

Autumn 2017 - Issue 3 | Volume 14

TODAY Ambulance

The global magazine for all people involved in ambulance provision



Now going out globally to over 380,000 ambulance workers in partnership with:
IAEMSC, IAED, UNISON, ST JOHN NEW ZEALAND, GVK EMRI (INDIA),
PARAMEDIC ASSOCIATION OF CANADA, the Scandinavian Ambulance Association, Africa & MDA Israel



IAED
International Academy of Emergency Dispatch

UNISON

JERRY OVERTON SPECIAL EDITION

It's been a Wonderful EMS Life!

Ambulance Today in conversation with
Leading EMS System Change Specialist
Jerry Overton on over four decades spent
improving ambulance care globally

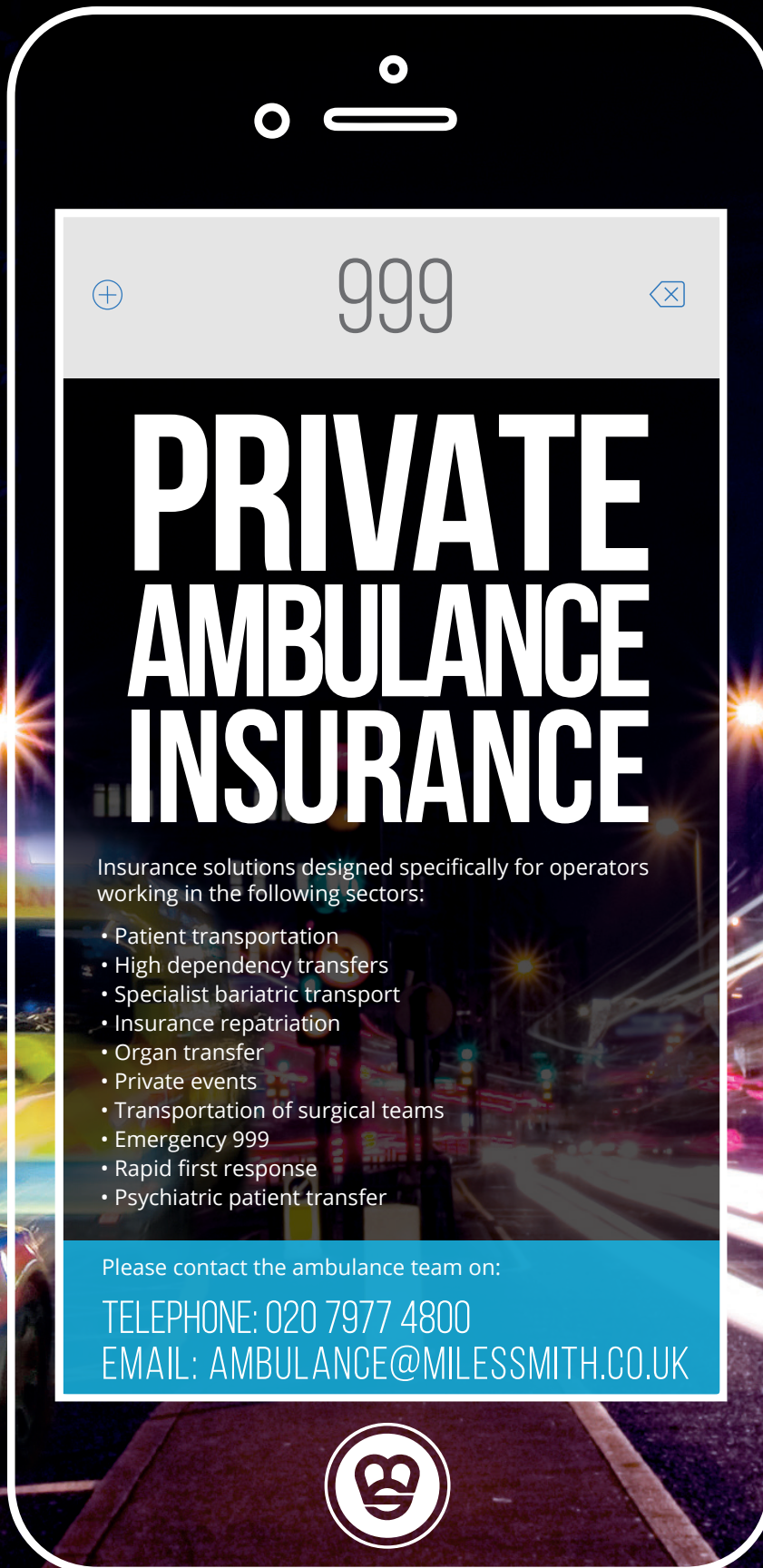
This issue is supported by
stryker

TO RECEIVE YOUR OWN PRINTED COPY OF AMBULANCE TODAY
EMAIL: SUBSCRIPTIONS@AMBULANCETODAY.CO.UK

Price this
edition
£14.00 GBP



MILES SMITH INSURANCE SOLUTIONS



PRIVATE AMBULANCE INSURANCE

Insurance solutions designed specifically for operators working in the following sectors:

- Patient transportation
- High dependency transfers
- Specialist bariatric transport
- Insurance repatriation
- Organ transfer
- Private events
- Transportation of surgical teams
- Emergency 999
- Rapid first response
- Psychiatric patient transfer

Please contact the ambulance team on:

TELEPHONE: 020 7977 4800

EMAIL: AMBULANCE@MILESSMITH.CO.UK



WWW.MSIS.CO.UK



Declan Heneghan
Editor, Ambulance Today

Produced in partnership with

stryker



Jerry's Vision is the Sharing of EMS Expertise Globally

Our lead feature item in this edition is an interview that is so long overdue I feel slightly embarrassed to include it now. Its inclusion at this late date marks me out as a 'Can't see the woods for the trees' journalist with a knack for being in the right place at the right time... but looking the wrong way!

If I'd been in Dealey Plaza, Texas on November 22, 1963, you can bet that while all the smart reporters were hot-footing it to Parkland Memorial Hospital to check on the health of JFK, I'd be the idiot huffing and puffing his way up to the sixth floor of the Texas School Book Depository, apologising to the nice young man I bumped into who was heading quickly downstairs with what looked like a smoking fishing rod wrapped in brown paper slung over his shoulder.

Editing this magazine has brought me into contact with some very talented and very dedicated ambulance people from around the world. Which is why I feel more than a little slow-witted that it has taken me until now to provide you with a special insight into the ambulance life and remarkable career of a truly exceptional ambulance person. His name is Jerry Overton and he writes for this publication.

Jerry is President of one of *Ambulance Today's* leading editorial partners, the International Academies of Emergency Dispatch (IAED), but he's also recognised as an exceptional architect of ambulance system development. With a passport that looks like a global A-Z, he's travelled from Amsterdam to Afghanistan, Addis Ababa, Abu Dhabi and Arizona and back again; and from Zanaga to Zaria to ZaKouma, Zagreb to Zanzibar. Jerry's travelled so far in the cause of EMS improvement that his passport alone could win an international scrabble contest!

In the process of delivering an astonishing volume of ambulance improvement projects, he's spent so much time in the air that Canadian geese fly close to his plane just to say 'Hi'; it's rumoured he exists on a diet of aeroplane meals and roasted peanuts; one colleague confided to me that he genuinely believes every bedroom has a Gideon's bible in the bedside cabinet; another shared in whispers that he's incapable of standing close to a security guard without instinctively taking off his belt and shoes and taking his laptop out of its case. That's how much travelling Jerry does to help EMS communities across the world improve ambulance care!

Regular readers will already be familiar with IAED. They're a globally-respected not-for-profit EMS organisation who've been helping improve dispatch protocols for emergency services worldwide for over four decades. Sharp-eyed readers will quickly make the link between Jerry Overton, our very popular columnist who regularly commentates on American EMS and the tall, suave, silver-haired Mark Twain-look-a-like who is seen giving out awards to deserving ambulance staff from around the world in IAED's own regular column in this publication. For, yes, they are indeed one and the same person!

Now, I don't want to spoil this special interview for you because I'm the kind of person who finds film trailers that tell you the whole story incredibly irritating - but here's the thing. If you drew up a list of the top 20 ambulance people who influence ambulance care internationally you'd probably find that nearly every one of them has worked with Jerry at one time or another; or informally sought his advice; or asked him to lead on or contribute ideas to a vital ambulance project. At the very least, they'll have been in a meeting with him in which he contributed a clear-eyed solution to a topic that later helped improve some aspect of ambulance care - no matter how seemingly small. And each and every one of them would, I am confident, put Jerry's name somewhere on that list - in many cases right at the top. Yet Jerry has done all of this with the utmost modesty, an unbelievable heap of hard work and a total lack of ego. You see, Jerry doesn't do 'ego,' he only does 'EMS'. He prefers listening with respectful interest while offering up the occasional dry one-liner. Which, by the way, may be the key to his success. Jerry Overton is the one person I know who has helped ambulance folk in every world region enhance ambulance care; there's simply not a continent where he hasn't made a valuable contribution - and he hasn't done any of it for fame or fortune. He's done it simply because he eats, sleeps and breathes better EMS. He can't help himself.

But I will give you just one tantalising nugget from the Jerry interview and it's this.

After four decades of working to improve ambulance systems worldwide, the one thing that Jerry believes passionately in is that countries and regions fortunate enough to have high levels of resources and expertise in ambulance care should share their knowledge with ambulance services struggling to develop ambulance systems in those parts of the world afflicted by poverty, war or lack of government. Central to his vision is the creation of a global College of Paramedics. Read the interview and learn more.

And remember that here at *Ambulance Today* it's also our mission to bring all ambulance people from across the globe into closer contact with each other. Inside this edition you'll find reports and features from the USA, Canada, the Middle East, India, Africa, Australasia and Europe; and by the end of the year you'll also find detailed reports from South America too. China will follow!

