



WELCOME
WE'RE GLAD YOU'RE HERE!



Creating and Evidence Based Practice for EMS in Integrated Healthcare



Dan Swayze, DrPH, MBA, MEMS

MANAGING CONFLICT OF INTEREST





Scott Bourn, PhD, RN, EMTP



Conflict of
Interest



Baxter Larmon, PhD, MICP



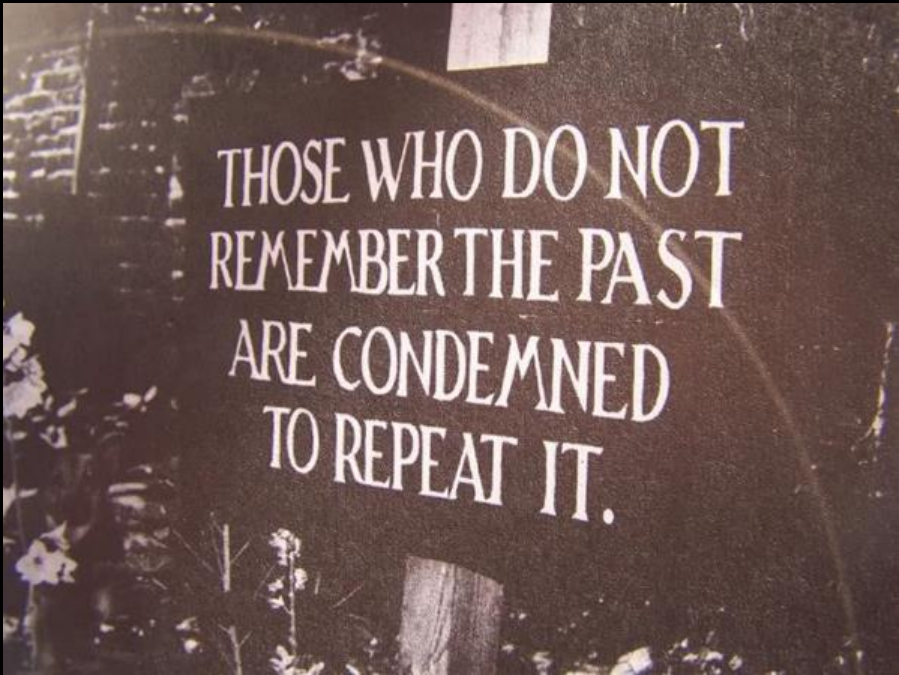
A photograph of a beach at low tide. In the foreground, the word "WELCOME" is written in large, capital letters in the wet sand. The letters are slightly indented and have a dark, shadowed appearance. Behind the text, the sand is smooth and light-colored. In the background, the ocean waves are breaking onto the shore, creating a white, frothy surf. The water is a deep blue-grey color, and the sky is a pale, hazy blue. The overall scene is peaceful and inviting.

WELCOME

History



**YOU CAN'T
CHANGE YOUR
PAST, BUT YOU
CAN LEARN FROM
IT AND CHANGE
YOUR FUTURE.**

A photograph of a stone wall with a rainbow arching over it. In the foreground, there are some flowers and a wooden post. The text is written on the wall in a white, serif font.

THOSE WHO DO NOT
REMEMBER THE PAST
ARE CONDEMNED
TO REPEAT IT.



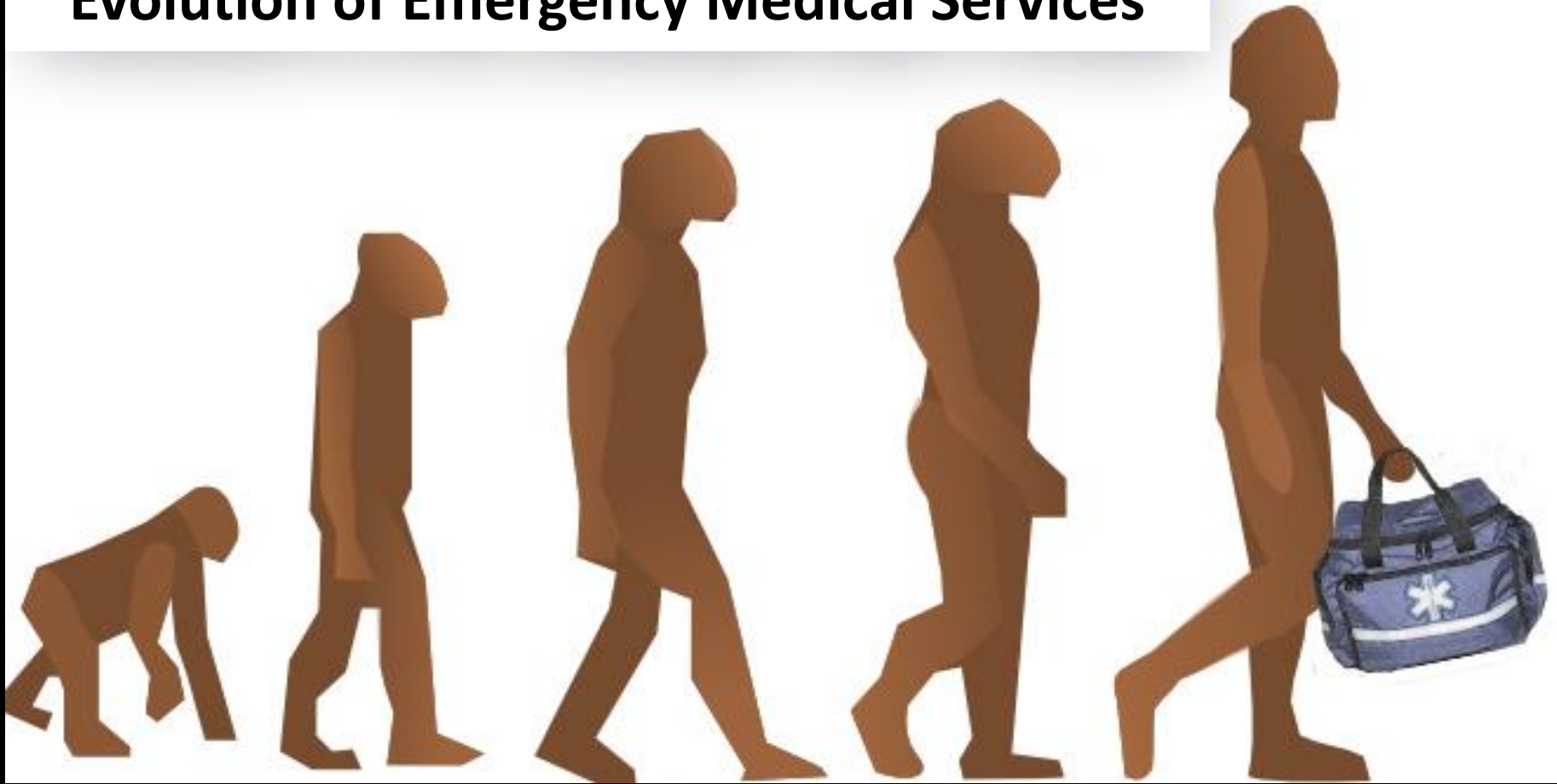


Lets nail it down, lets get it right.

— *Frank Reynolds* —

AZ QUOTES

Evolution of Emergency Medical Services

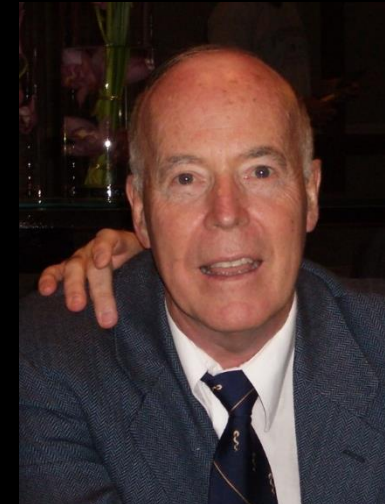


“Things are seldom what they seem”

Stewart, RD

Annals of Emergency Medicine

1989;18:1015-7



Michael
Calaham, MD



*Quantifying the Sanctity Science of
Prehospital Emergency Care”*

Annals of Emergency Medicine; December 199







Some of EMS past was based on

Best guess

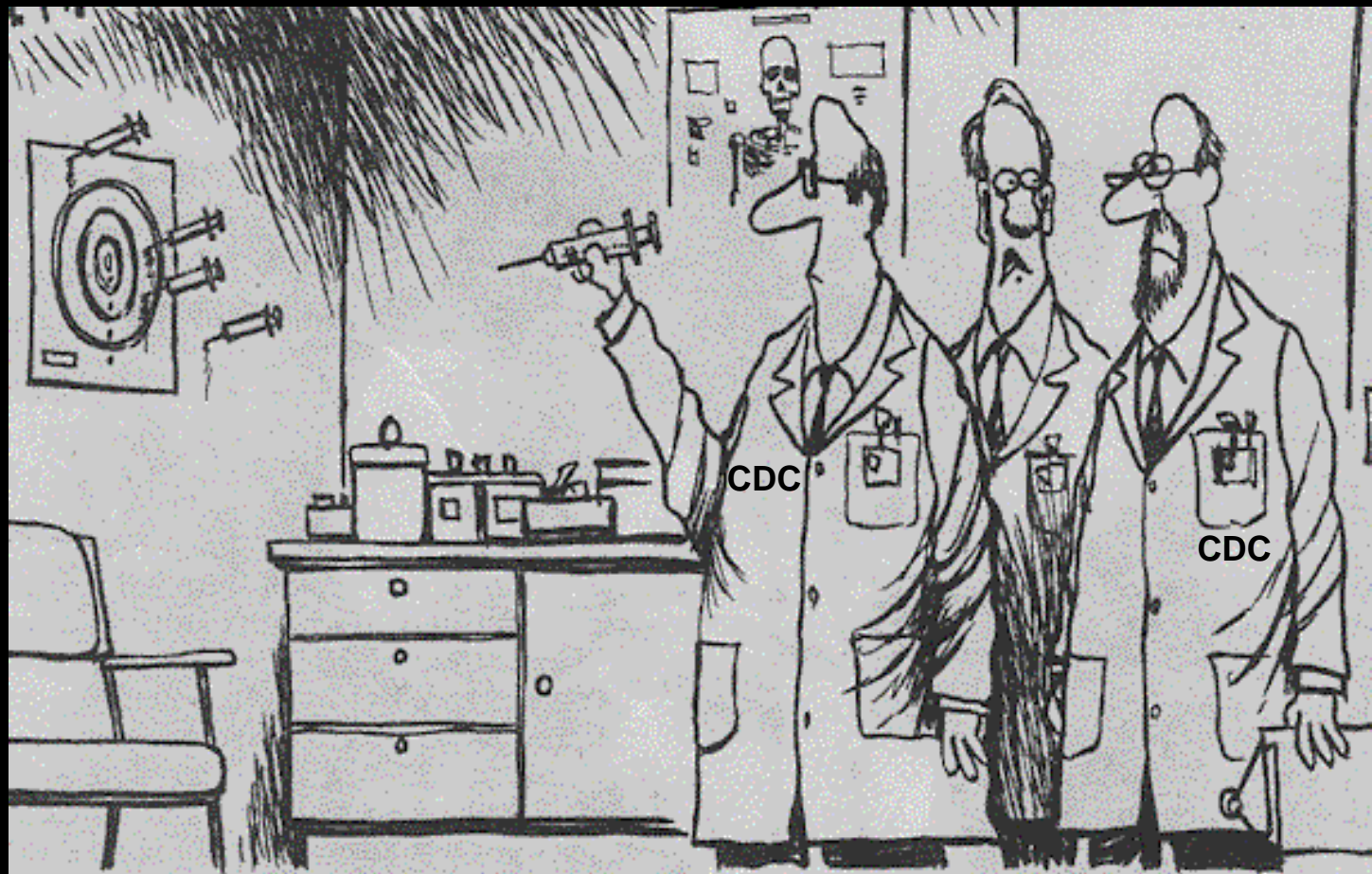
Anecdotal evidence

Seminars

Consultants

We did what we felt was
RIGHT





"I hate it when we're not sure we're inoculating against the right strain of flu virus."

