From the Department of Emergency Medicine, Good Samaritan Hospital, Cincinnati, OH (MRS); the Department of Emergency Medicine, Northeastern Ohio Universities College of Medicine and Akron General Medical Center, Akron, OH (LJW); the Department of Emergency Medicine, Upstate Medical University, Syracuse, NY (LHB); and National Highway Traffic Safety Administration, Washington, DC (SDMcH).

Address for correspondence and reprints: Michael R. Sayre, MD, Department of Emergency Medicine, The Ohio State University, 150 Means Hall, 1654 Upham Drive, Columbus, OH 43210. Fax 614-293-3124; e-mail: sayre.84@osu.edu .

The National EMS Research Agenda identified eight recommendations for improving the conduct of emergency medical services (EMS) research in the United States. EMS leaders from across the country attended a two-day symposium to discuss implementation of the Research Agenda recommendations. The participants suggested specific methods to move the recommendations forward. These included improving training opportunities for EMS researchers, stimulating increases in available funding sources, facilitating the integration of research into practice, and crafting alterations within the regulatory environment. Participants felt that EMS must be more broadly integrated into the public health continuum. Federal agencies, states, local governments, charitable foundations, and corporations are asked to examine their practices to increase opportunities for participation in EMS research programs at all stages of the process.

FEASIBILITY OF AN ACTIVE EMS MEDICAL CONTROL TO MANAGE SCARCE HEALTH CARE RESOURCES

Manish N. Shah^{A1}, James I. Syrett^{A1}, Rollin J. Fairbanks^{A1}, E. Brooke Lerner^{A1}, Charles L. Maddow^{A1}, Eric A. Davis^{A1}, Sandra M. Schneider^{A1}

TRAINING PARAMEDICS: EMERGENCY CARE FOR CHILDREN WITH SPECIAL HEALTH CARE NEEDS

Daniel W. Spaite MD^{A1}, Katherine J. Karriker MS, NREMT-B^{A1}, Marsha Seng RN^{A1}, Carol Conroy MPH, PhD^{A1}, Norma Battaglia RN, BSN, EMT-B^{A1}, Mark Tibbitts BA^{A1}, Ronald M. Salik MD^{A1}

Google Scholar

- ▶ [Articles by Sayre, M. R.](#)
- ▶ [Articles by McHenry, S. D.](#)
- ▶ [Articles citing this Article](#)

PubMed

- ▶ [PubMed Citation](#)
- ▶ [Articles by Sayre, M. R.](#)
- ▶ [Articles by McHenry, S. D.](#)

^{A1} Arizona Emergency Medicine Research Center, College of Medicine, University of Arizona (DWS, KJK, MS, CC, NB, MT, RMS), Tucson, Arizona.

Abstract:

Objective. To enhance knowledge and comfort related to the emergency care of children with special health care needs (CSHCN) through an innovative continuing education program for paramedics. **Methods.** A self-study program presenting in-depth information about common problems that affect the assessment and management of a child's airway, breathing, circulation, disability, and environment (ABCDEs), regardless of the child's diagnosis, was developed. This program used a manual, a video, practice mannequins, and skills evaluations to teach skills to paramedics employed at a municipal fire department. **Results.** Pre- and posttraining surveys found that the paramedics were significantly more comfortable with the assessment and management of CSHCN after the completion of the self-study program, with a pretraining average of 2.83 and posttraining average of 4.20 on a five-point Likert-type scale, $t(37) = 12.87$, $p < 0.001$. A skills evaluation showed that skills performance varied widely across 21 skills, ranging from skills mastery to low skills knowledge. On the posttraining survey, between 74% and 94% of the paramedics rated each topic (tracheostomies, indwelling central venous catheters, cerebrospinal fluid shunts, gastrostomies, child abuse, and latex allergy) as applicable to their practices as paramedics. **Conclusion.** Given the growing population of CSHCN, it is important to provide specialized education to increase an EMS provider's preparedness to respond to emergency situations involving children with special health care needs.

LONGITUDINAL EMERGENCY MEDICAL TECHNICIAN ATTRIBUTE AND DEMOGRAPHIC STUDY (LEADS): AN INTERIM REPORT

William E. Brown Jr. ^{A1}, Philip D. Dickison RN, NREMT-P ^{A1}, Wayne J. A. Misselbeck MD ^{A1}, Roger Levine PhD ^{A1}

^{A1} National Registry of Emergency Medical Technicians, Columbus, Ohio (WEB, PDD); the University of Vermont College of Medicine, Burlington, Vermont (WJAM); and the American Institute of Research, Palo Alto, CA (RL).