That's because *Ambulance Today* shares the great Jerry Overton's vision that everybody involved in ambulance care globally with plentiful resources should share some of them with those regions struggling to provide their communities with high quality and sustainable ambulance care. So, read the Jerry interview, then read the report from our Africa Desk by Mike Emmerich, then ask yourself if you agree with him and us. I really, really hope you will.

Declan Heneghan
Editor, Ambulance Today

State-of-the-art Ambulance

HGV Driver Extraction using the iNX
independent leg control



INTEGRATED PATIENT TRANSPORT SYSTEM



iNX Integrated Patient Transport & Loading System
Ambulances no longer need expensive tail-lifts or ramps to load
and no other system provides so many multiple clinical benefits



INTRAXX Integrated Vehicle Component System
Provides **CEN compliant safety** for paramedics and patients, and
efficiency savings that reduces operating costs



ACETECH Integrated Vehicle Intelligence System
Control your **fleet operations** with real-time information on
operational performance, driving behaviours, response times and more

SEE FERNO'S AWARD WINNING FLEET TRANSFORMATIONS

At The Emergency Services Show – find us in the great outdoors exhibit area in the sunshine!

**£18.7
MILLION**
NET SAVING OVER
FLEET ASSET LIFE

**2.9
YEARS
R.O.I.**

**2.1
MILLION KG
CO2 REDUCTION**

**43.9
THOUSAND
UNIT HOURS
GIVEN BACK**

**£2.2
MILLION**
OPERATING COST
SAVINGS A YEAR
FUEL / MAINTENANCE / MAKE READY

BASED ON A TYPICAL FLEET OF 300 A&E VEHICLES IN AN ORGANISATION WITH 2,500 FRONTLINE STAFF

call +44 (0) 1274 851 999 email sales@ferno.co.uk www ferno.co.uk

FERNO®

CONTENTS

This Issue is
Supported by:

stryker

VISIT OUR AMBULANCE TODAY WEBSITE AND REGISTER FOR YOUR FREE
DIGITAL COPY AT: www.ambulancetoday.co.uk

INSIDE YOUR AUTUMN 2017 EDITION:

P9. It's Been a Wonderful EMS life

Editor Dec Heneghan in conversation with global EMS expert and IAED President, Jerry Overton, on his amazing four decades spent improving ambulance care world-wide.



P49. Pentrox®▼ (methoxyflurane) in the Pre-Hospital Arena

Dr Davy Green, Antrim Emergency Medicine Consultant, talks us through the advantages of using the analgesic agent, Pentrox®▼.



P24. LAS: Everything we do Saves Lives

London Ambulance Service's Deputy Director of Fleet and Logistics, Justin Wand, on how his service is putting the patient at the centre of their fleet and logistics system design.



P27. Carbon Dioxide - It's not just a Gas

In the second of three articles, Martin Betzer of Falck Denmark, explains how end tidal carbon dioxide monitoring can guide you when resuscitating patients.



P31. AMZ:AMaZing Engineering you can Trust

Assistant Editor, Joe Smith, visited AMZ, in Kutno, Poland to see the amazing engineering behind one of Europe's most impressive ambulances.



P37. From the Africa Desk: Aeromedical Evacuation in Africa

Our Africa Editor, Michael Emmerich, looks at the challenges of evacuating critically injured patients across the African Continent.



P41. Paramedicine Across Canada Expo - (PACE) 2017

Quebec City hosted the PACE2017 two-day conference.

P43. MDA Israel: Vehicle-ramming attacks

Vehicle-ramming attacks have become a familiar sight on world streets over the past few years. Magen David Adom EMTs and Paramedics have become experienced at treating the victims of these horrifying incidents.



P52. AVAYA - Digital Transformation in Emergency Services

Markus Bornheim, Avaya's Consulting Sales Engineer for Public Safety and Emergency Services in the EU and Vice Chair of the European Emergency Number Association (EENA) Technical Committee, outlines the four areas of digital transformation that will improve public access to emergency services.



P59. Sepsis: Providing excellent and appropriate care

Advanced Paramedic, Stuart Lee, of North West Ambulance Service reports on their strategy to improve how Sepsis is defined and treated.



P61. Ambition: The EPRR EXPO – Making our world a more secure place

With the issue of national security and counter terrorism at the top of government agendas, book your stand now for Ambition in March 2018.

Also in this edition...

UNISON update: The same pot of jam

Letter from Amsterdam: 'Thank you for your good care'

IAEMSC: Competence and the EMS Dynamic

IAED: Three's a crowd... Unless they're a team!

GVK EMRI: Tackling neonatal mortality in India

TASC tackles stress-related illness with Zeal!

Out & About

The latest EMS news from around the world

Products & Suppliers News

The latest in new products, services & technology

Give us your feedback on this edition by emailing to: editor@ambulancetoday.co.uk

EDITOR: Declan Heneghan email: editor@ambulancetoday.co.uk

CORRESPONDENCE: All correspondence should be sent to: The Editor, Ambulance Today, 41 Canning Street, Liverpool L8 7NN **ASSISTANT-EDITOR:** Joseph Smith

FOR EDITORIAL CALL: +44 (0)151 708 8864 **FOR ADVERTISING ENQUIRIES CALL:** Advertising Sales Manager: Paul Ellis: +44 (0)151 703 0598 **OR:** +44 (0)7980 539 481

DESIGN & Production: LI Media email: LImedia@yahoo.co.uk

COPYRIGHT: All materials reproduced within are the copyright of Ambulance Today. Permission for reproduction of any images or text, in full or in part, should be sought from the Editor.

PUBLISHER'S STATEMENT: Ambulance Today magazine is published by Ambulance Today Ltd, 41 Canning Street, Liverpool L8 7NN. The views and opinions expressed in this issue are not necessarily those of our Editor or Ambulance Today. No responsibility is accepted for omissions or errors. Every effort is made to ensure accuracy at all times. Advertisements placed in this publication marked "CRB Registered" with the organisation's "CRB Registration No." means that the Organisation/Company meets with the requirements in respect of exempted questions under the Rehabilitation of Offenders Act 1974. All applicants offered employment will be subject to a Criminal Record Check from the Criminal Records Bureau before appointment is confirmed. This will include details of cautions, reprimands or final warnings, as well as convictions and information held by the Department of Health and Education and Employment

ESSENTIAL COVER IF YOU WORK IN HEALTHCARE

From
£1.30
a month

Join UNISON now.

Call free on **0800 028 0156** or visit **joinunison.org**

Worried about your job in public services? With cuts, redundancies, restructuring and outsourcing, now is the time to join UNISON.

EVERY member receives our full range of benefits and services, including:

- advice, support and help when you need it at work
- helpline open until midnight Monday to Friday and 4pm on Saturday
- legal help for you at work and your family at home
- financial assistance and debt advice in times of need
- accident and injury compensation for you and your family even when you're not at work
- a wide range of exclusive member discounts – including money off cars and holidays.

Annual salary	Monthly cost
Up to £2,000	£1.30
£2,001-£5,000	£3.50
£5,001-£8,000	£5.30
£8,001-£11,000	£6.60
£11,001-£14,000	£7.85
£14,001-£17,000	£9.70
£17,001-£20,000	£11.50
£20,001-£25,000	£14.00
£25,001-£30,000	£17.25
£30,001-£35,000	£20.30
over £35,000	£22.50

Northern Ireland membership starts from £1.22 a month.

Before you get to work, get essential cover.


UNISON
the public service union

The same pot of jam

In July this year, the government announced changes to the ambulance service standards under the Ambulance Response Programme, or ARP for short. UNISON supports the changes to the way ambulance services handle calls and decide whether to send an ambulance, but we also need to ensure the government doesn't see this as a panacea for the pressures the ambulance services are facing. ARP is like a new and much more efficient knife to spread the same pot of jam across an ever-increasing-sized piece of toast.

**By Alan Lofthouse
National
Ambulance
Officer, UNISON**



All in all, the changes are very reasonable as they give ambulance services a bit more time to assess calls before allocating a suitable response. An important change as we have for many years reported the frustration of staff who are activated on a call then stood down and reactivated. It's frustrating for dispatchers who know they have limited resources to send, especially when calls start to stack. We have also raised the risks facing staff responding to calls where details are unknown, sometimes getting to the address before the phone is answered and faced with challenging and sometimes violent incidents.

Driving on blue lights is risky. NHS ambulance staff are well-trained to deal with changing traffic and weather conditions but in the event of a cardiac arrest every second literally counts. But racing across a city only to find someone who could have called their GP or visited a pharmacy is not only frustrating, it is also dangerous to the crews and the public. The changes should reduce these unnecessary blue light journeys.

We also support the change to the culture of "clock-stopping" and welcome the end of these practices. For a long time now we have heard from ambulance staff sent to

patients on a fast response vehicle only to sit with the patient for up to 2 hours or more, sometimes simply feeling frustrated but at worse watching their patient deteriorate and become a 'time-critical' whilst waiting for backup. So now the clock will only stop when the most appropriate response arrives on scene. To implement this change will take time. Some ambulance services have geared up for a "front-loaded" model, preferring fast response cars to double-crewed ambulances. It will take some time to replace the fleet and change the operating model.

The intention is to reduce incidents where frail and elderly patients wait for five or six hours for an ambulance and to try to reduce the difference between rural and urban responses. However, under the new response targets, elderly fallers will still have to wait between 2 and 3 hours for a response, leaving many with long-term problems from lying on cold, hard floors as there are more "life-threatening" calls to respond to and a lack of available ambulances.

Moving to a more clinically-focused and less time-based ambulance model is what staff want. Time is of course important in a number of cases, such as cardiac arrest, but these only account for a small number of incidents. We wait to see what the updated clinical indicators will be but the evidence already shows that stroke and MI patients will get a better outcome from the changes.

There are a couple of issues which we need to bear in mind following these

changes. Let's not forget the amazing staff in the control rooms/operation centres/clinical hubs who take the calls and dispatch the right resource. These staff are often forgotten and hidden from sight but play an increasingly important role in initial assessment and decision-making. We need to ensure they remain visible and receive the right training to help them meet the new requirements under ARP.