If I knew THEN,
What I know NOW



Tough to admit

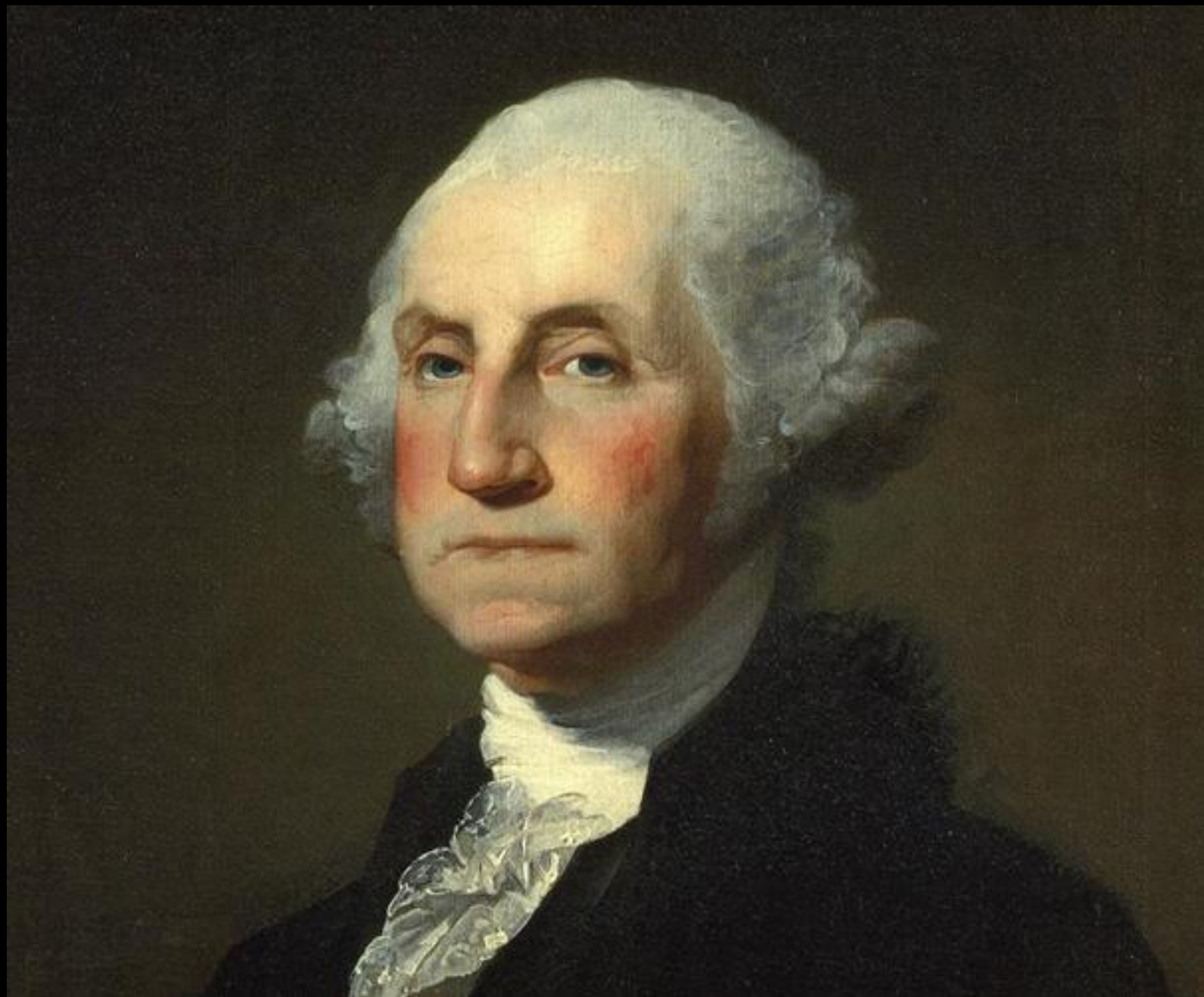
- We were wrong
- Didn't know the answer
- We guessed



HISTORY

EVIDENCE BASED MEDICINE

- Before the 1836, Bloodletting was routinely used to “cleanse the body” by physicians
- Pierre Louis, conducted an outcome clinical study
 - Specifically pneumonia patients
- Found that bloodletting was linked to far more deaths
 - Changed the practice of medicine



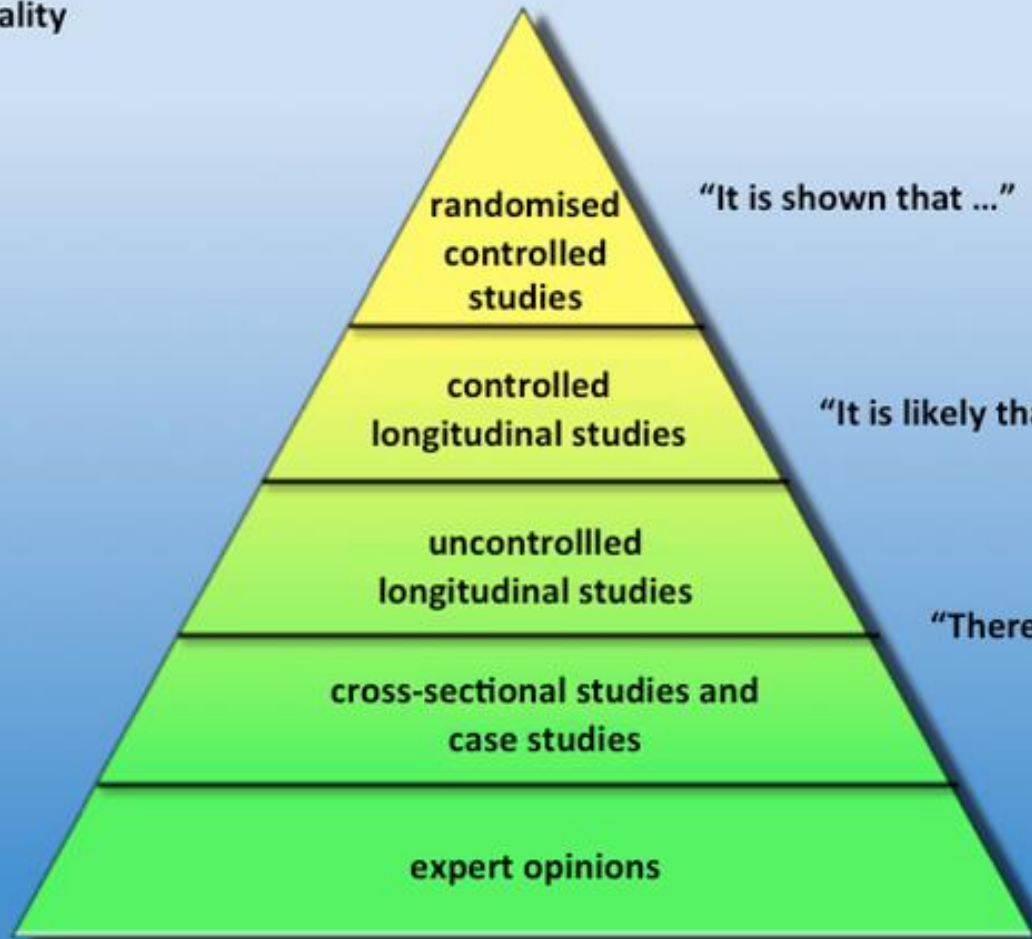




establish causality
(bias --)



generate
hypotheses
(bias ++)



"It is shown that ..."

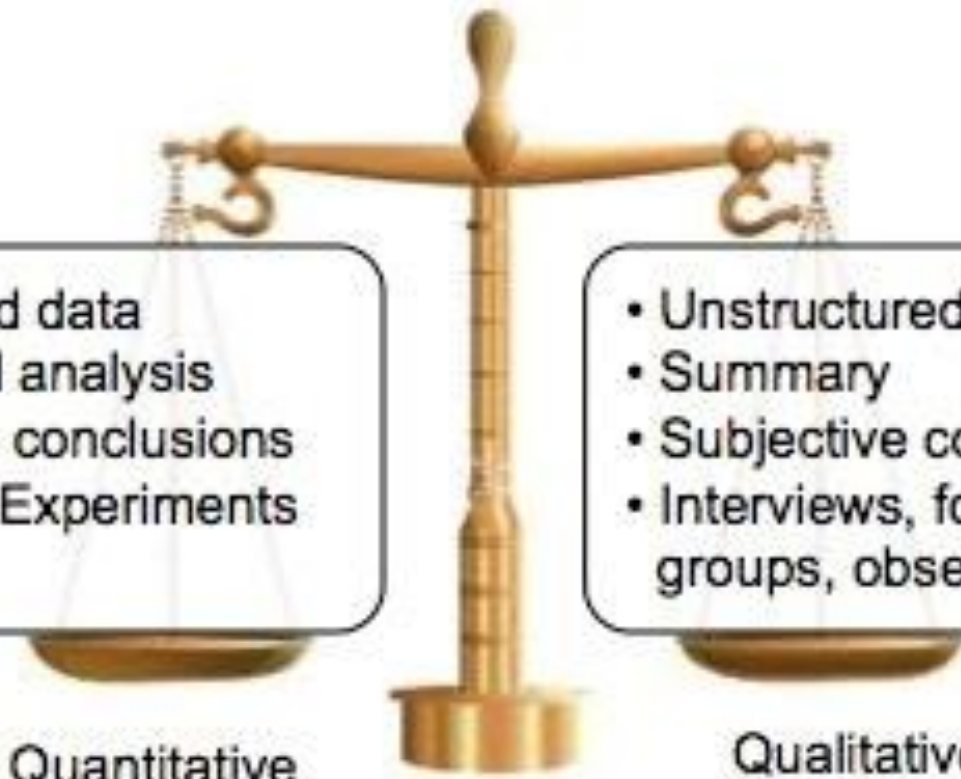
"It is likely that ..."

"There are signs that ..."

"Experts are of the
opinion that ..."