Abstract:

Objectives. This ten-year longitudinal study examines various attributes and demographic characteristics of emergency medical technicians (EMTs) and paramedics to identify factors that influence their careers, to identify trends in emergency medical services (EMS), and to provide data on why individuals report leaving the EMS career field. **Methods.** A 46-item core survey and a 16-item cross-sectional survey were administered to EMT-basics and EMT-paramedics who were randomly selected and placed in cohort groups stratified by duration of continuous registration at each level and by race. The core survey focused on five broad areas of attributes and demographics, including general, professional, educational, personal, and financial. Case weights were calculated for respondents in each stratum, reflecting the individual's probability of selection. These case weights were adjusted, within strata, for nonresponse. The survey will be administered annually. The cross-sectional survey focused on EMS education. **Results.** This interim report is descriptive of the overall responses of EMT-basics and EMT-paramedics to core survey items. The demographic characteristics of EMT-basics and EMT-paramedics are described as well as a description of their work activities, working conditions, and job satisfaction. **Conclusions.** The initial EMT and paramedic attribute and demographic data have been collected, analyzed, and reported. The longitudinal nature of this study requires further data collection and analysis to accurately present trends in EMS, as well as correlations and associations between identified attributes and other factors that influence the careers of EMTs and paramedics. Further reports of the findings will be necessary.

Hazmedic: An Emerging Frontier in Prehospital Care

By ROB SCHNEPP

Concerns and preparations for biological and chemical warfare have become commonplace for the fire service, law enforcement, and emergency medical services. Regularly, the media warn us about "secret chemical weapons factories" in some far off land or the probability of a violent terrorist attack against our country. Unfortunately, none of these threats come with specific information regarding the possible method, agent, or place of attack. To that end, the public sector response community must prepare for the worst, hope for the best, and continue to expand its ability to respond to an event involving weapons of mass destruction (WMD).

In addition to our preparations for acts of terrorism, it's important to stay focused on the other chemical events that occur every day. Currently, more than 80,000 chemicals are registered for use in commerce in the United States, and an estimated 2,000 new ones are introduced annually. The bulk of the substances include general industrial chemicals, household cleaners, and lawn-care products. A number of these chemicals are known to pose a significant risk to human health.

Therefore, safeguarding our own well-being in addition to the public's depends on identifying and dealing with the health effects of these chemicals. To more accurately assess the toxicological concerns regarding human chemical exposures, an opportunity exists to expand the role of the fire department paramedic.

Nationwide, there are a number of "hazmedic" programs already in place. Each program has its own unique training requirements, implementation guidelines, and treatment protocols; some may work in your agency. This article is an overview of the concept and some perspective on program implementation.

What's a Hazmedic?

In general terms, a hazmedic is a paramedic with specific toxicology training and, in some cases, a degree of hazardous materials expertise. For clarity, a hazmedic program is any organized system in which those specially trained individuals are used by their department. Hazmedics may be called by other names in different jurisdictions—toxmedic, hazmat paramedic, or hazardous materials medic, for example—but for all intents and purposes, the names refer to the same thing. No matter what you choose to call the specialty, this unique position will allow the fire service to address the mounting health concerns regarding WMD and more fully address chemical exposures in general.

Essentially, a hazmedic functions as a prehospital resource for acute toxicological illness, chemical exposures, and overall health and safety and has the ability to do the following:

- Recognize the setting of, or potential for, a chemical exposure, toxicological illness, or biological warfare agent exposure.
- Render appropriate treatment for nerve agent and general industrial chemical exposures.
- Recommend decontamination procedures for contaminated patients.
- Serve as a special toxicological reference at any incident.
- Assist with pre- and post-incident medical monitoring and determine haz-mat team member status (for example, "Cleared for entry," "Restricted from entry," "Send to rehab," and "Treatment and/or transportation required").

- Assist with WMD-specific training to fire department personnel and outside jurisdictions.

In some programs, the regional poison control system has a role in the hazmedic scope of practice. In addition to medical direction, or base hospital contact, hazmedics contact the poison control center for information or guidance with unique or complicated patient presentations.



[Click here to enlarge image](#)

Photos by author.

Dr. Kent Olson, medical director for the California Poison Control System, comments on the benefits of a hazmedic program: "There is definitely an advantage to increasing the overall ability of paramedics to recognize toxicological emergencies in the field. In addition to recognizing the presence of those emergencies, 'hazmedics' have the ability to render some specific prehospital care including antidote delivery."