Alongside this, there needs to be a cultural shift in the ambulance service, away from performance management to clinical support. Ambulance services have become very performance-focused and there is no indication that this will come to an end through ARP. However, we need to keep the focus on delivering the right response to the patient and keeping staff happy and healthy at work.

Let's not get complacent though; The National Audit Office report into ambulance services in January 2017 highlighted that demand increased over 6 years by around 30% whereas funding only increased by around 16%. This needs to be addressed by government, especially given their intentions to use the ambulance service more and more as a provider of unscheduled urgent and emergency care. There is a slight efficiency gain made through the changes to ambulance services but this will not create the slack in the system needed to reverse the retention problems facing ambulance services. It will help as staff should be sent to more appropriate calls but if they are still regularly queuing for hours outside A&E departments, finishing their shifts 2 hours late and working 14 hours, sometimes with only one meal break (if they are lucky) then it won't be enough to stop the exodus of staff.

I congratulate the courage and conviction of those bringing in the changes. UNISON will continue to work nationally and locally to ensure emerging issues are dealt with and highlighted to employers and NHS organisations. These changes however cannot and should not substitute investment in ambulance services and skills and training of staff. It will take investment for ambulance services to retain their most valuable assets – their staff.



Alan welcomes feedback from ambulance staff and can be contacted at:

Email:
a.lofthouse@unison.co.uk

Facebook:
[Facebook.com/unisonambulance](https://www.facebook.com/unisonambulance)

Twitter:
[Twitter.com/UNISONAmbulance](https://twitter.com/UNISONAmbulance)

UNISON Ambulance - there when you need us

New, used & remounted **Ambulances in stock** for short or long **lease & purchase**

DLL offers rental, lease and sale of a range of new, used, refurbished and remounted emergency service vehicles.

DLL have many years of experience as a leading finance partner in the supply of ambulances and other specialist vehicles to both public and private organisations.

Please contact us today so that we can help fulfil your requirements and tailor a rental solution that suits your needs. We constantly have new stock arriving so get in touch today.

Visit us at
The Emergency Services Show
20-21st September
Stand H71



financial solutions
partner

Contact us

E: remarketing.uk@dllgroup.com

T: +44 7500 068 055

See what counts.



It's a Wonderful EMS Life!

Jerry Overton is viewed by many world EMS and healthcare leaders as one of the most influential and productive individuals currently working to improve ambulance systems globally. Also a popular columnist with Ambulance Today, Jerry travels annually in excess of 200,000 air miles, advising governments, ambulance providers and NGO's on every continent on how to improve their ambulance systems. As the global face of the International Academies of Emergency Dispatch (IAED) - the world leader on emergency dispatch protocols – he has played a leading role over four decades in helping transform ambulance care in every single world region.

Ambulance Today, editor, Dec Heneghan, realized that it was time to give his globe-trotting friend a good grilling and get the long-overdue inside track on the intriguing life and career of one of the world's most visionary and influential ambulance leaders of recent decades. As you'll find out below, all of Jerry's hard work really has led to 'a Wonderful EMS Life!'

Dec Heneghan: Jerry, your early studies as a young man focused on the arts and humanities - you studied Liberal Arts and Sociology and Public Administration. You could say you were part of the 'Flower-Power' generation, but then your first job was with the very corporate Sears Roebuck - the famous retail company - which you joined as a young graduate.

Jerry Overton: Yes. Probably my first real job after college was working with a county government in Missouri, because there was a change in the structure of that county's system and a chance to make a difference.

Dec Heneghan: Was a career in ambulance always on your radar?

Jerry Overton: In the late '60s, early '70s, where you made reference to 'flower-power', it really wasn't 'flower-power' that got me involved - it was activism. During that time in the USA, the Vietnam War was going on, the Civil Rights Movement was going on, and that was why I became involved in the Liberal Arts, to be an activist - not to be a hippie. I was interested in change and people, and in gaining equality for all people. That's why I obtained a

degree in sociology. My senior project in sociology was going to the housing projects in Kansas City, Missouri and figuring out how we could change housing to make it better for the lower income population. I was 20 then, but my interest in EMS goes back further than that. Our neighbor was the owner of an ambulance company in Independence, Missouri and he would bring home ambulances at night because, in the old days, that's how they did it. So, I got to see these old Cadillacs, old van ambulances, and I asked him: "Hey, can I ride out some night and see what this is about?" This is when I was about 18 years old. So that's when I went on my first ambulance call. I got hooked on EMS at an early age because of my neighbour and, being an activist on campus, I was interested in change and helping people... and the rest, as they say, is history.

Dec Heneghan: During that period, did you learn any basic first aid skills?

Jerry Overton: Basic first aid then was basic, that's probably a good way of putting it. I did take basic first aid, and I had First Aid when I was a Boy Scout, and then Advanced First Aid. There wasn't much back then in that era that you actually did for

people, besides taking them to the hospital and hoping for the best. Then I went into local government. Interestingly, one of the things that attracted me to working with the County Legislature in Jackson County is that the chair of the County Legislature was a doctor. Even though he was an OB-GYN, he knew a doctor who had had a heart attack in a neighbouring county. One of his platforms or priorities was to try and change the ambulance service because this doctor almost died because there was no care given. That attracted me to him because, I was not only in local government, but was looking at how do we change the ambulance service? I guess there's a common theme now. I was interested in questions like: How do you change an ambulance service? Just how do you improve a whole EMS system?

Dec Heneghan: That makes sense because the other thing I picked up on is that you made quite an early move from working in local government to actually coordinating the EMS project for the whole Kansas City region. You must have only been about 24, at the time.

Jerry Overton: Yes, I was pretty young. One of the priorities of the county

government was getting grants to try and formulate an EMS system. The grant came through. That was at the same time MARCER was born [a regional council of government]. MARCER asked me to join their staff because during my time with the county government. I went through my first EMT course. So, when MARCER was formed, I was at least an EMT, I had a Bachelor's degree in sociology, I was working my Master's degree in Public Administration. So it was a natural fit to become part of the regional process of putting together a regional EMS system, or at least a consortium. It really wasn't a system - I guess it was more of a coordinated group of providers. Actually, it was 20 different counties. They were counties coming together to try and develop mutual aid pacts, develop a minimum level of care and some standardised equipment. I was involved very early on in this development.

Dec Heneghan: What kind of EMS was it? Was it like EMS in Canada during that period, you know, with lots of funeral parlours and cab companies delivering the services?



Jerry with a rescued barn owl

Jerry Overton: Oh yes, it was very much along those lines. I mean, I can remember going on a call in Kansas City, Missouri, or rather not going on a call in Kansas City, Missouri, when there were private ambulances there, and the call came in for a heart attack - which was then the term for cardiac arrest. A public dispatcher tried to dispatch the ambulance I was riding on, and the private dispatcher wouldn't let it go because of the fact that there was a dead body holding that needed to go to a funeral home, and the private dispatcher knew that they would get paid for transporting the dead body and they would not get paid for the cardiac arrest. That was about 1975.



Jerry during his time as CEO of Richmond Ambulance Authority

Dec Heneghan: So, what were you doing on the ambulance? If you're coordinating them all, how could that happen?

Jerry Overton: At that point in time, mine was only a coordinating role. That's when I made the decision to go from coordinating to being administrative. I mean... that situation was just absolutely unbelievable... unbelievable! So, that's when I made the decision - I really just couldn't tolerate that anymore, and I knew that I needed to get really, really active because if I was going to influence any sort of change it wasn't going to happen if I stayed as a coordinator.

Dec Heneghan: Was that like the moment you thought, "You know what? I can really change things?"

Jerry Overton: Right.

Dec Heneghan: So your thinking was: "If the right person speaks to the right people... maybe they can put the right system into place."

Jerry Overton: You know, it was a situation where it was so bad that it made it relatively easy to change, because you could document how bad it was. That was the early days of MARCER.

Dec Heneghan: So you went from MARCER after three years to becoming the CEO of RAA, which was the Richmond Ambulance Authority, which was brand new? I speculated that you must have actually played a role in setting it up from nothing. Is that the case?

Jerry Overton: Before that, though, I became the assistant director of Kansas City. Then I became the director of Kansas City so I was in charge of the EMS system. I was about 38. I had the good fortune to work with 'the' pre-eminent EMS consultant, Jack Stout. Jack is the one who invented the concept of Unit Hour Utilisation, System Status Management. Jack was my mentor.

Dec Heneghan: Was he a doctor or a paramedic?

Jerry Overton: He was an economist and an EMS consultant and his concepts are still in use today. When we talk about Unit Hour Utilisation, saving unit hours - you know what we've talked about so often in the past - the ambulance coverage problems and how many unit hours they cost. Well it was Jack's concept of unit hours that you were talking about.

Dec Heneghan: I remember you telling me many years ago, about the way you grew Richmond; the city was in upheaval, a lot of crime problems, a lot of murders... I recall you telling me that, at that point, the EMS system simply couldn't cope with the demand, and if I remember correctly, that in fact, the paramedics were quite afraid to respond to calls because it was so dangerous. Is that right?

Jerry Overton: I wouldn't say the paramedics were ever afraid to respond to calls. What I did say was that when I went to Richmond, there were parts of Richmond that were not covered by an ambulance service because of how dangerous it was. The previous ambulance service was private and they simply wouldn't go into certain areas of Richmond because there were a number of shootings. So when Richmond started this new strategy, we had great support from all areas. Number one was the police department, but more importantly, number two was from the neighbourhoods. They understood that, if they were going to get an ambulance service, they needed to work with us and protect us. It was hands-off, informal and unofficial. When Richmond Ambulance Authority was launched the message quickly went out that you don't mess with them.

Dec Heneghan: So, basically, based on the work you'd done in Kansas City, you were drafted in to assemble the whole thing in Richmond, recruit the team, recruit the staff and make it happen?