**NOT all research can be
done this way**

- 
- Structured data
 - Statistical analysis
 - Objective conclusions
 - Surveys, Experiments

Quantitative
Research

- Unstructured data
- Summary
- Subjective conclusions
- Interviews, focus groups, observations

Qualitative
Research

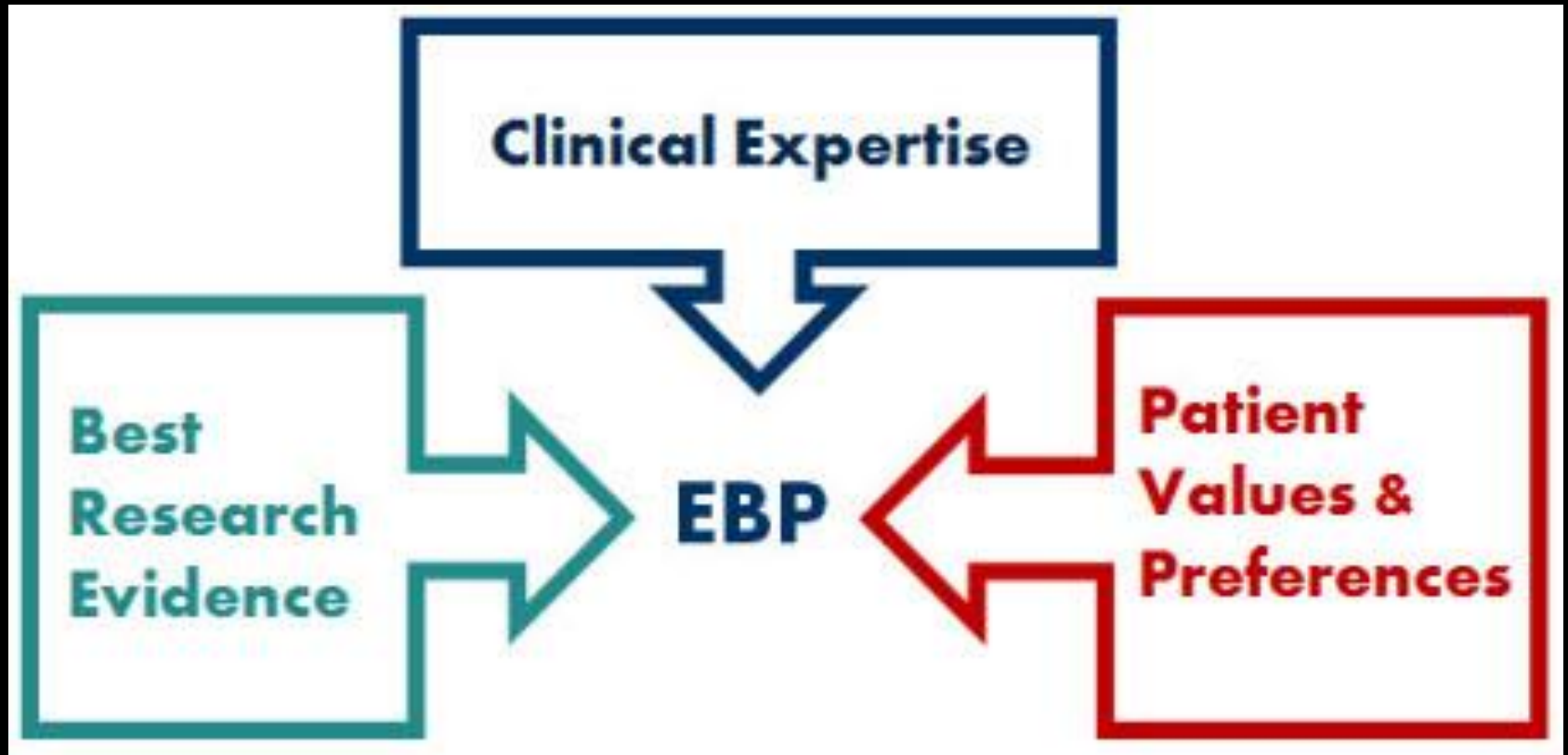
Evidence Based Practice

Asking is the Answer.



The evidence, by itself, does not make the decision, but it can help support the patient care process.

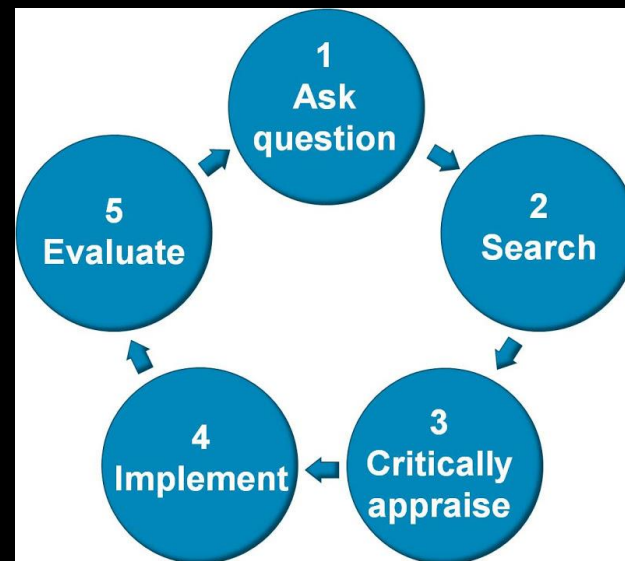




The full integration of these three components into clinical decisions enhances the opportunity for optimal clinical outcomes and quality of life.



The practice of EBP is usually triggered by patient encounters which generate questions about the effects of therapy, the utility of diagnostic tests, the prognosis of diseases, and/or the etiology of disorders.





**Show me
the
EVIDENCE**

Reviewe d Articles



100

PREHOSPITAL MEDICINE

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

S. Mason, J. Wondruske, J. Parillo

doi:10.1017/S0950268815000000

Introduction: The Department of Health document *Delivering emergency care closer for most people* was used to be developed to improve the care and management of patients. The Health Commission has suggested that intermediate care support should be offered to people who cannot be sent to work-type of care and have some personal or medical issues. The purpose of this study was to develop a community paramedic practitioner intermediate care support scheme for older people with minor conditions.

Design, development, and structure of scheme: The scheme aims to provide a community paramedic practitioner to provide intermediate care support to emergency care patients aged 65 years or over who are unable to be sent to hospital and have some personal or medical issues. The scheme will be developed to provide a community paramedic practitioner to provide intermediate care support to emergency care patients aged 65 years or over who are unable to be sent to hospital and have some personal or medical issues.

Results: The scheme will be developed to provide a community paramedic practitioner to provide intermediate care support to emergency care patients aged 65 years or over who are unable to be sent to hospital and have some personal or medical issues.

Conclusion: The scheme will be developed to provide a community paramedic practitioner to provide intermediate care support to emergency care patients aged 65 years or over who are unable to be sent to hospital and have some personal or medical issues.

Keywords: community paramedic practitioner, intermediate care support, older people, minor conditions.

Community Paramedicine in Rural Areas: State and Local Findings and the Role of the State Flex Program

Karen B. Pearson, MEd, MA, John A. Gale, MS, George Shaler, MPH
University of Southern Maine

PURPOSE

Community paramedicine is a quickly evolving field in both rural and urban areas as Emergency Medical Services (EMS) providers look to reduce the use of EMS services for non-emergent 911 calls, overcrowding of emergency departments, and healthcare costs. In rural areas, community paramedics help fill gaps in the local delivery system due to shortages of primary care physicians and long travel times to the nearest hospital or clinic.

Study: This study examined the evidence base for community paramedicine in rural communities, the role of community paramedics in rural healthcare delivery systems, the challenges faced by states in implementing community paramedicine programs, and the role of the state Flex programs in supporting development of community paramedicine programs. Additionally, the study provides a snapshot of community paramedicine programs currently being developed and/or implemented in rural areas.

APPROACH

Our approach combined a survey of state EMS officials and directors of state Offices of Rural Health (SORHs) and/or state Flex coordinators with in-depth follow-up interviews between January and September 2013 of these state-level personnel and local EMS and hospital providers in selected states. We also reviewed state Flex grant applications from 2010-2012 to examine state work plans and funding to support community paramedicine initiatives. Additionally, we conducted a literature review of peer-reviewed healthcare journals as well as articles and reports from the trade literature and the EMS industry which focused on the integration of EMS into local healthcare delivery systems.

BACKGROUND

Key Findings

- Many rural community paramedicine programs are in pilot stages.
- Most community paramedics work within an expanded role rather than an expanded scope of practice, the latter requiring legislative or regulatory change.
- Funding and reimbursement for community paramedicine services are major challenges for the sustainability of community paramedicine programs.
- Data collection is vital for community paramedicine programs to be able to show value, including shared saving and patient outcomes.

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www.jephc.com

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EDITORIAL

International Roundtable on Community Paramedicine

Gary Wingrove EMT-P
Rochester, Minnesota, USA

In January 2005 a single phone call from Halifax to Lincoln changed the world history of Paramedicine. At the time, neither Mike McKee (the call maker from Nova Scotia) nor Dennis Berens (the call receiver from Nebraska) knew they were doing anything special. That first call led to a conference call, which led to more conference calls involving more nations, which led to the first gathering in July 2005 and the creation of an informal organization called the International Roundtable on Community Paramedicine and Rural Healthcare Delivery (IRCP).

IRCP will conduct its seventh annual meeting in Sydney in October 2011, linked to the Paramedics Australasia conference and combined with the Council of Ambulance Authorities Rural and Remote Symposium. What began as a gathering of delegates from Australia, Canada, Scotland and the United States has also seen in subsequent years delegates from England, Israel, New Zealand, Qatar and the United Arab Emirates, and this year will include delegates from Germany and Switzerland.

Research article

Change the scope of practice of paramedics? an ems/public health policy perspective

Richard A. Bissell, Kevin G. Seaman, Robert R. Bass, Ed Racht, Carol Gilbert, Arlo F. Welzig, Mark Doctor, Susan M. Davenport, Eslinger & Robert Doherty

Pages 140-148 | Received 25 Nov 2008, Accepted 10 Nov 2009, Published online 12 Jul 2010
Download citation: <http://dx.doi.org/10.1080/10901981.2009.338323>

[References](#) [Citations](#) [Metrics](#) [Reprints & Permissions](#) [Get Alerts](#)

Abstract

Objective: To analyze the potential for expanding the scope of practice of paramedics from public health, health planning, and health policy perspectives, utilizing data covering more than 42,000 emergency patients. **Methods:** The authors conducted a retrospective study of 42,918 patients seen in two Baltimore emergency departments over a six-month period, 5,259 of whom were transported by emergency ambulance. The authors constructed epidemiologic profiles of in-hospital and prehospital patients, and merged ambulance data with discharge diagnoses. **Results:** The 42,918 patients had a total of 2,118 different discharge diagnoses. The ten most frequent diagnoses of ambulance-transported patients were

The State of Innovative Emergency Medical Service Programs in the United States

Kristy Gonzalez Morganti, PhD, MPH, Abby Albert, PhD, Gregg Margolis, PhD, NREM-P, Jeffrey Wasserman, PhD, Arthur L. Kellermann, MD, MPH

Pages 16-31 | Received 11 Mar 2013, Accepted 07 Jul 2013, Published online 10 Oct 2013
Download citation: <http://dx.doi.org/10.3109/10901981.2013.830150> Crossmark

[Full article](#) [Figures & data](#) [References](#) [Citations](#) [Metrics](#) [Reprints & Permissions](#) [Get Alerts](#)

Abstract

Background: The primary objective of this study was to determine how EMS organizations that are piloting patient-centered treatment and transport protocols are approaching the challenges of implementation, reimbursement, and quality assurance. We were particularly interested in determining if these pilot efforts have raised any patient safety concerns. **Methods:** We conducted a set of discussions with a small group of key EMS stakeholders regarding the status of pioneering efforts to develop and evaluate innovative approaches to EMS in the United States. **Results:** We had discussions with 9 EMS agencies to better understand their innovative programs, including the history of their service policy and procedure for transports that do not require emergency department care; the impact of their innovative program on service costs and/or cost savings; any reimbursement issues or changes; patient safety, patient satisfaction and overall impression as well as recommendations for other EMS

Annals of Emergency Medicine

Volume 67, Issue 3, March 2016, Pages 361-366

Emergency medical services/concepts

Mobile Integrated Health Care and Community Paramedicine: An Emerging Emergency Medical Services Concept