Dr. Olson also believes hazmedics have a role in triage and decon specific to chemical exposures. Generally speaking, the hazmedic should be more acutely aware of those situations that impact human health and safety. Whether or not the hazmedic is attached to a haz-mat team, the position should function as a higher level of knowledge when toxicological incidents are suspected or encountered.

Hazmedic: Not Just Another Medic Thing

The fire service, like any other profession, runs in cycles. According to some, the golden age of the fire service ended when we started running those pesky medical calls and further eroded when haz-mat teams came into vogue. According to others, those same events created an age of enlightenment and helped the fire service move away from being "200 years of tradition unimpeded by progress."

Furthermore, there are those who believe that we don't go to fires anymore—we're all about cardioversion, intubations, hot zones, and Level A suits. Whether that's true is up for debate, but one thing is certain: The fire service is changing and will continue to do so. Sure, we still do fires—not as much as we would like, but that's the way it is.

Out of necessity, most fire departments have accepted the idea that they need to function as an "all risk department" and remain willing to embrace whatever is required to stay useful to the community. Based on that notion, the fire service is giving more thought to dealing with human chemical, biological, and nuclear exposures.



[Click here to enlarge image](#)

Bill McCammon, chief of the Alameda County (CA) Fire Department, explains his desire for a hazmedic program: "I'm interested for a number of reasons. First, our department needs to be able to protect our own people—we're no good to the public if we can't function ourselves," Chief McCammon says. "Second, we recognize that our mission has expanded. In addition to everyday haz-mat situations, we recognize that a WMD event requires us to plan for significant exposure scenarios."

Many departments find themselves addressing the terrorism "issue" while trying to stay focused on the everyday work of being a fire department. A hazmedic program can help in that endeavor.

"It fits within the overall haz-mat mission," Chief McCammon adds. "In our department, we look at it as a way to increase our present capacity to deliver services."



[Click here to enlarge image](#)

Barbara Bovee, a paramedic training coordinator for the Phoenix (AZ) Fire Department, agrees: "The toxmedic program in Arizona is not just a WMD program—it's designed to function at a much broader level." That "broader level" is an increased ability to deal with toxicological emergencies and those exposures occurring at nonterrorism-related incidents.

The toxmedic program in Arizona is a state certification. The 24-hour training curriculum is standardized; at the completion, a paramedic operates under an extended scope of practice. In the Arizona model, toxmedics carry a variety of drugs in a "toxmedic drug box" and are trained to address situations such as nerve agent exposures, sulfide and cyanide poisoning, methemoglobinemia, chemical injuries to the eye, and general toxicological illnesses.

It's that broad level impact that makes a hazmedic program valuable even beyond patient care.

Steve Auch, director of EMS for the Indianapolis (IN) Fire Department, sees a hazmedic program as "absolutely beneficial." The Indianapolis Fire Department does not have a hazmedic program in place, but he is investigating the options. Auch agrees that a hazmedic program is primarily for the safety of the responders but sees a critical role that hazmedics can play in any haz-mat response. "The hot zone," he says, "is the one place our medics can function apart from any other prehospital provider. The hazmedics would be able to make some basic interventions and critical observations that could be passed along to caregivers outside the hot zone." That sharing of information may be the vital link that speeds up patient care and offers the best chance at a good outcome.

Patient care aside, Auch sees a benefit to expanding the scope of practice and offering the additional training. "I see it as a morale booster. Paramedics usually enjoy the additional knowledge and training. We're constantly looking at ways to make the paramedic position more attractive."

Carlos Pisano, a firefighter/paramedic and haz-mat technician with the Phoenix (AZ) Fire Department, shares that perspective: "I think our toxmedic program is tremendous. Any time you can get additional training and knowledge, it's a good thing."

Calgary, Alberta, is one of the fastest growing cities in Canada. This progressive fire department, along with the city's EMS department, implemented a hazardous-materials paramedic program in 2002.

"We used the National Fire Academy program in the United States to train our people," says Ken Uzeloc, hazardous-materials officer for the Calgary Fire Department. "In our system, the hazardous materials paramedics can be called to any situation involving chemical exposures. These medics are assigned to an ALS ambulance and have an operations level of haz-mat training."

Uzeloc shares the philosophy common to most departments with hazmedic programs: "Except for a few unique situations, we don't perform ALS in the hot zone; 99 percent of the hazmedic's work will be done when the patient comes off the decon line."