Jerry swearing in a new recruit

Jerry Overton: I took the concept that we implemented in Kansas City to Richmond, and I had two things - I had two great Medical Directors that were part of the team and I had a great staff. The paramedics in Richmond were great. We essentially hired a lot of the paramedics. The thing was, the paramedics wanted to do a good job. I mean, even like today, paramedics just want to do a good job... they want to help people.

Dec Heneghan: What was the population of Richmond, do you remember?

Jerry Overton: About 200,000.

Dec Heneghan: So, actually, for a very busy place, a starting staff of 50 or 70... there's a lot of pressure on everyone.

Jerry Overton: Absolutely a lot of pressure on everyone. It was very busy.

Dec Heneghan: What were you delivering at first? Was it a standard ambulance service similar to other counties and other states? Or was it already unique?

Jerry Overton: We replaced a very complacent private ambulance service with a high-performance EMS.

Dec Heneghan: How many other states, at that point, had come up with the concept of saying: "Look, we'll run it ourselves and it won't be for-profit, it'll be simply to deliver the needed service?"

Jerry Overton: States then are like states today... Ambulance services are incredibly fragmented. It's almost city-by-city or county-by-county. There was probably just a handful of high-performance EMS organisations across the United States.



Dec Heneghan: How long did it take to actually see and really make a change in Richmond? Were people in the ambulance community going: "Wow, look at what they're doing in Richmond." How long did that take? How many years?

Jerry Overton: It wasn't a matter of years, it was a matter of months because the situation was so bad before. If you're not getting an ambulance in your neighbourhood, and overnight you're getting an ambulance in your neighbourhood...

Dec Heneghan: ...You go, "Wow!"

Jerry Overton: Yes, that's exactly right. My commitment to the citizens of Richmond was that we were going to serve every patient, every time. Period. The end. And we did! Before, the private ambulance service had no performance parameters. The night we changed, we were doing 8 minutes 59 seconds or less 90% of the time on life-threatening calls.

Dec Heneghan: The original staff, were they highly clinically-trained or were they more or less dedicated volunteers learning as they went along?

Jerry Overton: They were clinically trained. I mean, really, the sad situation here was you had really good paramedics who were out there not using their skills because, again, the priority of the private ambulance was for-profit and not emergency calls, not serving neighbourhoods and not serving

911 calls. When that system changed and the emphasis was on 911 calls, on high acuity patients, the paramedics were actually more motivated because of the fact they could actually use their skills.

Dec Heneghan: How did the paramedics feel about you as a very new boss, who actually wasn't a paramedic by training?

Jerry Overton: Well, I'm a pretty hands-off boss. Plus, I don't like the term 'boss.' And the other part of it is that I went out and rode with my crews; I went out and made calls. I didn't try to treat patients, but they knew I was interested in letting them do their job.

Dec Heneghan: So you went on lots of ride-alongs?

Jerry Overton: My motto always is and was with them: "When I'm in my office, I'm in charge. The ambulance is your office, so you're in charge. When I'm out in the field, you're in charge of me. I'm not in charge of you." That was my motto then, it would be my motto now. The paramedic is in charge of me, and they knew that. They knew that whatever happened in the street, they might be complimented but they were never going to be criticised for it. Not ever. That worked out really well.

Dec Heneghan: Did you find from very early on that you were building up a very strong team spirit? Did they realise very early on that what you were doing selectively was different from everybody else?

Jerry Overton: Well, it was a team... it has to be a team. Whether it's a team out on the street or at 2 o'clock in the morning going into a dispatch centre, putting my feet up on the desk and just shooting the breeze with the dispatchers, it's a team. You can't do this by yourself, and that is my philosophy.



Jerry in Bosnia during the Bosnian war

THE ALL-NEW ZOLL AED 3™

Easy to use. Easy to own. Easy to maintain.



Easy to use with improved Real CPR Help®, clear audio prompts, and full-colour rescue images that together help you deliver the most effective rescue.

Easy to own because it has the world's first five-year universal electrode pads and a battery that lasts up to five years, keeping the cost to own surprisingly low.

Easy to maintain because Programme Management Onboard™ notifies you immediately after any failed self-test and provides alerts as the battery nears the end of its useful life. Worry-free readiness with no maintenance inspections required.

For more information,
visit www.zoll.com/aed3.

ZOLL®

Dec Heneghan: Can I ask, what was your personal life like at the time? Did you have a partner or a family?

Jerry Overton: I was single and my mom and dad lived in Kansas City. Probably it was one of the hardest things they ever experienced as parents when they saw me leaving Kansas City. When I was recruited to Richmond I had to tell my parents that I was moving from my hometown and it was very, very hard on them. I was about 48 when I moved to Richmond.

Dec Heneghan: How long did it take for Richmond to become recognised in America as the ambulance service that everyone wanted to learn from?

Jerry Overton: You know what's important to me is that we didn't do it to become 'recognised in America.' We really didn't. We did it simply because we wanted to give our patients better care. You know, the thing is... going back to my earlier background and growing up in the late '60s, early '70s, and being involved in civil rights and being a protester against Vietnam - for me, it was about people. When I arrived in Richmond and saw how bad the situation was and how badly people were being treated, that was my focus. The emphasis was on: "What can we do for our patients? How best can we serve the citizens of Richmond? How innovative can we be to do that?" That was the emphasis.

Dec Heneghan: Am I right in saying that Richmond has, and had at the time, a very large African American population, which was quite poor? Without straying too much into politics this issue of urban minority communities suffering from social inequalities is one that seems always to be there in the US, so this issue must have a knock-on effect in terms of EMS delivery...

Jerry Overton: Well, 65% of the population of Richmond are African Americans.



Jerry with Jing Xia, Wuxi EMD, Jiangsu, China
NAVIGATOR

Dec Heneghan: And it had quite a few problems, as you generally find in minority populations - with things like gun crime, yes?

Jerry Overton: You could say that... We had the second highest homicide rate per capita in the United States.

Dec Heneghan: Do you remember how high it was?

Jerry Overton: I could tell you we worked in a population of 200,000. We had 175 homicides one year and 170 the next year. I can tell you that, on average, we worked a shooting a day in Richmond in a 200,000 population. The other part of it was we had a huge drug problem in the city. That doesn't mean we stop serving patients, that doesn't mean we don't stop trying to save lives. And from the data, in fact, Richmond was, and still may be, the busiest system per capita of any system in North America. We were busier than Washington DC per capita, busier than any other city in the United States or Canada. That meant that we needed to be innovative if we were going to make a response time standard of 8 minutes 59 seconds or less for 90% of the time. It meant we needed to be innovative if we were going to save cardiac arrest patients, if we were going to save trauma patients, and if we were going to take care of our paramedics.

Dec Heneghan: What were the first innovations that you made that made people realise you were making a big difference?

Jerry Overton: This may sound odd, but we stopped using ambulance stations and started using a good deployment posting pattern. We wanted to make sure we were taking care of our paramedics. We actually found trailer sites to make sure our crews had rest periods because they couldn't get back to the station. So, we needed to find rest places for them.

Dec Heneghan: How did you keep your ambulance crews safe with all that violence going on and how did you make them feel safe?

Jerry Overton: We never, ever entered a scene that wasn't secure. Regardless of how long the crew had to wait. If they had to wait 4 minutes, they waited. And at times they had to wait 15 minutes, but until we got the 'secure' notification from Richmond PD, we did not go in. Period. I



can sit here and tell you proudly: I never had a paramedic severely injured in Richmond, Virginia, at a scene, not ever - because we practiced 'scene safety!'

Dec Heneghan: What about the clinical innovations? I know you did a lot around cardiac-care.

Jerry Overton: Well we did things that worked marvelously, and we did some things that, frankly, I thought would work but didn't work. We were the first system to use mechanical CPR devices on every single cardiac arrest patient. I'm proud to say ZOLL was our partner working with us on cardiac arrest resuscitation. We were the first system, to use ZOLL devices that gave mechanical CPR on every cardiac arrest. We were the first system to eliminate giving instructions for mouth-to-mouth and doing chest compression-only instructed CPR over the telephone with the Medical Priority Dispatch System. That was a first. There were also some interesting ones that didn't work that we thought might work. For example, we were the first system to try to use a blood substitute on trauma patients. Interestingly, anecdotally our paramedics said it worked - the clinical trial said it didn't.

The key here is that we never stopped experimenting. Our paramedics welcomed that culture, because they knew the emphasis was on the patient. They knew the emphasis was on: "What can we do to make the paramedic's job more effective, the paramedic's job easier, and at the same time provide better patient care to the highly acute patients?" So, not surprisingly, our paramedics really welcomed that.

Dec Heneghan: How big did the actual ambulance service grow? When you were having that success and obviously treating more patients, you're helping the whole system. You're saving the city money, you're probably reducing crime because the poor communities see they're getting medical aid, and that's a positive. How quickly did the

local authorities say: "Right, we will invest in this ambulance service"?

Jerry Overton: Well, I mean, there's always politics with a system that needs money. I'm not going to lie to you about that, that's true. The City Council of Richmond was very supportive, but they did watch our subsidy. I had to appear at budget hearings, I didn't get a free ride. The other part of it was, I didn't go back and ask for a lot of money. Economic efficiency was one of the key components of our system, so it wasn't a situation where I would arbitrarily ask for a budget increase.



Because of that, the council had confidence in me. They soon knew that if I needed money, I would come to them, but that I was going to do everything possible NOT to need money! By establishing that type of respectability and integrity with the council, when I did have to go back to them at times, they knew I really meant it. They also knew I really needed it.

Dec Heneghan: I'm guessing that when you went back, it was to gain approval for valuable innovations, like, "We need that equipment," or, "We need that kit."

Jerry Overton: Well, you know, I think one of the advantages of being innovative and being known for innovation is that you develop good partnerships. ZOLL was a fabulous partner; working with us and providing us with equipment on trial to see if it worked or didn't work. When you've developed a system with that type of reputation for high quality patient care then you can attract a partner as high-quality as ZOLL. Then that leads to good things. I didn't have to go back to the City Council; I had my budget, I had ZOLL as a partner and we became innovative.