Bryan Y. Choi, MD*, Charles Blumberg, BS*, Kenneth Williams, MD*

Mobile integrated health care and community paramedicine are models of health care delivery that use emergency medical services (EMS) personnel to fill gaps in local health care infrastructure. Community paramedics may perform in an expanded role and require additional training in the management of chronic disease, communication skills, and cultural sensitivity, whereas other models use all levels of EMS personnel without additional training. Currently, there are few studies of the efficacy, safety, and cost-effectiveness of mobile integrated health care and community paramedicine programs. Observations from existing program data suggest that these systems may prevent congestive heart failure readmissions, reduce EMS frequent-user transports, and reduce emergency department visits. Additional studies are needed to support the clinical utility

Research article

Insights into the Implementation and Operation of a Novel Paramedic Long-term Care Program

Jen L. Jensen, ACP, NREMT, Andrew H. Travers, MS, MD, PREC, Emily G. Marshall, PhD, for Gen. MS, PREC, David Leadley, ACP, NREMT, & Alex J. Carter, MS, MPH, PREC

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[Full article](#) [Figures & data](#) [References](#) [Citations](#) [Metrics](#) [Reprints & Permissions](#) [Get Alerts](#)

Abstract

Objective: An extended care paramedic (ECP) program was implemented to provide emergency assessment and care on-site to long-term care (LTC) residents suffering acute illness or injury. A single paramedic works collaboratively with physicians, LTC staff, patient, and family to develop care plans to address acute situations, often avoiding the need to transport the resident to hospital. We sought to identify insights gained and lessons learned during implementation and operation of this novel program. **Methods:** The perceptions and experiences of various stakeholders were explored in focus groups, using a semi-structured interview guide. Two investigators independently conducted thematic analysis and identified emerging themes and related codes. Consensus and differences were discussed to achieve consensus. **Results:** Twenty-one participants took part in four homogeneous focus groups: paramedics and dispatchers (ECPs), ECP oversight physicians, and housekeepers. The top themes identified were (1) program implementation, (2) ECP processes of care, (3) communication, and (4) role of the care



ORIGINAL ARTICLE

Effectiveness of emergency care practitioners working within extended emergency service models of care

Suzanne Mason, Colin O'Keefe, Patricia Coleman, Richard Edlin, Jon Nicholl

Emerg Med / 2007;24:239-243. doi: 10.1136/em.2006.055002

See end of article for authors' affiliations

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Accepted: 27 December 2006

A recently published report by the Department of Health presents a vision of the ambulance service in the UK 'to become the most co-ordinated, increasing range of ambulance services available to the public'. This vision aims to provide an increasing range of services (e.g. primary care, diagnosis and health promotion) to the public. In achieving these goals is the development of the emergency care practitioners (ECPs) role. The ECP role is a generalist role drawn from paramedic and nursing competencies at other relevant healthcare backgrounds. ECPs receive formal training and extended clinical skills to enable them to work across traditional boundaries, in emergency, and pre-hospital care. Nationally, the implementation of the ECP role is moving forward in different ways. One earlier example¹ described the

A controlled comparative observational study examining the care provided to patients by the ECP service (interventions) with the care usually provided in the same health service setting (controls). A qualitative study of telephone interviews conducted to assess the impact of ECP working on ECP themselves, other healthcare professionals and stakeholders.

An economic analysis to identify whether ECP working adds any cost savings.

The investigation proceeded in three sites in England, selected to reflect the different ways in which ECP skills are being utilised in different health settings nationally. The first

site was a 999 urban ambulance service where road care

Background: An emergency care practitioner (ECP) is a generic practitioner drawn mainly from paramedic and nursing backgrounds. ECPs receive formal training and extended clinical skills to equip them to work as an integral part of the healthcare team working within and across traditional boundaries of emergency and pre-hospital care. Currently, ECPs are working in different healthcare settings in the UK.

Objectives: (1) To evaluate effectiveness, value/added and cost of ECPs compared with the usual service available in the same healthcare setting. (2) To increase understanding of what effect, if any, ECPs are having on delivery of health services locally and (3) to evaluate whether ECP working adds cost savings.

Methods: Using a mixed methods approach, data were collected quantitatively and qualitatively from three different types of health service settings where ECPs are operational, in three sites in England. Data were collected by sending two questionnaires to each patient eligible to be seen by an ECP at 3 and 28 days after presentation. Qualitative interviews were conducted with a sample of staff that included ECPs, other health professionals and stakeholders (e.g. managers) in each of the three settings, and routine data were analysed to provide a perspective on costs.

Results: After adjusting for age, sex, presenting complaint and service model, some differences in the provision of care between ECPs and the usual provider in the three settings were observed. Overall, ECPs carried out fewer investigations, provided more treatments and were more likely to discharge patients home than the usual provider. Patients were satisfied with the care received from ECPs, and this was consistent across the three different settings. It was found that ECPs are working in different settings across traditional professional boundaries and are having an impact on reorganising how health services are delivered locally.

Cost information based on one site only indicated that ECP care may be cost effective in that model of ECP working.

Conclusion: Care provided by ECPs appears to reduce the need for advanced referral to other emergency and pre-hospital care services in a large proportion of cases. We found no evidence that the care provided by an ECP was less appropriate than the care by the usual provider for the same type of health problem.

Australian Journal of Paramedicine 2014;1(2)

Original Research

Community paramedicine: Higher education as an enabling factor

Peter O'Meara PhD,¹ Michel Ruest,² Christine Stirling PhD

Affiliations:
¹LaTrobe University, Victoria, Australia
²Renfrew County Paramedic Service,
University of Tamsania, Tasmania, Australia

SUMMARY

The aim of this case study was to describe one rural community paramedic model and identify enablers related to the implementation of the model. It was undertaken in the County of Renfrew, Ontario, Canada where a community paramedicine role has emerged in response to demographic changes and broader health system reform. Qualitative data was collected through direct observation of practice, informal discussions, interviews and focus groups.

The crucial role of education in the effective and sustainable implementation of the community paramedicine model was identified as one of four enablers. Traditional paramedicine education programs are narrowly focused on emergency response, with limited education in health promotion, aged care and chronic disease management. Educational programs hoping to include a wider range of topics face the twin challenges of an already crowded curriculum and predominantly young students who fail to see the relevance of community paramedicine.

A closer match between the paramedicine curriculum and the emerging roles of paramedics, whether they are community paramedics, extended care paramedics, or as yet unfilled roles is needed if paramedics are to become valued members of the health care team.

Keywords

Paramedic, emergency medical technicians, rural health, education

Rural and Remote Health

ORIGINAL RESEARCH

Engaging rural communities in health care through a paramedic expanded scope of practice

CM Stirling¹, P O'Meara², D Puller³, V Tounis⁴, J Walker⁵

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Engaging rural communities in health care through a paramedic expanded scope of practice

Rural and Remote Health 7:626, (2007), 626-631

Available from: <http://www.ruralandremoteh.org.au>

ABSTRACT

Introduction: This article explores how community engagement by paramedics in an expanded scope role contributes to health primary health care and to an overall improved emergency response capacity in rural communities. Understanding how expanded

Journal of Emergency Primary Health Care (JEPHHC), Fall, June 1, 2006

Journal of Emergency Primary Health Care

Policy and Service Delivery

Article Review

The Role of the Paramedic Practitioner in the UK

Professor Malcolm Wallace

Faculty of Pre-hospital Care Research Unit, the James Cook University Hospital / University of Tamsania, Middlesbrough, UK

Abstract

The 'Paramedic Practitioner' role has developed against a background of change in primary care service provision, apparently resulting in an increasing utilisation of emergency ambulance services. This presents opportunities for paramedics to play a role in the diagnosis and management of patients with minor injuries and illnesses. Such patients are usually presented to the ambulance service by the police and other health professionals in the diagnosis and management of patients with minor injuries and illnesses. Such patients are usually presented to the ambulance service by the police and other health professionals in the diagnosis and management of patients with minor injuries and illnesses.

Currently, a number of pilot programmes exist but not consistently with respect to type and duration of training, permitted scope of practice, and even the role of these new practitioners. To be successful, these changes in the role of ambulance professionals will require the paramedic profession to take leadership through its own professional body (the British Paramedic Association (BPA)) in the establishment of defined standards of practice. A shift from vocational training to academic based education will be necessary to meet the educational demands of the autonomous management of these patient populations. Consistency of job title and legal restrictions on its use are also required.

These new opportunities for practice will offer a structured clinical pathway for ambulance professionals for the first time. The BPA has proposed the following: 'Medical interventions will have a structured, evidence-based, training, and evaluation framework.'

Prehospital care

An initiative to provide emergency healthcare for older people in the community: the impact on carers

E Knowles¹, S Mason¹, B Colwell²

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Published Online First 26 July 2010

Abstract

The increase in the size and age of the UK older population has had a major effect on emergency services. Many older people will visit the emergency department but not necessarily require significant clinical intervention. The Paramedic Practitioner in Older People's Support (PPOPS) scheme was set up to provide community-based clinical assessment of older patients contacting the emergency services with minor acute conditions as an alternative approach to emergency department transfer. Patient carers were followed-up to evaluate the impact of this scheme when compared with standard transfer to the emergency department. Postal questionnaires, including items on the level of care provided, satisfaction with care received and carer impact, were administered to 561 carers. The overall response rate was 71.5% (401/561). The carers were predominantly female, approximately 60 years of age and family members, with more than three-quarters providing some form of physical care before the patient episode. Overall, carers did report an increase in the level of care provided

Evaluating the impact on 911 calls by an in-home programme with a multidisciplinary team

Michel Ruest is the Deputy Chief, Amber Stichtman is the Advanced Care Paramedic and Chris Day is the Primary Care Paramedic at the County of Renfrew Paramedic Service, Pembroke, Ontario, Canada
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One of the goals of the Emergency Medical Services Chiefs of Canada (Emergency medical services/CC), as defined in *The Future of Emergency medical services in Canada: Exploring the New Road Ahead* (Emergency medical services/CC, 2006) is to 'mobilise health care. This is defined as 'creating innovative models of service delivery to meet community-defined needs' (Emergency medical services/CC, 2006; The Community Paramedic Program, 2009).

Collaboration of emergency medical services and community organisations such as primary health care providers, social service agencies, and public safety groups can enable innovative initiatives that have the potential to improve the level of health care within a community and reduce health care system pressures. The purpose of this research is to evaluate the impact of an 'aging at home' program that uses an integrated health care team involving community paramedics on 911 calls.

Methods: This study involved a retrospective case series including a chart review of clients participating in the 'Aging at Home' program located in a rural community in Ontario between January 1, 2010 and April 30, 2011. Each record was evaluated for the presenting problem and whether transport to a local hospital paramedic service was initiated for the client.

Abstract

Introduction: Collaboration of emergency medical services and community organisations such as primary health care providers, social service agencies, and public safety groups can enable innovative initiatives that have the potential to improve the level of health care within a community and reduce health care system pressures. The purpose of this research is to evaluate the impact of an 'aging at home' program that uses an integrated health care team involving community paramedics on 911 calls.

Methods: This study involved a retrospective case series including a chart review of clients participating in the 'Aging at Home' program located in a rural community in Ontario between January 1, 2010 and April 30, 2011. Each record was evaluated for the presenting problem and whether transport to a local hospital paramedic service was initiated for the client.

PREHOSPITAL CARE

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

L Ball

Emerg Med / 2007;24:239-243. doi: 10.1136/em.2006.055002

REVIEWING THE POLICY CONTEXT

The development of UK emergency services has today moved away from the provision of 'secondary' care services which are more responsive to 'consumer needs'. Consequently, the Department of Health has announced the future focus for the development of ambulance services as follows:

- To raise public awareness of what constitutes appropriate use of emergency services;
- To develop and evaluate alternatives 'non-emergency' call handling services;
- To review current 999 call prioritisation strategies and the management of 999 calls within the service;
- To review and evaluate alternatives to the routine transport of patients to hospital A&E departments.