Hazmedic: How Much "Haz"/ How Much "Medic"?

When discussing hazmedic programs, the question of merging paramedicine with hazardous materials invariably arises. Some systems allow for, or require, a paramedic to be trained in hazardous-materials response. Other systems separate the two disciplines, simply opting to boost the toxicological training of an already licensed paramedic. There are justifications for both schools of thought.



[Click here to enlarge image](#)

A common argument is that it's too difficult to remain proficient in all facets of haz-mat response and take on the additional burden of being a paramedic, including the toxicological component. Others counter that it makes sense to combine haz mat and paramedicine for a couple of reasons. First, when dealing with chemical exposures, it's beneficial to understand the chemical aspect of the exposure. This allows for a greater understanding of how the substance interacts with the human body. Second, persons trained in hazardous materials and paramedicine understand and can function in the haz-mat response environment while remaining acutely aware of the human element. Additionally, the hazmedic offers a higher level of care to other firefighters on the scene. If one of our own goes down because of a chemical exposure, a hazmedic gives that person the best chance of survival.

One point that almost everyone agrees on, however, is that it's easier to train a medic to be a haz-mat responder than it is to train a haz-mat responder to be a paramedic.

Regardless of the level of haz-mat training chosen (operations, technician, or specialist), it makes more sense to add the haz-mat component to a paramedic's background than trying to do it the other way.

Essentially, hazmedic training programs boil down to three different recipes:

1. Take 1 licensed paramedic, add specific toxicology training, and fold into your staffing and response matrix.
2. Take 1 licensed paramedic, add specific toxicology training, season with a haz-mat training program (operations, technician, or specialist), and fold into your staffing and response matrix.
3. Take 1 licensed paramedic, add specific toxicology training, season with a haz-mat training program (technician or specialist), place on a haz-mat team, and fold into your staffing and response matrix.

Departments like Phoenix opt for the first recipe. In Phoenix's response model, toxmedics are scattered throughout the department and may be called to respond when needed. There is no dedicated toxmedic staffing, and a toxmedic is not considered part of the haz-mat response team or assigned to a haz-mat alarm.

Mesa, Arizona, on the other hand, has toxmedics dedicated to certain rigs and guarantees toxmedic staffing levels. Toxmedics are not part of the haz-mat team but do respond to haz-mat alarms. In short, toxmedics respond as support personnel to haz-mat alarms or in instances of suspected chemical exposures.

The Alameda County Fire Department is opting for a more integrated approach. In its system, fully licensed paramedics are given toxicology and haz-mat technician training and then are placed at the haz-mat stations. Paramedics are part of the haz-mat team and ultimately become hazmedics. Essentially, it brings the entire haz-mat/paramedicine component under one roof.

McCammon explains the logic: "First, we looked at the haz-mat response capabilities of the entire region. Based on that, it made sense to expand our system by training the medics to be haz-mat techs and giving them the additional toxicology component."

McCammon believes that understanding your regional haz-mat capabilities is a crucial step in deciding if hazmedics will be an asset. "It's important," he cautions, "to have that infrastructure in place first. From there, it will help you decide where the money and training should go."

Hazmedic Programs: Implementation Options

"Biological weapons are in essence a medical problem, and thus require a medical solution. The ultimate goal of bio-defense is to prevent suffering and loss of life. If biological weapons have minimal impact on the well-being of their targets, they are ineffective and thus cease to be a threat. Therefore, we must concentrate on developing appropriate medical defenses."

—Dr. Ken Alibek,
former deputy director,
Biopreparat

From 1988 to 1992, Alibek was the first deputy chief of the secret Soviet Union germ warfare program, Biopreparat. In 1992, he defected to the United States and since then has spent countless hours debriefing the U.S. military and civilian medical officials on the specifics of biological weapons. In his best-selling book *Biohazard*, Alibek chronicles the activities surrounding the development and weaponization of biological warfare agents.

The fire service must realize that his work illustrates an important fact: WMD are out there; they are not figments of anybody's imagination, and today's threat could easily become tomorrow's headline.

To that end, we should heed Alibek's advice and develop "appropriate medical defenses" not only against WMD but against the chemical hazards we encounter during our "bread and butter" haz-mat operations.

Based on that, the following section offers some program implementation ideas. There are a number of variations on how hazmedics are used; the intent here is to offer two options that can be modified to work within your system.