Dec Heneghan: How many years did you do with Richmond Ambulance Authority?

Jerry Overton: I was their first director in Richmond, their first executive officer; and I was there for 19 years. That was another thing, I thought I would be there for 7-10 years, but I had a great City Council, I had a great board of directors, I had a great team - and we just kept on innovating...

Dec Heneghan: So was it during that time that you became the president of the Ambulance Association of America - the AAA - the ambulance chiefs association?

Jerry Overton: I was elected as President in 2002 and served a two-year term.

Dec Heneghan: How surprised were you to come from nowhere and be, if you like, plucked from obscurity, to end up as the president of the American Ambulance Association?

Jerry Overton: Well, more surprised than you might think. Up until I became president, every president before me was the head of a private ambulance company. I was the first president of the American Ambulance Association that was a chief executive of a not-for-profit EMS system. Maybe because of that my approach to being president was different from those in the past. That is, I believe in collaboration with different agencies and different organisations. I'm a collaborator and facilitator; so my approach was different in that I'm not an authoritarian type of president. I believe in collaboration. I believe in using the skills of the board, using the skills of the executive director. The President's primary function should be to always ask: How can we further the organisation? Again, it's back to the way I ran Richmond. You know - the team approach. You must use the best of everybody in order to advance as fast as you can.

Dec Heneghan: What do you think of as your main achievement as president of the AAA? Was it legislative?

Jerry Overton: A change in culture.

Dec Heneghan: Okay. Tell me more?

Jerry Overton: Did I accomplish everything I intended? No. But did I change the culture? Did we change the bylaws? Did we set the foundation for the way it's currently run - yes. I think we were successful in establishing a new foundation.

Dec Heneghan: I've never asked you this before, but, in your eyes, what is the primary role of the AAA? Is it simply to bring all the ambulance services together and work collectively? Or is it to deal with government and encourage them to support ambulance and fund ambulance and put in place legislation that's appropriate for better ambulance delivery, or is it something else?

Jerry Overton: It's all of that. The American Ambulance Association is an incredibly important organisation, because it's the only organisation in the US that's a dedicated membership organisation for the ambulance service. It's the only one. It's got an incredibly important role that it fulfils very, very well... Whether it's lobbying, whether it's education, whether it's collaboration. The American Ambulance Association is a truly instrumental body.

Dec Heneghan: From being a young man when you undertook all your studies, and then going into local and regional government and then going into ambulance and running RAA and then becoming AAA president, up until that point, how well-travelled were you?

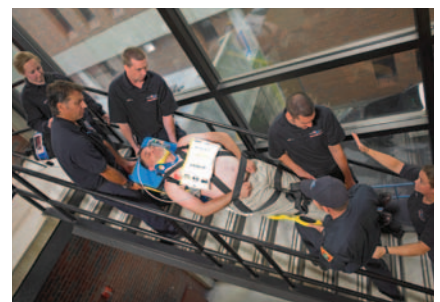
Jerry Overton: Well, I'll tell you an interesting story. I'd never been outside of the United States, except for Mexico which doesn't count for us - or a better way of putting it is that I had never held a US passport until I was asked to go to Bosnia during the war. So until 1993 I had never had a passport.

Dec Heneghan: Seriously?

Jerry Overton: I was approached for Bosnia because of what we achieved in Kansas City and in Richmond.

Dec Heneghan: And AAA, I imagine, by that point, yes?

Jerry Overton: No. Basically because of my accomplishments in Kansas City and Richmond, as the chief executive of Richmond Ambulance Authority, I was asked





if I would go to Bosnia and see if I could implement an EMS system in central Bosnia during the war. I will tell you honestly, I didn't even know where Bosnia was at that point, and that's true. I had to look it up on a map. I also had not followed the war that closely, and so I said, "Sure, I'll go." So, I went out and got a US passport. This is the early '90s remember - all before 9/11. So, I got my passport, found out where Bosnia was - to be truthful I wasn't even that interested in international politics at that time. My only interest was in EMS. Then I started researching the war. It was like: "Oh my God, what have I gotten myself into?" First off they told me I had to be single. That should have been a clue! The organisation I went into Bosnia with, which is still one of the absolutely best NGO organisations in the world, the International Medical Corps, they go into really, really difficult places, and I got to work with them on planning. So yes, the first stamp ever in my passport is Croatia - going into Bosnia.

Dec Heneghan: A warzone.

Jerry Overton: Let me tell you - and you can quote me - that was one difficult son of a bitch, going into there. People just don't know what happened.

Dec Heneghan: Okay, we're going forward now into IAED, did you actually join IAED as president.

Jerry Overton: No, I didn't join as president. I joined them as, kind of an international chair and then I became Chair of the Board of Accreditation, and now I'm president.

Dec Heneghan: Was it Dr Jeff Clawson, IAED's founder, that approached you to join IAED or somebody else?

Jerry Overton: Dr Clawson and Alan Fletcher, who's President of Priority Corporation [a commercial company which is part of IAED].

Jerry Overton: They approached me several years before. They had approached me when I was in Richmond, and I kept declining and declining. Finally the time was right and the opportunity was there and I joined.

Dec Heneghan: What year did you join IAED?

Jerry Overton: 2011, I think.

Dec Heneghan: So, back in 2011, where was IAED in American and in global terms at that point? Was it already the force it is now? Or was it a well-respected but less high-profile organisation?

Jerry Overton: No, it was already a high-profile organisation.

Dec Heneghan: Was it mainly American focused or international?

Jerry Overton: Our focus is international. Right now, we're in just a little less than 50 countries, we're translated into almost 30 languages. Our biggest systems are systems that are not in the United States. São Paulo, Brazil, is the biggest system. London is the second biggest.

Dec Heneghan: Who designs and develops all the protocols at IAED? How exactly does that happen?

Jerry Overton: The concepts of the protocols were actually invented by Dr Clawson himself while he was doing his residency programme down in New Orleans at Charity Hospital in Emergency Medicine. Or I should say, when he was doing his residency programme at Charity Hospital, he needed a protocol to expedite

and better treat the patients he was caring for. When he returned to Salt Lake City he became Medical Director at Salt Lake City Fire Department, he remembered a flip card type of protocol, wrote dispatch protocols for the fire department in Salt Lake City, and that was the first protocol. Fast forward to 2017 - so how are they developed? Everything we do is evidence-based. Systems like London Ambulance Service provide a huge amount of very valuable information.

Dec Heneghan: Data, data, data.

Jerry Overton: Yes, on what is going on for protocol. Organisations like the European Resuscitation Council, when they make changes, the American Heart Association when they make changes. When we see new evidence on how we can provide better dispatch protocol, we implement it.

Dec Heneghan: How does that happen though? Because when you're servicing a very wide variety of different ambulance systems, a very wide array of healthcare systems and a great variety of police and fire systems, you must be dealing with so many different forms of innovation - and then you surely have to factor in social and economic elements as well. So how?

Jerry Overton: Well we have a process that we use that is called Proposal For Change. When we have identified the protocol improvements, we submit a proposal for change. We take each proposal for change, and then IAED analyses it with what we call a 'Standards Council.' The Standards Council looks at all the proposals for change and their endpoint is a new version of the protocol.

Dec Heneghan: How many people are there now world-wide using IAED protocols?

Jerry Overton: I actually don't know. But I do know that the number of dispatch centers world-wide is almost 3,000. The protocol itself takes around 80 million calls annually. So, 80 million calls annually certainly means that millions of patients are directly benefiting from the protocol. So you could say that while the actual users are in the high-thousands, the beneficiaries are most certainly in the millions.

Dec Heneghan: So what does your role as president of IAED entail?





Does he need a trauma centre or the local hospital?



Twenty-year-old male in a motor vehicle accident. Airbag has deployed. Car has significant front-end damage.

Is he bleeding internally? Will he need a trauma centre? These are some of the questions you need to answer on a suspected trauma call, as haemorrhage is the leading cause of death after injury.¹

The new trauma parameters on the ZOLL X Series® help you accurately and quickly assess your patients so you can feel more confident in your treatment decisions.

Insight for informed decisions.
www.zoll.com/uk/trauma-care

ZOLL®

¹Acosta JA, et al. Journal of the American College of Surgeons. 1998;186(5):528-533.



Jerry with Pamela Stuart, Board of Certification Chair, at NAVIGATOR New Orleans

Jerry Overton: It mainly involves interfacing with external agencies. I don't provide internal direction. The way IAED is structured, the president is involved with the outreach - with agencies and interaction. Does that make sense?

Dec Heneghan: Sure. Yes, so it's more about partnerships and development on a global basis?

Jerry Overton: Exactly. And frankly, at this point in my career, that's a perfect fit for me. I mean, I've done the administrative part. I was chief executive of Kansas City, I was chief executive of Richmond, Virginia. I developed relationships worldwide during those times. So, from my perspective, the benefit I could bring to IAED was: "How can I further the protocol internationally, educate people on the protocol, educate people on EMS?" That, to me, is a perfect role.

Dec Heneghan: Talking of your responsibilities at IAED - as I understand

it, you host about six or seven major conferences every year right around the world.

Jerry Overton: Right. In fact we now have nine Navigator conferences worldwide

Dec Heneghan: So a key part of your job is to lead and front all of these conferences world-wide and make sure that all the attendees and all the partners get the best experience out of it.

Jerry Overton: Right, and it's a full-time job. However, as far as the programmes go, we have an expert team that establishes what I know are expert programs for the attendees. They really understand what those coming need to get out of it.

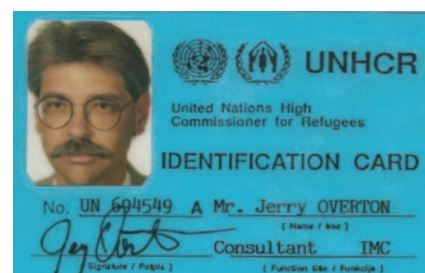
Dec Heneghan: I imagine you can't just turn up with a toothbrush and deliver a four-day conference.