Unsurprisingly, 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.

Service initiatives in response to policy: Several service initiatives aimed at meeting the challenges listed above are currently being trialled and evaluated across the UK.

The changing face of paramedic practice: In 2006, the Ambulance Service Association¹ launched the development of a new initiative of general health care workers² in the form of the Paramedic in Emergency Care. The intention

to recruit others who have some ambulance experience in the UK, most often from before a

OUTCOMES

CP/MIH





Faculty of Health and Social
Care Sciences, Kingston
University St George's,
University of London, UK
"Bentley's Bayville Community
Health, Melbourne, Australia
"Centre for Health Information,
Research and Evaluation,
Swansea University, Swansea,
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14 May 2010

Complexity of the decision-making process of ambulance staff for assessment and referral of older people who have fallen: a qualitative study

Mary Halter,¹ Susan Vernon,² Helen Snooks,³ Alison Porter,³ Jacqueline Close,⁴ Fionna Moore,⁵ Simon Porsz⁶

ABSTRACT

Background Older people who fall commonly present to the emergency ambulance service, and approximately 40% are not conveyed to the emergency department (ED), despite an historic lack of formal training for such decisions. This study aimed to understand the decision-making processes of emergency ambulance staff with older people who have fallen.

Methods During 2005 ambulance staff in London tested a clinical assessment tool for use with the older person who had fallen. Documented use of the tool was low. Following the trial, 12 staff participated in semistructured interviews. Interviews were recorded and transcribed. Thematic analysis was carried out.

Results The interviews revealed a similar assessment and decision-making process among participants:
► Pretrial: forming an early opinion from information from the emergency call.
► Initial contact: assessing the need for any immediate action and establishing a rapport.
► Continuing assessment: gathering and assimilating medical and social information.

► Making a conveyance decision: negotiation, referral and professional defence, using professional experience and instinct.

Conclusions An assessment process was described that highlights the complexity of making decisions about whether or not to convey older people who fall and present to the emergency ambulance service, and

service.⁸ At the time of this study, ambulance staff (other than emergency care practitioners (ECs)) in London were not formally trained to make decisions regarding the appropriateness of conveyance to the emergency department (ED) and treatment guidelines indicated that all patients should be conveyed unless the patient refused. (An ECP is a novel role working in emergency ambulance and other health-care settings in the UK. Those undertaking the role are usually paramedics or nurses who undertake further education to enable them to assess and treat patients, with an aim of avoiding attendance at an ED or admission to hospital where possible.) Although the numbers of ECs remain very small, the rate of non-conveyance to the ED is high for older people who fall—approximately 40% in London⁹ and elsewhere in the UK^{10–11} and in the US.⁸ Those who are not conveyed have been found to be a group at high risk of further falls.^{12–17}

No literature has been identified that specifically examines the process of decision making by ambulance staff in relation to older people who fall. However, decision making regarding conveyance in general has been found to be a complex and negotiated process¹⁸ dependent upon a number of factors including the experience and confidence of ambulance staff, time during a shift, location, the wishes of the patient, presence of carers, appearance of the person's accommodation, waiting times at the local

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doi:10.1136/bmj.e2008.028803

Effectiveness of paramedic practitioners in attending 999 calls from elderly people in the community: cluster randomised controlled trial

Suzanne Mason, reader in emergency medicine,¹ Emma Knowles, research fellow,¹ Brigitte Colwell, research associate,¹ Simon Dixon, senior lecturer,¹ Jim Wardrope, consultant in emergency medicine,² Robert Gorringe, lead emergency care practitioner,³ Helen Snooks, professor of health services research,⁴ Julie Perrin, nurse consultant in emergency medicine,⁵ Jon Nicholl, professor⁶

ABSTRACT

Objective To evaluate the benefits of paramedic practitioners assessing and, where possible, treating older people in the community after minor injury or illness.

Design Cluster randomised controlled trial involving 56 clusters. Weeks were randomised to the paramedic practitioner service being active (intervention) or inactive (control) when the standard 999 service was available.

Setting A large urban area in England.

Participants 1018 patients aged over 60 who called the emergency services (n=1549) intervention, n=1469 control.

Results Overall, patients in the intervention group were less likely to attend an emergency department (relative risk 0.72, 95% confidence interval 0.48 to 0.75) or require hospital admission within 28 days (0.87, 0.81 to 0.94) and experienced a shorter total episode time (235 v 278 minutes, 95% confidence interval for difference =

treatment skills for paramedics, has been recommended to help manage ever increasing demands for health care.¹ Current evidence concerning safety, effectiveness, and costs to support these changes in practice, however, is lacking.²

Paramedics can be trained to assess and treat or refer patients with a range of conditions such as wounds,³ hypoglycaemia,⁴ falls, and epistaxis.⁵ The merits of a pre-hospital practitioner working in certain geographical areas such as rural locations in fulfilling a broader public health and primary care outreach role in the local community have also been discussed.⁶ Other authors, however, have cast doubt on the safety, feasibility, and cost effectiveness of paramedics assessing and treating apparently minor problems in the community.^{7,8}

Elderly people make 12–21% of visits to emergency departments,⁹ many of them attend after an accident or fall.¹⁰ Recently completed studies suggest that an alternative approach to an emergency ambulance response would have the greatest chance of improving patients' experience, as well as potentially helping to reduce demand, if it was targeted at elderly patients with minor complaints.^{11,12}

The South Yorkshire Ambulance Service developed



PREHOSPITAL CARE

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

J L Newton, P Kyle, P Liversidge, G Robinson, K Wilton, P Reeve

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21 December 2005

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 call for ambulance crews attending to fallers was 3771 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 £276 018 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 requires 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.

Current data suggest that 35% of those over 65 years of age fall annually.¹ The numbers of falls actually presenting to medical services are considered to significantly underestimate the size of the problem. Falls guidelines recommend proactive identification of fallers, and innovative strategies need to be introduced to achieve this.² Surprisingly, the true prevalence of community falls in older people who do not present directly to medical services is unclear.

Falls are costly in terms of morbidity for an individual, and also in terms of expense to health care systems. Previous studies examining health care expenses suggest costs of approximately £2000–£3000 per faller with hospital costs accounting for 10% (UK) to 80% (NZ) of these costs.^{3–6} The costs of falls to other agencies such as the ambulance service are currently unknown. However, it is recognised that falls do come to the attention of the ambulance service and it has been suggested that the ambulance service is in a unique position of having access to a potentially high risk population who might otherwise not seek medical attention.⁷ Ambulance crews called to those who fall may either provide assistance

immediate costs of attending to these fallers in the community.

NEAS has operational boundaries from Northumberland in the north to the south of County Durham. The NEAS have identifiable ambulance costs of £115 per call out and £123 per hour of site time; these data are readily available from the NEAS annual financial report 2004–2005 (see <http://www.newcastle.nhs.uk/Annual2004/Accounts.htm>).

Data were collated prospectively between 1st June and 31st December 2004 from the Newcastle upon Tyne area utilising existing NEAS data bank information. Data considered concerned (i) all assistance only calls to those over 65 years of age who had fallen and did not subsequently require attendance at Accident and Emergency (A&E), and (ii) all ambulance calls to those over 65 years of age who had fallen and were subsequently transported to the one A&E department in the city. The proportions of those over 65 years of age presenting with a fall were compared to the normal population in the same area served by NEAS in Newcastle using data from Census 2001 (<http://www.newcastle.gov.uk/ne/16/fallersandpopulationcensus01.aspx>) (2001/01/01).

Review

The impact of new prehospital practitioners on ambulance transportation to the emergency department: a systematic review and meta-analysis

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Abstract

Objective To conduct a systematic review and meta-analysis to examine the impact of new prehospital practitioners (NPPs), including emergency care practitioners (EMCPs), paramedic practitioners and extended-care paramedics (ECPs), on ambulance transportation to the emergency department (ED).

Methods We searched MEDLINE, Embase, CINAHL and AUSTHealth databases, and hand searched emergency medicine journals and journal reference lists for relevant papers. To be included, studies were required to target one type of NPP and compare outcomes such as the frequencies of conveyance to the ED, discharge at scene, subsequent ED attendance and/or appropriateness of care between NPPs and conventional ambulance crews. Three investigators independently selected relevant studies. The risk of bias in individual studies was assessed using a validated checklist. We conducted meta-analyses for comparisons which had acceptable heterogeneity ($I^2 < 75\%$) and reported pooled estimates of ORs with 95% CIs.

Results 13 studies were identified from 16 584 citation reports. EMCPs were most frequently studied. The majority of studies (73%) did not fully report important potential confounders.



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Accepted 28 October 2008

Is it cost effective to introduce paramedic practitioners for older people to the ambulance service? Results of a cluster randomised controlled trial

S Dixon,¹ S Mason,² E Knowles,² B Colwell,² J Wardrope,³ H Snooks,³ R Gorringe,³ J Perrin,³ J Nicholl⁴

ABSTRACT

Background: A scheme to train paramedics to undertake a greater role in the care of older people following a call for an emergency ambulance was developed in a large city in the UK.

Objectives: To assess the cost effectiveness of the paramedic practitioner (PP) scheme compared with usual emergency care.

Methods: A cluster randomised controlled trial was undertaken of PP compared with usual care. Weeks were allocated to the study group at random to the PP scheme either being active (intervention) or inactive (control). Resource use data were collected from routine sources, and from patient-completed questionnaires for events up to 28 days.

Results: Whereas the intervention group received more PP contact time, it reduced the proportion of emergency department (ED) attendances (53.3% vs 84.0%) and time in the ED (170.6 v 211.3 minutes). There was also some evidence of increased use of health services in the days following the incident for patients in the intervention group. Overall, total costs in the intervention group were £140 lower when routine data were considered ($p = 0.63$). When the costs and QALY were considered

assess and, when possible, treat older people in the community. Operations between the hours of 08.00 and 20.00 each day, the service was activated by a call to the ambulance service or by an ambulance crew attending an eligible patient. We conducted a cluster randomised controlled trial to evaluate this new service.⁴

The use of PP, with extended skills for responding to selected 999 calls relating to elderly patients, could have several important effects on costs and outcomes. The most obvious effects are that PP attendances are anticipated to spend longer at the scene of incidents, yet reduce the number of emergency department (ED) attendances and admissions to hospital. Other potential effects include additional costs of training, equipment and/or the greater use of other services due to the availability of new referral routes to intermediate care schemes, for example. An economic evaluation was therefore undertaken alongside the clinical evaluation to capture these changes in resource use.

In addition to a comparison of costs and benefits relating to normal care and PP care, a cost-utility

Cost effectiveness and outcomes of a nurse practitioner-paramedic-family physician model of care: the Long and Brier Islands study

Ruth Martin-Misener^[a1], Barbara Doene-Wamboldt^[a1], Ed Cain^[a2] and Marilyn Girouard^[a3] DOI: <http://dx.doi.org/10.1017/S1463423608000959>

Published online: 01 January 2009

CANADA

Abstract

This longitudinal study was designed to address four research questions and the hypothesis, that adults living in a rural community receiving primary health care and emergency services from a team that included an on-site nurse practitioner (NP) and paramedic and an off-site family physician would, over time, demonstrate evidence of improved psychosocial adjustment and less expenditure of health care resources. In Canada, there is a growing awareness and commitment to addressing the challenges of providing primary health care services in rural areas. A literature review supported the role of NPs in primary health care and a potential role for paramedics. No studies were found that evaluated the combination of NPs, paramedics and physicians as providers of primary health care. Structured questionnaires, individual and group interviews with patients, health and social service care providers and administrators and community members were used to describe and evaluate the impact of the model of care over the three years of the study. The innovative model of care resulted in decreased cost, increased access, a high level of acceptance and satisfaction and effective collaboration among care providers. Organisational structures to support the innovative model of primary health care were identified.