General Hazmedic Requirements

Those paramedics who meet the minimum requirements will be eligible for assignment as a hazmedic. In some systems, hazmedics have no haz-mat training and are not part of a haz-mat response. Other systems incorporate hazmedics into the haz-mat response model.

The following requirements may vary based on the staffing model chosen, but in general, the minimum requirements may include the following:

1. Three years of experience as an active paramedic.
2. Successful completion (80 percent or greater on the written final exam) of a department-approved hazmedic training program. (Programs range from 16 to 24 hours to several weeks.)
3. Successful completion of an approved hazardous-materials technician program. (There are systems that train to the operations level.)
4. If the hazmedic candidate has been previously certified as a haz-mat technician/specialist but has been inactive for more than two years, the candidate shall complete 16 hours of hazardous-materials refresher training prior to being considered for the hazmedic program.

Additionally, most programs have some form of required refresher training specific to the hazmedic component. There are no set rules for refresher training, but it should be a required part of the program. It also makes sense to include the hazmedic program in your agency's quality improvement program.

Hazmedics Assigned to Satellite Stations

This option provides for hazmedics to be at strategically placed stations, on rescue units, or on ambulances. The hazmedics are not attached to the haz-mat team. If an incident occurs at which a hazmedic may be a useful resource, the closest hazmedic station responds. In most cases, these hazmedics are not trained as hazardous-materials responders and are not considered part of the haz-mat team.

The hazmedic candidate requirements for this option would include the following:

1. Three years of experience as an active paramedic.
2. Successful completion (80 percent or greater on the written final exam) of your approved hazmedic training program.
3. Haz-mat operations level of training is useful.

Hazmedics Assigned to the Haz-Mat Team

This option provides for hazmedics at haz-mat stations or assigned to the haz-mat team. A hazmedic position would be designated on one of the units assigned to each haz-mat station. In this scenario, the hazmedic responds with the haz-mat team. These hazmedics should be trained as hazardous-materials technicians/specialists.

The hazmedic candidate requirements for this option would include the following:

1. Three years of experience as a paramedic.
2. Successful completion (80 percent or greater on the written final exam) of your approved hazmedic training program.
3. If assigned to the haz-mat team, successful completion of an approved hazardous-materials technician program.

4. If the hazmedic candidate has been inactive as a hazardous-materials technician for more than two years, the candidate shall complete 16 hours of hazardous-materials refresher training prior to being considered for the hazmedic program.

Hazmedics: A Final Thought

In this day and age, the fire service cannot solely depend on past practice to guarantee future success. We must look for new and inventive ways to protect ourselves and more fully serve our taxpaying public. Hazmedic programs, regardless of what they look like, take us in that direction.

Perhaps, a sound philosophy to adopt is one put forth by Paul Wilkinson, a British scholar and author on terrorism. In his opinion, "Fighting terrorism is like being a goalkeeper. You can make a hundred brilliant saves, but the only shot people remember is the one that gets past you."

It's that one shot than can make for a very bad day in the fire service; furthermore, it's anybody's guess what the event will be. The likelihood, however, is that people will be involved and hurt, exposed, or otherwise affected.

In addition to the WMD arena, statistics show that people are hurt and killed each year by accidental and intentional chemical incidents. Although infrequent, those incidents are significant when they occur and require a more specialized approach.

Hazmedics, then, in virtually all circumstances, could provide that specialized approach and function as another useful tool in the response toolbox.

fireEMS July, 2003

Author(s) : Rob Schnepf

http://www.usatoday.com/news/health/2006-05-21-paramedics_x.htm

http://www.usatoday.com/news/health/2006-10-24-missed-heart-attacks_x.htm

<http://www.emsresponder.com/features/article.jsp?id=2625&siteSection=6>

<http://www.emsresponder.com/features/article.jsp?siteSection=16&id=2835>

<http://www.emsresponder.com/features/article.jsp?id=3266&siteSection=4>

<http://www.emsresponder.com/publication/article.jsp?pubId=1&id=2337>

<http://www.emsresponder.com/features/article.jsp?id=1870&siteSection=6>

<http://www.jems.com/Columnists/bledsoe/articles/13380/>

<http://www.jems.com/resources/systemprofiles/103975>

<http://www.jems.com/resources/systemprofiles/104117>

<http://www.ncsl.org/programs/health/Forum/ruralems.htm>

Gaps between policy, protocols and practice: a qualitative study of the views and practice of emergency ambulance staff concerning the care of patients with non-urgent needs -- Snooks et al. 14 (4): 251 -- Quality and Safety in Health Care