Jerry Overton: That's only part of my role. Another part of my role is troubleshooting, educating systems and educating countries about the protocol. I have multiple responsibilities, multiple roles.

Dec Heneghan: Which brings us back neatly to your international advisory work starting in Bosnia. When you do that, are you doing that as a representative of IAED, or do you do it independently?

Jerry Overton: No. Not independently. The reason is two-fold. My background is in government, and I never want there to be a perceived conflict of interest with what I do with IAED or when I did Richmond or when I did Kansas City. To be quite blunt about Bosnia, to be honest with you, is that some of the situations I've been in are quite dangerous.

Dec Heneghan: I know that internationally, from 1993, you've done work in Bosnia, Vladivostok in Russia, Canada, Nairobi, Turkmenistan, Lebanon. By the way, not to overlook it, I know you've also done a huge amount of work in Africa as well, yes? So, was the early part of that work done while you were at RAA, delivered under their auspices and then the latter part under that of IAED. Was that one of the things that then attracted you to IAED, that you realised that by being part of IAED, the whole world is your EMS palette? Is that one of the things that made you want to work with IAED?



Jerry Overton: Exactly.

Dec Heneghan: Out of all the international work you've done, can you think of a couple of examples of the projects which you've found particularly rewarding or challenging, that you think have really helped transform that country's healthcare system?

Jerry Overton: I mean, even though Bosnia is no longer Bosnia, even though it was my first one, that was an important one. The idea was to go into Bosnia and set up an EMS transport programme. Once I was there - and I was there quite a while - I realised that because ambulances were being stolen and aid workers were being kidnapped, setting up a transport system in the normal sense was impossible. So, what I did was, rather than create a transport programme, I worked with our partners to create more of a primary care programme where they would take people to a local clinic, sometimes they would be able to transport patients fairly long distances. Sometimes they'd treat them at the clinic we set up, but just making that change was important.

Dec Heneghan: In the Bosnia project, where did all the other providers fit in? You know, like United Nations and Red Crescent, people like that? Were people like United Nations and Red Crescent on the ground as well?

Jerry Overton: I don't know about Red Crescent, but the United Nations were my protector. They were the peacekeepers in Bosnia, but they were also my protector. I can sit here and tell you I'm here today talking to you only because of the British peacekeepers that were serving under the UN in Bosnia. These people were in charge of my sector; and they were the ones that were known to be the most aggressive so far as any hostile forces were concerned. Should something happen they were there to take care of us and make sure we could get on with building our clinic programme. So, I'm sitting here alive because of the British peacekeepers - so thank you Britain!



NAVIGATOR New Orleans

Dec Heneghan: And even after that very dangerous experience, you said to yourself: "I want to continue with this kind of work?"

Jerry Overton: Yes. In fact I'm working in Lebanon at the moment. I'm going back there next week. Absolutely, I want to help.

I'll give you another interesting anecdote about Bosnia. Because we were so deeply embedded in a warzone, I went to the British PX [a PX is a Post Exchange, or store, where soldiers go to buy supplies and alcohol] one day because we were under fire. In the morning, we were being shelled by the Croats, and in the evening by the Serbs. So I thought: "Man, I don't know what's going to happen here." So I went to the British PX in this city in Bosnia and I thought: "Okay, what's the most expensive bottle of scotch whiskey I can ever buy?" It was Lagavulin. I had never had a single malt whiskey before in my life. I bought a bottle of Lagavulin and fell in love with it. So Lagavulin was one of the reasons I survived Bosnia. That's what I prefer to drink today.

Dec Heneghan: So, going back to another area, we talked about your work with AAA and we know how much you've collaborated with NAEMT over the years... and we know how much IAED works with so many organisations internationally. So... you were quite surprised when we met up at Christmas and I told you that I knew you'd recently been given a lifetime achievement award by NAEMT, because you didn't tell anyone! I also know that the previous year, you received the President's Award from the World Association for Disaster and Emergency Medicine. You've had quite a few of these awards Jerry. How do you feel about them and what do they mean to you?

Jerry Overton: Well, I've never done anything for an award. My focus has been on the patients and people. Going back to what we talked about earlier - the late '60s, and being an activist, and how do you help people? Whether it's the civil rights movement then, or whether it's EMS systems improvement today, I've never lost that passion. Never. The awards - of course, I'm honoured. I really am honoured that I receive such awards, but it's not why I do what I do.

One great benefit of being in EMS is that you meet some wonderful people. We're all in this together, you know. And we all

recognise why we're here, and that's to help the less fortunate. You know, whether it's the high acuity patient like a cardiac arrest patient or the low acuity patient who just needs something, that's what matters to us all, isn't it? Dr Clawson has a saying, and I think it is very appropriate: "We can't save every life, but we can help every caller. And that's true - Whether that patient has a psychiatric emergency or a drug problem or is in cardiac arrest, the fact is, that's who we are. The really excellent thing about EMS is you meet people like that. We're here to help people.

One of the really important things I did as Chief Executive in Richmond, was that I met with every recruit class that came into the city of Richmond for EMS. One of my mantras is: "Don't ever forget we're just people helping people. That's who we are, we're people helping people, don't ever forget that."

Dec Heneghan: Actually, I suppose that mention of those awards has just reminded me that one of the things that you wrote for *Ambulance Today* - I think about two years ago - was that you explained in this one article precisely in what ways well-developed, well-resourced and well-trained medical organisations can help the less fortunate. It was a fantastic article about work you'd been doing in Africa I think. I recall it was about child birth, and helping develop a protocol to help women who were giving birth in environments where basically there was zero medical support. If I remember rightly, the figures indicated that where you went out and trained people and developed systems, the actual survival rate improved significantly. Do you remember that work?

Jerry Overton: I do and that project is still underway in Ghana. We don't know yet what's going to happen. It's slow... Sometimes progress is slow. So, you just have to be patient. That doesn't mean you quit, that means you keep moving forward.

Dec Heneghan: As you know Jerry, *Ambulance Today* now has our own relationship with Africa - We've got a great team of people reporting for us and also helping us circulate *Ambulance Today* around Africa - East, West, Central, Sub Sahara and North Africa. We're trying hard to get ambulance information into some of the remoter areas there. Anyway, if you read the article that our new Africa Editor, Mike Emmerich, has written, I'm sure you'll



agree that it's one of the best articles we've carried for ages. What Mike explains exceptionally well in his article is that all the problems in Africa are fundamentally related to poverty and governmental issues in their origins. Mike talks about basic things like water quality, water and food scarcity and hygiene problems... and disease problems, and the miniscule number of medics who are there as a resource to even begin addressing them. When you look at people like Mike Emmerich, who is an exceptionally impressive and highly-skilled paramedic and researcher and just an amazing guy overall, and if you look at people like yourself, people who are constantly trying to do something... It makes you realize - well, if there weren't Jerrys and Mikes out there, there'd be nothing happening - no positive change!

Jerry Overton: Well, that's a good point. But fortunately there are people like Mike Emmerich out there. Thankfully there are a lot of people like him and myself who are committed - believe me, we're not the only ones. There are a lot of people like me who really want to make things better. How do we impact the quality of life? How do we save that baby? How do we save that mother? You know?

Dec Heneghan: So does IAED take on projects in countries that are financially very poorly-resourced, but still say: "Look, we know you can't pay for this, or, not pay quite so much." Will IAED still go out to those places and offer support?

Jerry Overton: Absolutely. IAED is a not-for-profit organisation. Our mission is to raise the level of caller access and patient care. Now, we recognise that this all starts with dispatch. We know that if people don't have access to care, they're not going to get help. So clearly, our focus has to be on access. It has to be on access because of the fact that, if they don't have anybody to call, how's that going to work? It's not going to work. But absolutely, we've done humanitarian projects and we'll continue to do humanitarian projects.

Our criteria is very clear. It's essentially to make sure that we have a local partner that is going to work with us to make things better. For example - what I'm doing in Lebanon. The Lebanese Red Cross is a fantastic local partner. When I went in there four years ago, they asked me to do an assessment of their EMS system. At that point, we didn't even think they'd ever use our protocol. Clearly, it was a humanitarian endeavor with some expenses being paid, but a humanitarian endeavor all the same. They have taken the recommendations that I provided them with and they're implementing them at a rapid pace.

Dec Heneghan: How did they achieve that? Do you get other partners to help them, IAED?

Jerry Overton: Lebanese Red Cross is fabulous. They have partners available through the Red Crescent and the International Congress for Red Cross, the ICRC. They needed someone who has the knowledge to do a systems assessment, and that's what I do. The improvements they've made have been absolutely mind-boggling and they're continuing to make them. That's what we're looking for.

We're not going to go into a situation, an area or country, in which there's no willingness amongst the local people to change, because if we do, we know it's going to fail. If we see that willingness - if we see a commitment or a dedication, if we see that they really want to improve, then we're going to be there to help them improve.

Dec Heneghan: So the work in Lebanon is still ongoing?

Jerry Overton: Yes. Like I said, I'll be there next week.

Dec Heneghan: One other question. Not to flatter you but you really are an

exceptionally good writer and a lot of our readers tell me that they really look out for your contributions. So how do you find time to do all the writing you do? Not only for *Ambulance Today*, but for JEMS, for EMS World and the countless other academic journals you write for.



Jerry, Eric Parry, and Dr. Clawson - Leadership award, US NAVIGATOR 2017

Jerry Overton: Well, I'm not just saying this for you, but honestly my priority is *Ambulance Today*, partly because through you I can reach so many more people worldwide than other platforms.

Dec Heneghan: I want that in writing please!

Jerry Overton: I enjoy research. I've been fortunate enough to be part of a considerable number of research projects. I've been the co-principle investigator;

Dec Heneghan: So it's collaboration, yes?