Original Research

A qualitative study of systemic influences on paramedic decision making: care transitions and patient safety

Rachel O'Hara¹, Maxine Johnson², A Niroshan Siriwardena³, Andrew Weyman⁴, Janette Turner⁵, Deborah Shaw⁶, Peter Mortimer⁷, Chris Newman⁸, Enid Hirst⁹, Matthew Storey¹⁰, Suzanne Mason¹¹, Tom Quinn¹² and Jane Shewan¹³

Abstract

Objectives: Paramedics routinely make critical decisions about the most appropriate care to offer in a complex system characterized by significant variation in patient case-mix, care pathways and linked services. There has been little research carried out in the ambulance service to identify areas of risk associated with decisions about patient care. The aim of this study was to explore systemic influences on decision making by paramedics relating to care transitions to identify potential risk factors.

Methods: An exploratory multi-method qualitative study was conducted in three English National Health Service (NHS) Ambulance Service Trusts, focusing on decision making by paramedic and specialist paramedic staff. Researchers observed 57 staff across 34 shifts. Ten staff completed digital diaries and three focus groups were conducted with 21 staff.

Results: Nine types of decision were identified, ranging from emergency department conveyance and specialist emergency pathways to non-conveyance. Seven overarching systemic influences and risk factors potentially influencing decision making were identified: demand; performance priorities; access to care options; risk tolerance; training and development; communication and feedback and resources.

Conclusions: Use of multiple methods provided a consistent picture of key systemic influences and potential risk factors. The study highlighted the increased complexity of paramedic decisions and multi-level system influences that may exacerbate risk. The findings have implications at the level of individual NHS Ambulance Service Trusts (e.g. ensuring an appropriately skilled workforce to manage diverse patient needs and reduce emergency department conveyance) and at

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O'Meara: Integrating a community paramedicine program
Australasian Journal of Paramedicine; 2015;12(5)

Research

Integrating a community paramedicine program with local health, aged care and social services:

An observational ethnographic study

Peter O'Meara PhD, FPA, is Professor of Rural & Regional Paramedicine¹, Michel Ruest DPA, ACP, is a senior manager and is a student, BA Health and Community Services (Candidate)^{2,3}, Angela Martin GDipN (Emerg), DipParaSci (Amb), is a paramedic and Masters (Research) student^{1,4}

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Abstract

We used an observational, ethnographic research approach to identify the nature of the relationship between public engagement and the successful integration of a community paramedicine program with local health, aged care and social services in rural Ontario, Canada. Data were collected through a combination of direct observations of practice, informal discussions, interviews and focus groups. We found evidence of public engagement during the planning and implementation stages of the program, with strong participatory processes evident. There was some evidence of a culture of inclusiveness, despite the strength of the command and control heritage in emergency health services. The community paramedicine model is well placed to facilitate greater integration between paramedic services and health, aged and social services. Public engagement incorporating both participation and inclusiveness can lead to a closer alignment and integration between paramedic services and other services. This 'grass-roots' approach to interacting with local communities has the potential to better integrate paramedic services as part of a less-fragmented system across the health, aged care and social service sectors.

Keywords:

research, rural; ethnography; health care administration; health care, interprofessional; qualitative research; health care, remote/rural

Reduction in pneumonia mortality and total childhood mortality by means of community-based intervention trial in Gadchiroli, India

ABHAY T. BANG, RANI A. BANG, O. TALE, P. SONTAKKE, J. SOLANKI, R. WARGANTWAR, P. KELZARKAR

In a community-based intervention trial to reduce childhood mortality from pneumonia the intervention area included 58 villages (6176 children aged 0-4 years) and the control area 44 villages (3947 children) in Gadchiroli, India. The interventions included mass education about childhood pneumonia and case-management of pneumonia by paramedics, village health workers, and traditional birth attendants (TBAs) who were trained to recognise childhood pneumonia and treat it with co-trimoxazole. Parents sought treatment, and coverage was 76% without active case-detection efforts. The case-fatality rate among the 612 cases treated by health workers was 0.8%, compared with 13.5% in the control area. After a year of intervention pneumonia-specific childhood mortality was significantly lower in the intervention than in the control area (8.1 vs 17.5 deaths per 1000 children under 5 years); the difference between the areas was greatest in children under 1 year. The differences in infant mortality (89 vs 121 per 1000) and total under-5 mortality (28.5 vs 40.7 per 1000) were highly significant. Mortality from other causes remained similar in the two areas but neonatal mortality due to birth injury and prematurity was significantly lower in the intervention area, presumably owing to the combination of better maternal and neonatal care by the TBAs trained in the project.

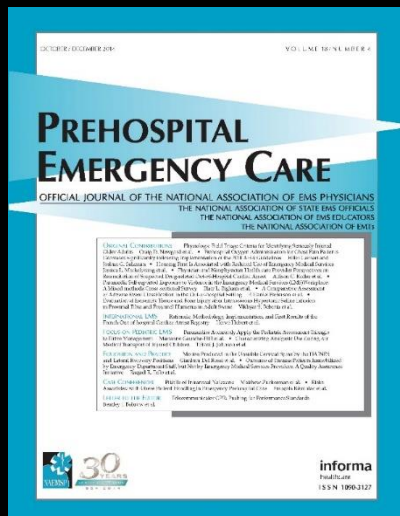
respiratory rate of more than 50 per min is a reliable criterion for diagnosis of pneumonia in a child with cough¹ and that careful observation of respiratory rate and movements is generally more reliable than auscultation with a stethoscope in assessing the severity of respiratory infection in children² suggested the possibility of training non-physicians in the case-management of childhood pneumonia in rural areas.

The technical advisory group of the WHO has lately reviewed the results of seven studies (two published^{3,4} and five unpublished⁵) which have used a case-management approach to control childhood mortality from pneumonia. They identified three types of limitations of these studies: in the absence of active case-detection of pneumonia by periodic household visits to all children by the health worker results were poor; simultaneous introduction of other interventions (control of diarrhoeal diseases, immunisation, nutritional care, treatment of malaria) made it difficult to evaluate the usefulness of the case-management approach; and though the rate of deaths from pneumonia fell, the infant mortality rate did not fall significantly or could not be measured. Thus, proof of the usefulness of case-management in reducing childhood mortality in rural populations has been lacking. Neonatal pneumonia and neonatal mortality have remained the main problems without effective solutions.

In this study we have tried to overcome most of these limitations. We studied the morbidity and mortality from acute respiratory infections in children under 5 years old in a rural area and aimed to develop a feasible and effective



Single case presentation



Prehospital Identification of Underlying Coronary Artery Disease by Community Paramedics

Martina Heinelt, Ian R. Drennan, Jinbaek Kim, Steven Lucas, Kyle Grant, Chris Spearen, Walter Tavares, Lina Al-Imari, Jane Philpott, Paul Hoogeveen & Laurie J. Morrison

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Abstract

Abstract

There is a lack of definitive evidence that preventative, in-home medical care provided by highly trained community paramedics reduces acute health care utilization and improves the overall well-being of patients suffering from chronic diseases. The Expanding Paramedicine in the Community (EPIC) trial is a randomized controlled trial designed to investigate the use of community paramedics in chronic disease management (ClinicalTrials.gov ID: NCT02034045). This case of a patient randomized to the intervention arm of the EPIC study demonstrates how the added layer of frequent patient contact by community paramedics and real-time electronic medical record (EMR) correspondence between the paramedics, physicians and other involved practitioners prevented possible life-threatening complications. The visiting community paramedic deduced the need for an electrocardiogram, which prompted the primary care physician to order a stress test revealing abnormalities and thus a coronary artery bypass graft surgery, which was performed successfully.

Evaluation of an Emergency Medical Services–Based Social Services Referral Program for Elderly Patients

Ricky Kue, MD, MPH, Edward Ramstrom, EMT-P, Stacy Weisberg, MD, MPH & Marc Restuccia, MD

Pages 273-279 | Received 25 Aug 2008, Accepted 19 Nov 2008, Published online: 13 Aug 2009

Abstract

Abstract

Objective. To describe the preliminary experience of an emergency medical services (EMS)-based follow-up program providing elderly patients access to community-based social services. **Methods:** This was a retrospective, case series report. Inclusion criteria were adults aged 60 years and older requesting EMS for fall or lift assist; against medical advice (AMA) refusal of transport for a medical complaint; any social service or home care needs; request for nonmedical transportation; multiple prior EMS visits; or cases of elder abuse or neglect. Patients were identified either by paramedics at the time of the call or an EMS physician during routine chart review of “no-transport” calls. Patients were then contacted and offered referral follow-up with a social services worker. Data were collected for age, gender, presence of established social services, referral strategy, complaint type, referral acceptance



INNOVATIVE GERIATRIC PRACTICE MODELS: PRELIMINARY DATA

Providing Acute Care at Home: Community Paramedics Enhance an Advanced Illness Management Program—Preliminary Data

Karen A. Abrashkin, MD,* Jonathan Washko, MBA,[†] Jenny Zhang, BA,* Asantewaa Poku, MPH,* Hyun Kim, ScD,[‡] and Kristofer L. Smith, MD, MPP*

Models addressing urgent clinical needs for older adults with multiple advanced chronic conditions are lacking. This observational study describes a Community Paramedicine (CP) model for treatment of acute medical conditions within an Advanced Illness Management (AIM) program, and compares its effect on emergency department (ED) use and subsequent hospitalization with that of traditional emergency medical services (EMS). Community paramedics were trained to evaluate and, with telemedicine-enhanced physician guidance, treat acute illnesses in individuals' homes. They were also able to transport to the ED if needed. The CP model was implemented between January 1, 2014, and April 30, 2015 in a suburban-urban AIM program. Participants included 1,602 individuals enrolled in the AIM program with high rates of dementia, decubitus ulcers, diabetes mellitus, congestive heart failure, and chronic obstructive pulmonary disease. Participants had a median age of 83 and an average of five activity of daily living dependencies (range 0–6). During the study period, there were 664 CP responses and 1,091 traditional EMS transports to the ED among 773 individuals. Only 22% of CP responses required transport; 78% were evaluated and treated in the home. Individuals that community paramedics transported to the ED had higher rates of hospitalization (82.2%) than those using traditional EMS (68.9%) ($P < .001$). Post-CP surveys showed that all respondents felt the program was of high quality. Results support the potential benefits of CP and invite further evaluation of this innovative care model.