Jerry Overton: My priority in terms of writing really is *Ambulance Today*. With much of the other work, I do a lot of editing, but someone else has done the first or second draft, but as far as actual writing, I don't do that much anymore because I don't have that much time.

Dec Heneghan: A big question next - In all the work you do with IAED and all the other projects you're involved in... I'm thinking here about things like EMS Copenhagen [an annual conference focusing mainly on prehospital cardiac care now in its second year] and I'm thinking about all the different projects you do with non-governmental organisations... if you had the opportunity to make one major change in either global ambulance or an EMS improvement for just one single country, what would it be? Do you know what that might be, or is it too varied?

Jerry Overton: Again, and not to inflate your ego Dec - but, as you were the first to suggest, we really need to come up with a global forum. The world is incredibly small. We're becoming much smaller; and much more global.

Dec Heneghan: So, you're taking forward the idea of a global college of paramedics - like I proposed a while ago. I think in fact in Copenhagen?

Jerry Overton: That's why we're forming it - it's in its infancy stage, but, just as you suggested, it will be 'the International College of Paramedicine.' Our aim is to bring together different countries, different institutions, different disciplines and begin a real, true, global collaboration, because that's where we need to be now.

I'm absolutely not advocating eliminating the individuality of different countries or different standards or anything like that - but, like you often tell people through *Ambulance Today* - we need to be global and we need to think globally. We need to trade ideas. We need to trade best practices. How can we do this better? I think that's where we are now. I think that's the next, best step.

Dec Heneghan: Even in my early days of working with ambulance I always found myself thinking - if somebody's got one really good idea, why can't we share it globally? Then one thing I learnt very slowly is that ambulance systems develop to fit the culture they're in and the country they're in. It wasn't 'one-size fits all,' so I agree with you on that point. When I first talked about the idea of a global college of paramedics I was trying to convey the simple idea that we now have the technology to share ideas globally really quite easily, so I felt it should happen in ambulance too. What you're describing there is exactly that. You might have different functions and you might have different routes, but it's about the global exchange of clinical knowledge and it's about supporting each other regardless of who's got the resources and who hasn't.

Jerry Overton: Right. It's about the strong supporting the weak because that's the right thing to do. It's interesting. When I was on the Institute of Medicine Committee for the US government and we issued our findings, the Committee was called 'The Future of Emergency Care in the US Health System,' we did an exhaustive search looking for what is the one best EMS system design? I can sit here and tell you - there's

Meet the LUCAS® 3 Chest Compression System

Connected. Ready.

Effective Compressions, Good Blood Flow Lead to Lifesaving CPR

With over 12 years of clinical experience, we proudly present the third generation LUCAS device, built on the LUCAS legacy. The LUCAS 3 chest compression system has improved features to facilitate maintenance and handling whilst continuing to facilitate consistent blood flow from the moment it is turned on, helping to improve a patient's chance for a successful outcome.

Collects data on every compression

The LUCAS 3 device now collects data on compressions, pauses, user interaction, alarms and battery information. For easy review of device and user action, data can be downloaded via Bluetooth®, with no more cables to lose. The LUCAS 3 device is built on a data platform ready for the future of connectivity.

*"It's simple and easy to use,
and it's small and compact."*

Dr. Charles Lick,
Medical Director, Allina Medical Transportation

For more information please contact Samantha Amena on
07799 364823 or samantha.amena@physio-control.com



no evidence that supports any one over any other. There is none.

Dec Heneghan: I completely expected you'd say that.

Jerry Overton: The idea is: why change systems if there's no evidence to support that one system is better than any other system? That's not what this is about, just changing the system for the sake of changing it. It's about communicating, it's about developing minimum standards. It's about how we can approach this as a global community. So that we can create best practices, so that we can begin to go into places like Africa, to places like South America and ask: How can we look at programmes that will at least initiate best practice training and put in place at least minimum standards of best practice?

I think, when we look at the College of Paramedics in the UK, it's an incredible organisation. They're way more advanced than anything we have in the US, and that may piss off some US people - but it's true! How can they, the College of Paramedics in the UK share their findings and research? And what's going on in the US? And what's going on in Canada? How can we all get together and share these best practices and then apply those best practices to those who are less fortunate than us? And how can we develop good quality training programmes? This is, to me, what's important. If we look at India, if we look at some of the countries in Southeast Asia, if we look at Africa, if we look at South America and Central America, they don't have what we have. That is why we are forming the International College of Paramedicine.

Dec Heneghan: Just so you know, there's one country there right now that you could help immediately, and I'm already on the case with it, and that is Thailand. I've got a good friend, Chris Hall, and his charity, KhonKaem EMS, is helping to try to set up a structured ambulance system in Thailand, and I've put them in touch with St John in New Zealand - but there's so much work that needs to be done and they need a lot of support from other parties.

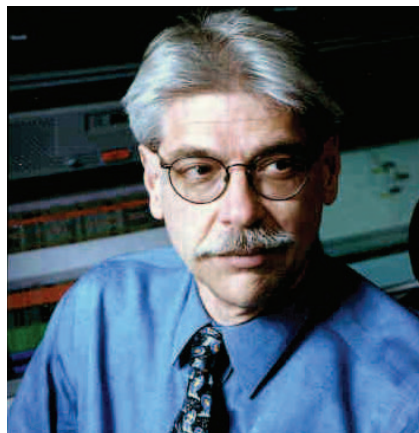
Jerry Overton: And that's a great example.

Dec Heneghan: I've got Chris's email. If IAED could help them, the difference it would make would be enormous.

Jerry Overton: IAED could help them on dispatch, but if there was an International College of Paramedicine that could help them in the field. That would be excellent.

Dec Heneghan: I completely agree.

Jerry Overton: That's what this is about, so yes. Going back to the late '60s, if you really look at my Resumé or look at what I've done, except for one short period of time, I've always worked in the not-for-profit sector. I've done that on purpose, because I'm not worried about a profit. I'm not worried about making money though, like everybody else, I need money to survive. I'm not going to lie to you about that. That's a necessity, but the fact of the matter is, that making money hasn't been my priority.



If you look at the International College of Paramedicine, if you look at IAED, if you look at how we can move forward to help the world, I'm not naïve - we've got to have money to do this but that is not the motivation. That is not the top priority. The top priority is to ask: How can we come together and help populations?

Dec Heneghan: This is really quite an interesting question. We were talking there about things like a global College of Paramedicine, and we were talking about how IAED can do so much work in countries that really can't afford to pay for its services, so have you got any really major, big, unfulfilled ambitions left? In terms of ambulance and the things that you think you can personally still do, and say to yourself: "Right, now I've done that."

Jerry Overton: I just want to keep doing what I'm doing right now. I've been very fortunate in my career. If I look back over the years that I've been doing this, I've been incredibly lucky in being in the right place at the right time sometimes. So, at

this point in time, I just want to keep doing what I'm doing. If there is one idea I want to emphasise going forward, and this may sound strange... I would just like to continue to emphasise that we need to be caring for all patients that call us - not just the high acuity patients. I think, in a way, that sometimes this idea is lost. Again, I guess it goes back to the late '60s, early '70s - and that idea is simply caring for people.

Dec Heneghan: Well you may recall that when we did our *Ambulance Today* Danish special, our friend and journalist, Les Pringle, a guy with three decades of front-line ambulance experience in Birmingham, one of the UK's busiest cities, argued exactly that - and at the time he was a bit of a 'lone-voice in the wilderness.' Just out of interest, why do you think there's such an emphasis on the high acuity care? Is it because it's seen as being 'sexier' in a clinical sense?

Jerry Overton: Janette Turner of the University of Sheffield, who was in the room with us in Copenhagen that day, agrees with us on this. She has evidence base that cardiac arrest in the UK represents just one half of 1% of all the calls that are made to ambulance services.

Dec Heneghan: Hold on - it's an even smaller number - as I've said to you before, that half of 1%... that's the figure for the actual initial calls made. Once the patient is examined, a high percentage of these calls turn out only to be chest pains. The actual proven number of cardiac incidents is probably way below that... it's even lower... it's fractional.

Jerry Overton: And Janette Turner is a brilliant researcher so I absolutely believe in her evidence, which means: Why don't we emphasise 99.5% of our other patients equally? If I have one thing left to do, or one last mission, or whatever, it is... I want it to be to emphasise that across ambulance we must focus on 100% of the patients who call us. Not just the 0.5. The other thing that's left for me to do is education, specifically 'systems education.' What systems simply do not seem to understand is, with this emphasis on cardiac arrest, we see increasing call volumes, like we're seeing, we're seeing the percentage of those calls being low acuity, not high acuity. So unless we address the problems of the lower acuity patients, we don't have the resources to respond to the higher acuity patients anyway because they're all tied up on lower acuity patients.

Dec Heneghan: I heard on the radio today in the UK, yet another study's been done about elderly patients with cardiac conditions, people over the age of 63 are the ones with more and more increasing chronic conditions who are going to take more and more of the workload. Did you know that 25% of all the ambulance calls in the UK right now are to care homes for the elderly?

Jerry Overton: And the reason for that is that we've ignored, to a great degree, the fact these patients have co-morbidities. We focus on the single morbidity of what's wrong with them, forgetting that, as we are advancing in age, or the baby boomers are - it's very clear that 40%-45% of the population is getting older and experiencing more chronic health conditions...

Dec Heneghan: ...so the baby boomers are all getting nearer and nearer to using Zimmer frames?

Jerry Overton: Yes, and I'm one of them. 40%-50% of our patients are over the age of 60, these are patients with co-morbid conditions, not single morbidity. We need to be training our caregivers to be able to assess and treat these patients and then we can free up resources for the higher acuity calls. But we're just not doing it. That is the one thing I have left. We need to ensure that we're treating every patient equally.

Dec Heneghan: My last question is the fun question - the 'what makes Jerry Overton tick' question.