Key words: Community Paramedicine; community paramedics; Mobile Integrated Healthcare; Advanced Illness Management; acute care

New models are needed to improve the quality and costs of care for older adults with multiple advanced chronic conditions. Two out of three older Americans have multiple chronic conditions, and treatment for this population accounts for 66% of the country's healthcare budget.¹ Homebound older adults are a particularly costly and vulnerable subpopulation. Constituting 5.6% of the community-dwelling Medicare population (~2 million people), they tend to be older, female, nonwhite, and less affluent than those who are not homebound, and only 11.9% receive primary care services at home.² Homebound individuals are often unable to access outpatient care and forgo needed treatment for extended periods of time. Faced with an exacerbation of a chronic illness or a new acute problem, their only option is to dial 911 and seek treatment in the emergency department (ED).³

Evidence supports an overreliance on hospital services for older adults and homebound individuals. More than one-third of Medicare beneficiaries who are evaluated and treated in the ED (without hospital admission) may be safely treated in a lower-acuity setting,⁴ and homebound individuals are significantly more likely than those who are not homebound to have been hospitalized in the last year (52.1% vs 16.2%).² Intervening in the prehospital space could result in significant cost savings—an estimated \$560 million per year for Medicare beneficiaries alone⁴—while also improving individual experience and avoiding iatrogenic harms that older adults often incur.⁵⁻⁷

Preventing hospitalization of older adults will require a multifaceted approach. Efforts to date include engaging and educating specialists and identifying important research

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Mobile Integrated Healthcare: Preliminary Experience and Impact Analysis with a Medicare Advantage Population

Daniel J. Castillo¹, J. Brent Myers¹, Jonathan Mocko¹, Eric H. Beck^{2*}

Abstract

Background: Mobile Integrated Healthcare (MIH) is a novel, patient-centered approach to population management. This concept creates a needs-matched, time appropriate assignment of one or more members of a multi-professional clinical team to care for patients on a scheduled or unscheduled basis. The selection of the site of care for scheduled interventions is driven by patient choice and, most often occurs in the patient's home; unscheduled interventions are guided by a 5-point triage system and, based on acuity, may be treated in the home, primary care office, urgent care or, rarely, in an emergency department.

Methods: An MIH team was assigned to deliver a care coordination program for a Medicare Advantage PPO (MAPPO) population (55% female, 71.2 years mean age), with risk assignment and interventions designed to affect potentially avoidable utilization of Emergency Medical Services (EMS), emergency department, and medical inpatient admissions. Patients participating in the MIH program were compared with contemporaneous, risk-matched non-participants as well as to actuarially expected cost and utilization based on historical claim experience.

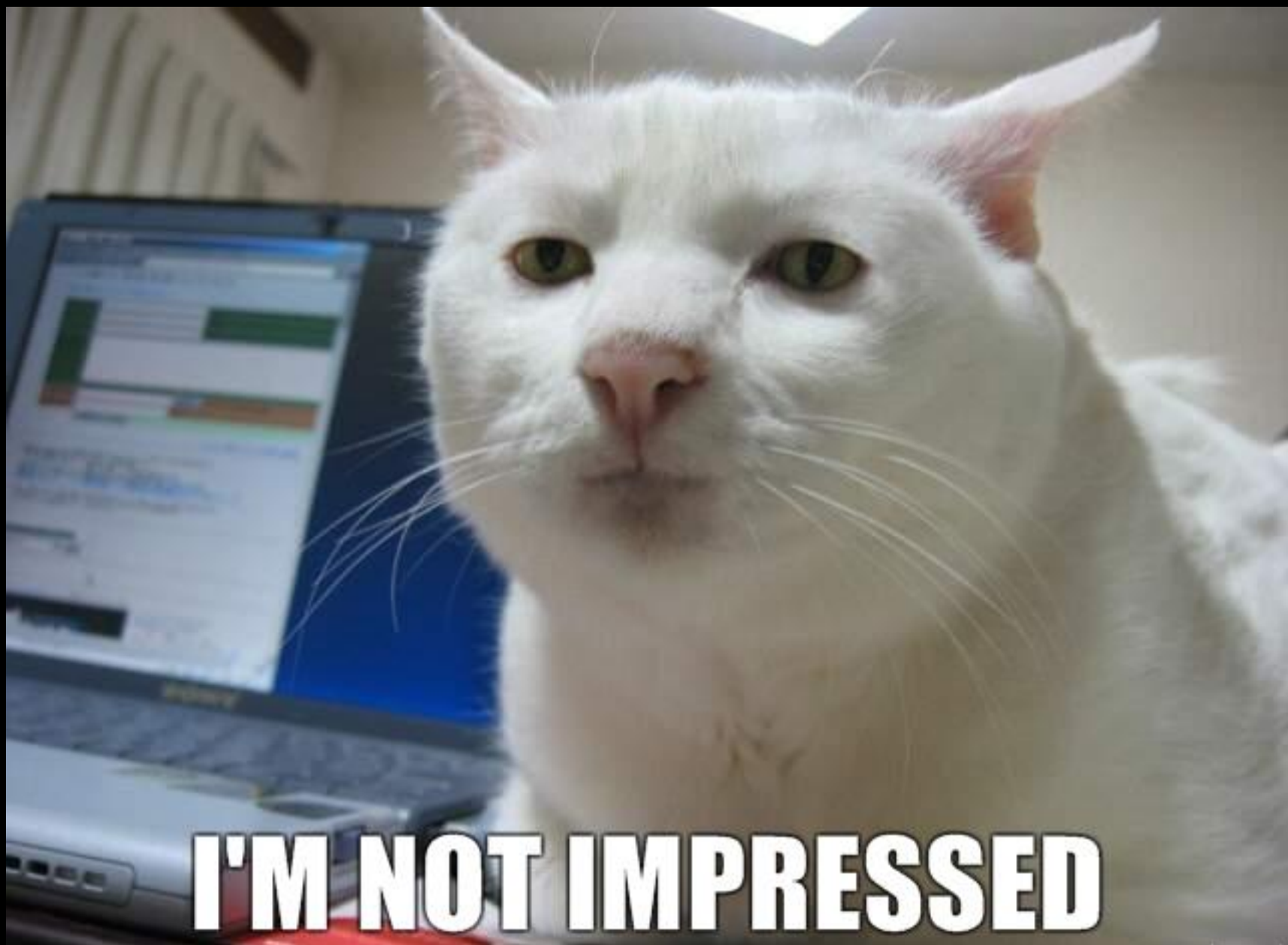
Results: All measured trends demonstrated favorable results for patients participating in the MIH program when compared against a matched cohort: 19% decrease in emergency department per member per month (PMPM) cost, 21% decrease in emergency department utilization, 37% decrease in inpatient PMPM cost, 40% decrease inpatient utilization, all measures reached statistical significance. Member experience satisfaction scores and patient activation measures also showed favorable preliminary trends.

Conclusion: This initial impact analysis of a MIH care coordination program for this MAPPO population demonstrates promising trends regarding utilization, cost, member experience and patient activation. These preliminary findings indicate both that implementation of such a program is feasible and strongly suggest meritorious impacts upon the health, experience and cost of care for the population.

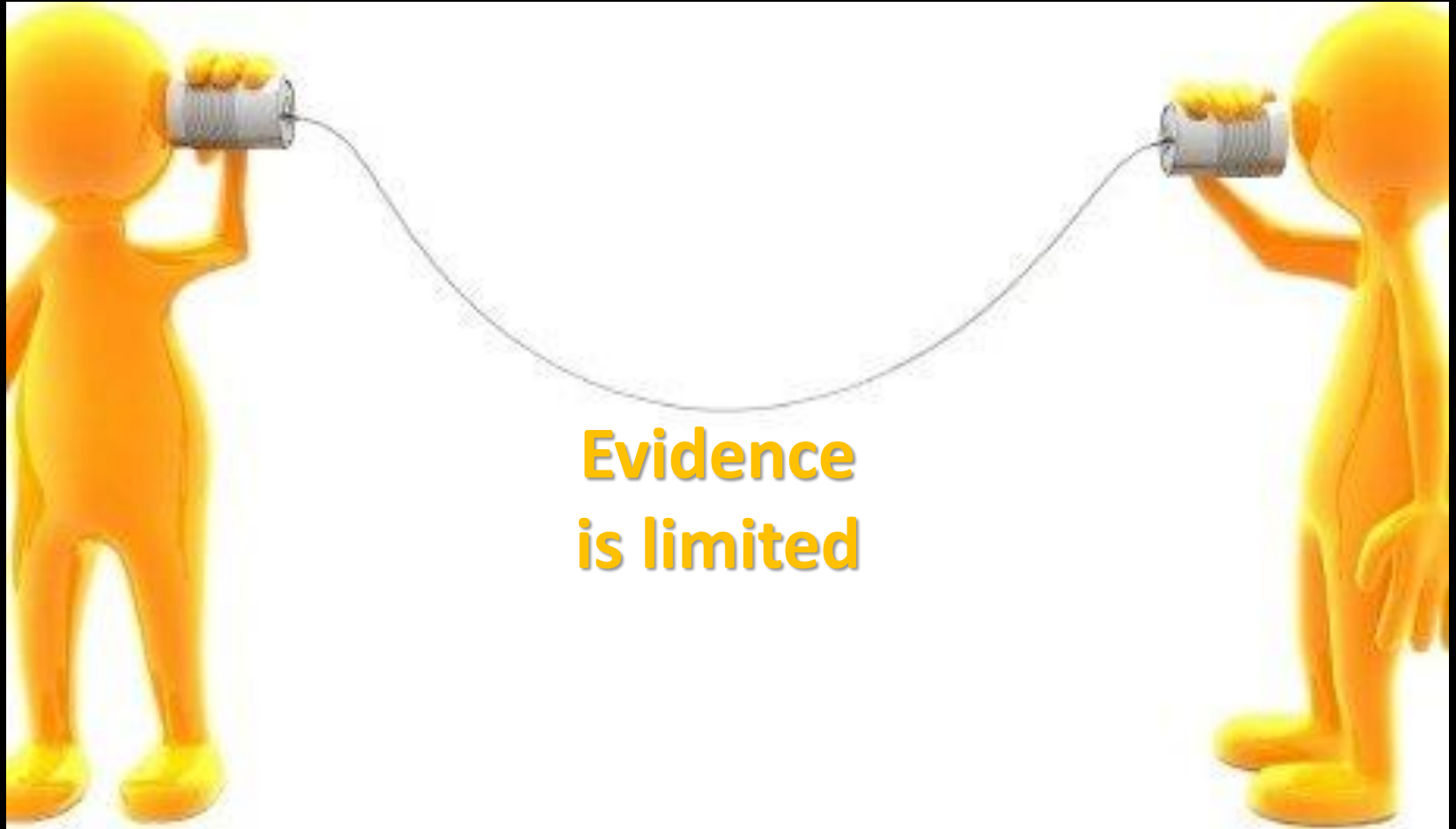
Keywords: population health, care management, community paramedic, interprofessional, value-based care, mobile integrated healthcare

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I'M NOT IMPRESSED



Don't
miss
it!

Community Paramedicine — Addressing Questions as Programs Expand

Lisa I. Iezzoni, M.D., Stephen C. Dorner, M.Sc., and Toyin Ajayi, M.B., B.S.

Growing increasingly short of breath late one night, Ms. E. called her health care provider's urgent care line, anticipating that the on-call nurse practitioner would have her transported to the emergency department (ED). Over the past 6 months, Ms. E. had made many ED visits. She is 83 years old and poor, lives alone, and has multiple health problems, including heart failure, advanced kidney disease, hepatitis C with liver cirrhosis, diabetes, and hypertension. In the ED, she generally endures long waits, must repeatedly recite her lengthy medical history, and feels vulnerable and helpless. She was therefore relieved when, instead of dialing 911, the nurse practitioner dispatched a specially trained and equipped paramedic to her home. As part of a pilot program overseen by the Massachusetts Department of Public Health, the paramedic retrieved Ms. E.'s electronic health record, performed a physical examination, and conducted blood tests while communicating with her provider's on-call physician. As instructed, the paramedic administered intravenous diuretics and ensured that Ms. E. was clinically stable before leaving her home, where her primary care team followed up with her the next morning.

The Massachusetts acute community care program is one of numerous new initiatives in the United States using emergency medical services (EMS) personnel. These mobile integrated health

care and community paramedicine programs aim to address critical problems in local delivery systems, such as insufficient primary and chronic care resources, overburdened EDs, and costly, fragmented emergency and urgent care networks.¹ Despite growing enthusiasm for these programs,² however, their performance has rarely been rigorously evaluated, and they raise important questions about training, oversight, care coordination, and value.

EMS systems were established in the United States in the 1950s and expanded, using federal funding, in the 1970s to create 911 response networks nationwide. Operating EMS systems around the clock requires trained workers with diverse skills. In 1975, the American Medical Association recognized emergency medical technicians (EMTs), paramedics, and other EMS staff as allied health workers. The federal government specifies educational standards for the various EMS occupations. As entry-level EMS providers, for example, EMTs undergo about 6 months of training and must pass state certification exams. In contrast, paramedics must have substantial prior EMT experience and then complete at least 2 years of didactic and field training before passing rigorous state licensing exams assessing knowledge and psychomotor skills.

Since the 1980s, reduced federal funding has contributed to EMS fragmentation. Local fire

departments provide roughly half of today's emergency medical services. Almost all 911 calls result in transportation to an ED because of state regulations and payment policies: insurers, including Medicare, typically reimburse EMS providers only for transporting patients. At the receiving end, many EDs face escalating demand and soaring costs, as more people seek attention for nonurgent acute and chronic conditions — in part because they lack regular sources of primary and chronic disease care. One estimate suggests that about 15% of persons transported by ambulance to EDs could safely receive care in non-urgent care settings, potentially saving the system hundreds of millions of dollars each year.³

Other countries have faced similar health care delivery challenges, and some have enlisted EMS personnel as part of their solutions. For example, in Australia and Canada, specially trained paramedics provide preventive and nonurgent primary care in rural regions, which benefits both patients and the paramedics, who can use their clinical skills to maximum advantage in regions with low emergency call volumes. In England, Wales, Canada, Australia, and New Zealand, EMS personnel provide urgent care on scene, averting unnecessary trips to the ED. The United Kingdom spent more than £4 million (\$5.7 million) investigating new approaches that would allow EMS



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under way in nearly 20 states. Of allowing EMS personnel to determine treatments and the set-

U.S. EMS systems, communities lacking primary and chronic care resources, and delivery systems with overwhelmed EDs will probably continue experimenting with new care models involving EMS personnel.

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Expanding Paramedicine in the Community (EPIC): study protocol for a randomized controlled trial

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Abstract

Background: The incidence of chronic diseases, including diabetes mellitus (DM), heart failure (HF) and chronic obstructive pulmonary disease (COPD) is on the rise. The existing health care system must evolve to meet the growing needs of patients with these chronic diseases and reduce the strain on both acute care and hospital-based health care resources. Paramedics are an allied health care resource consisting of highly-trained practitioners who are comfortable working independently and in collaboration with other resources in the out-of-hospital setting. Expanding the paramedic's scope of practice to include community-based care may decrease the utilization of acute care and hospital-based health care resources by patients with chronic disease.

Methods/Design: This will be a pragmatic, randomized controlled trial comparing a community paramedic intervention to standard of care for patients with one of three chronic diseases. The objective of the trial is to determine whether community paramedics conducting regular home visits, including health assessments and evidence-based treatments, in partnership with primary care physicians and other community based resources, will decrease the rate of hospitalization and emergency department use for patients with DM, HF and COPD. The primary outcome measure will be the rate of hospitalization at one year. Secondary outcomes will include measures of health system utilization, overall health status, and cost-effectiveness of the intervention over the same time period. Outcome measures will be assessed using both Poisson regression and negative binomial regression analyses to assess the primary outcome.

Discussion: The results of this study will be used to inform decisions around the implementation of community paramedic programs. If successful in preventing hospitalizations, it has the ability to be scaled up to other regions, both nationally and internationally. The methods described in this paper will serve as a basis for future work related to this study.

Trial registration: ClinicalTrials.gov: NCT02034045. Date: 9 January 2014.

Keywords: Randomized controlled trial, Community health services, Primary health care, Allied health personnel

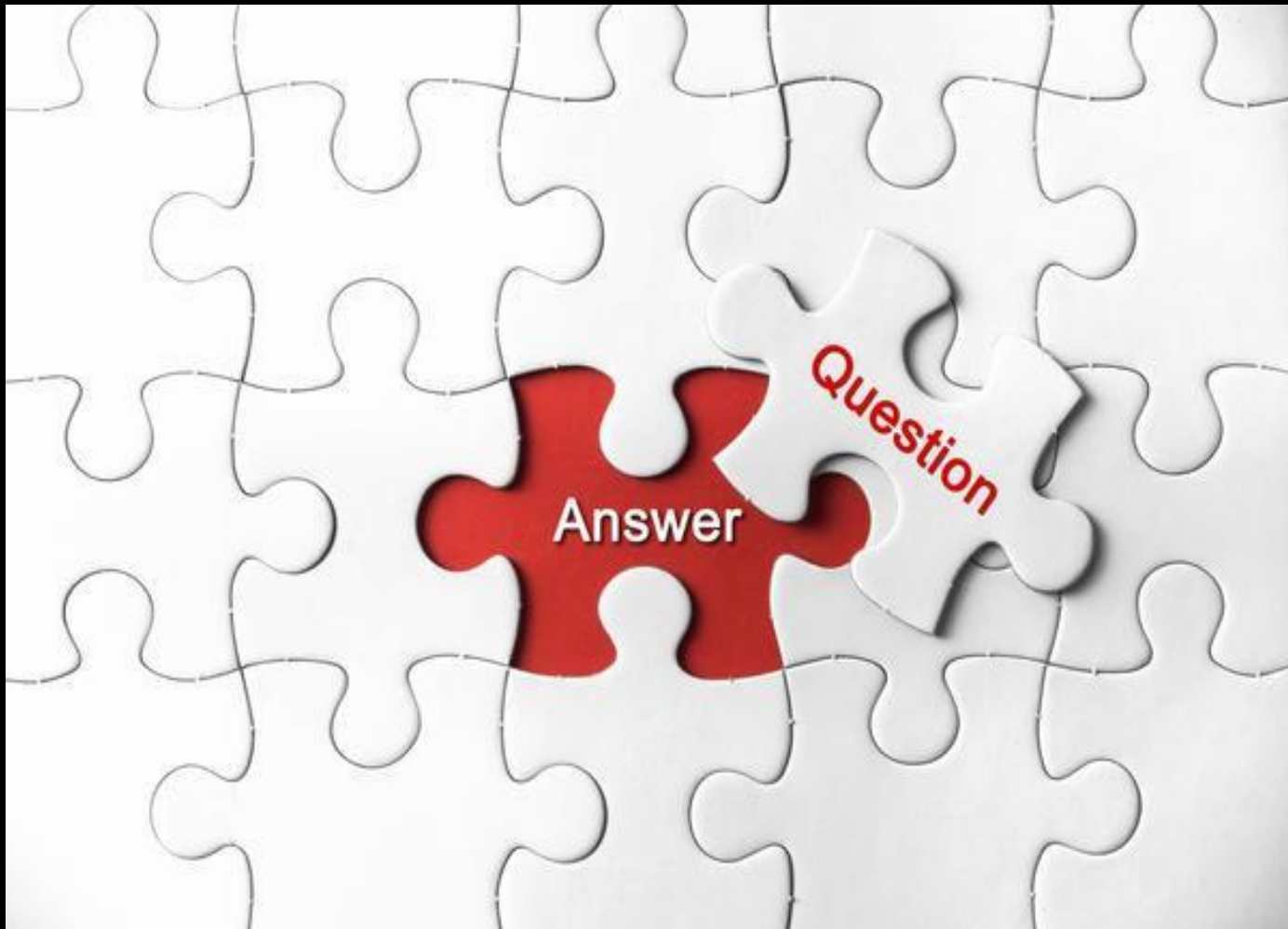


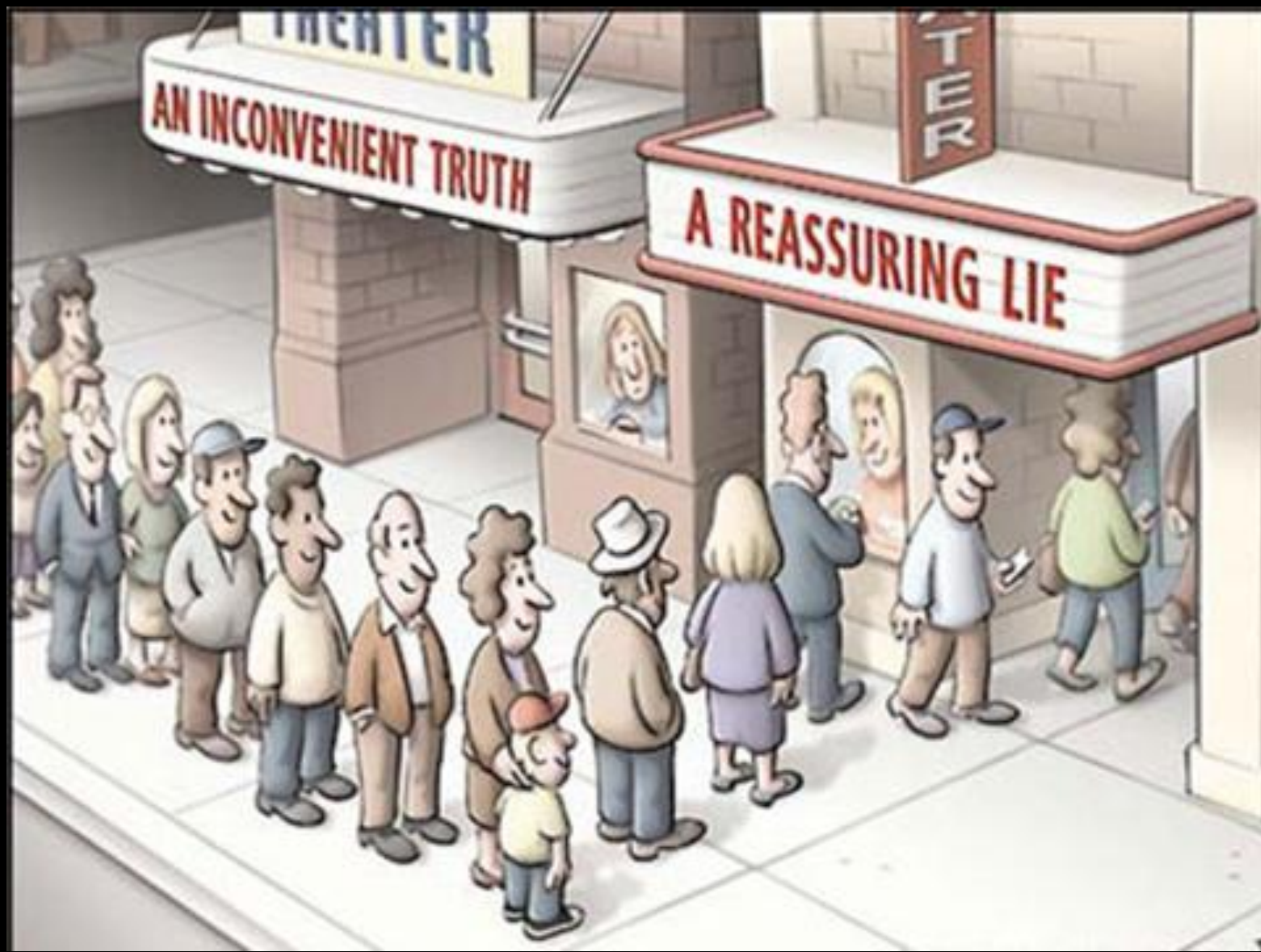






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