I know a couple of things that you like. I know that, for instance, you like malt whisky... and I know you like the great American writer, Mark Twain... and I also know that you like going to Scotland. I'd say fell-walking, but I don't know that you do go for the walks... it's probably more for the malt whisky, right?



Jerry Overton: I go to Scotland to escape.

Dec Heneghan: Is that just you and Tara? [Jerry's British wife]

Jerry Overton: Yes, or just me. Tara and I both go or I just go. I find the Isle of Skye in the northern Highlands incredibly relaxing. Plus, I do enjoy a good dram of single malt scotch whisky. For me, Scotland brings it all together. The air, the hills, the water, and frankly the inaccessibility of telephone. For me, Scotland is where I can really, truly relax. And yes, I do read Twain.



You have to remember, Twain and I are both from Missouri. Very early into high school, in fact, I had to write a term paper on Huckleberry Finn. I got into Mark Twain, not only because he's witty, but because of his social commentary.

For me, Twain is a great social commentator, even today. In fact, I was in Shanghai last week talking to a very influential person from the Philippines, and I was talking to her about Twain's writings on anti-imperialism and the impact he has had on the Philippines. She wasn't aware of what Twain had written or of his impact. His impact lives on today.

I enjoy the arts because they make me think differently. It makes you think differently, it makes you think outside the box. Sometimes, I like to say that my Master's of Liberal Arts degree is where I learned most because it made me think differently than my Master's in Public Administration and that's a good thing. In terms of non-ambulance interests, when I was in Kansas City, I was actually a federally-licensed raptor rehabilitator.

Dec Heneghan: Say that again?

Jerry Overton: I was permitted by the United States Fish and Wildlife Service to do raptor rehabilitation. I've worked with owls, hawks, eagles, falcons when they



were injured to be able to release them back to the wild. It was back when I was in Kansas City, so it was back in the late '80s. I would take in maybe 200 birds a year. I was working with the United States Fish and Wildlife Service, the Missouri Department of Conservation and the Audubon Society. I would receive injured birds of prey and hopefully bring them back so they can be released back to the wild. People called the Conservation Department or called the Feds, the US Fish and Wildlife Service and say, "Oh, we found an injured owl, or an injured eagle, or an injured falcon," and I would rehabilitate them and they'd be able to be released to the wild.

So Dec... somehow I think you've got my life story. I've been very fortunate to do the things I've done and especially to do them with so many wonderful people involved in EMS right around the world. I've met and worked with some truly special people in so many places and at so many levels. While I've definitely got no plans to stop anytime in the future - because thankfully my health is fine - whatever comes next I know I've been blessed to have the opportunities I've had to work in ambulance in the ways that I have. All I can say is that it's been a wonderful life and I'm grateful for every day of it!





WILKER GROUP

PROUD TO WORK CLOSELY
WITH OUR CUSTOMERS
TO GIVE THEM THE BUILD THEY WANT

Wilker is one of the leading providers of Emergency Vehicles to the UK and Irish markets. With a wealth of experience gained over the years by working closely with all of our customers we have provided various makes, models and types of vehicles for the market place. Wilker prides its self on the quality of our vehicles and value for money we bring to the market place. We work very closely with our customers to make sure we provide them with a product that meets their requirement for a safe and reliable vehicle to meet the challenges of a tough working environment. Our customer base has grown over the Years and we are building vehicles for not only the UK and Irish Markets but further afield as Abu Dhabi, Qatar, Isle Of Man, Jersey, Guernsey, The Falkland Islands, The Shetland Islands, Cyprus and Trinidad and Tobago.



Fredrick Street
Clara
Co. Offaly
Ireland

Phone: +353 57 9331252

Email: info@wilkergroup.com

Unit 1 & 2 Milbuck Park
Springvale Industrial Estate
Sandbach, Cheshire CW11 3HT
England

Phone: +44 (0) 1270 765 999

Email: info.uk@wilkergroup.com

CALL US NOW
TO DISCUSS
YOUR VEHICLE
CONVERSION
NEEDS

Visit us at: www.wilkergroup.com

'Everything we do saves lives'

The LAS Make Ready Programme

By Justin Wand, Deputy Director – Fleet & Logistics, London Ambulance Service NHS Trust

The busiest ambulance service in the world is transforming its logistics support services. By putting the patient at the centre of a lean system design it is minimising waste and maximising the opportunity for better support to frontline staff and improved patient outcomes.

During 2015 London Ambulance Service was inspected and was found by the Care Quality Commission (CQC) to be 'Inadequate.' Soon after the Trust, whilst still found to be providing high quality care for patients, was placed on special measures – the first ambulance service in the UK to be reported in such a manner.

Operating context

- Avg. 540 shifts per day.
- The Trust completes c.15m miles per year (emergency fleet)
- 1,800 emergency responses annually
- 6% increase in demand year on year

Whilst this declaration brought much soul-searching, it also provided the opportunity to turn on its head the way in which the Trust did its business. With much of the criticism aimed toward the operational support teams, it became obvious something had to change and new ways of working had to be adopted. Lean, patient-centred system design was the opportunity we took!

The decision was taken to reutilise our extensive network of large stations as 'production hubs,' shifting the emphasis from old, poorly-utilised garages, which were well-positioned across the capital but from which we actually provided no clinical care.

These sector-based support locations needed to add value to the Trust's service delivery and they needed to become the launch pads from which we transformed our service and the way in which our staff worked.

We needed to;

- Reliably, consistently and efficiently produce 6000 + unit hours of ambulance time everyday
- Provide a platform which enabled Airline-style/high-performance Planned Preventative Maintenance programmes
- Provide the more than 447 line items on each ambulance per shift
- Support response-time reliability to patients
- Be clinically effective
- Safe
- Satisfy our patients' needs
- Be economically efficient

Implementation

In May 2016, the Trust began to rollout 14 production hubs across London providing the logistical infrastructure to ensure efficient and effective production of vehicle hours and support for frontline staff.

What is Make Ready?

Make Ready is a vehicle preparation system which sees specialist teams of staff employed to clean, restock and maintain vehicles which mean our clinical staff, who had routinely undertaken these tasks, can spend more time treating patients.

Make Ready - a definition:

A crew friendly, quality assured vehicle and equipment preparation programme designed to minimise cross infection and maximise patient safety and vehicle availability.

Under the Make Ready system vehicles are regularly deep-cleaned and swabbed for the presence of micro-organisms including MRSA and C.Diff.

Each vehicle is fully stocked to a stated standard, frequency and cost, with equipment checked and serviced on a daily basis.

Biography: Justin Wand

Deputy Director Fleet & Logistics, London Ambulance Service NHS Trust.



Justin is a highly experienced, clinically focused, operational lead who has demonstrated the ability to manage diverse teams successfully in various roles within UK ambulance services. Having worked in both Traditional and High Performance EMS systems implementing lean 'Unit Hour' production processes and improving quality, he has implemented a number of Make Ready schemes providing a safe, efficient, vehicle preparation system contributing to the release of £50m of clinical time back into frontline care. Justin and his teams are working hard to modernise the operational support functions at London Ambulance Service to meet the Trust's strategy and implement a vision of patient centered staff friendly systems, designed to link frontline services to back office support, liberating time and efficiencies from needless bureaucracy and waste.





To reduce the risk of vehicle breakdowns, on-site vehicle maintenance teams are on-hand to undertake routine checks, maintenance and repairs - minimising downtime and improving the mean time between failures.

Additionally, to ensure that we are able to provide emergency cover across the area as well as ensure that we have the time to clean and restock vehicles for crews arriving at work, shifts are staggered minimising downtime and improving utilisation.

Quality Unit Hour Definition:

An hour's worth of vehicle time produced at the right frequency at an acceptable cost and quality.

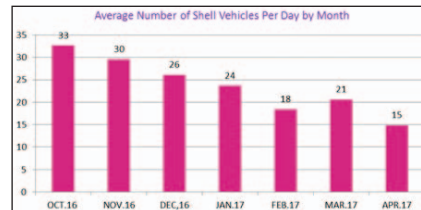
How Make Ready hubs are located

In deciding where Make Ready Hubs are located, the Trust considers a number of factors including which existing sites can accommodate the support teams needed, the amount of staff located at those sites, the location of hospitals ambulance crews take patients to and patient demand.



Having Make Ready Hubs close to the area's main A&E Departments reduces travel times for ambulances requiring restocking or cleaning, particularly after a traumatic incident, at the end of a shift or before returning to an area requiring ambulance cover.

The Make Ready initiative may be viewed as the ambulance service version of "Toyota way," focusing on driving out extraneous factors that compromise the ability to deploy ambulance resources, releasing time



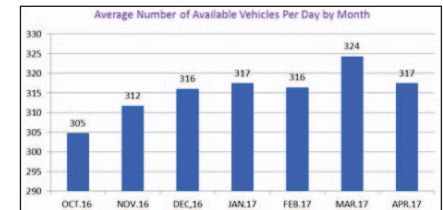
for front-line clinicians to spend on patient care and improving safety for both patients and staff.

LAS has rolled out 14 Production Hubs across the capital moving staff and logistic resources formerly based at old ambulance stations together in one site that serves their area, the hub being the catalyst to achieving economies of scale and efficiency.

There has been a significant reduction in out-of-service hours relating to missing equipment (71.57%) and a 94% reduction of medicine-supply failures



We have seen a significant reduction in the average number of shell vehicles per day (following return from external contractors) by 54% from an average of 33 shells per day in October 2016 to 15 shells per day in April 2017. This underscores the impact that the newly established secure equipment stores are having at all hub sites across the service. Because of reduced shell numbers



we have seen an increase of 4% in the number of vehicles available for patient response.

Since the introduction of Make Ready we have seen a reduction in the variability of Out-of-Service (OOS - Vehicle and equipment related) particularly in Q3 when compared to last year.

This period for comparison includes peak times when we would normally expect an increase in OOS due to demand, winter-related pressures and Christmas periods. In addition, the extra efficiency has allowed Fleet and Logistics to improve productivity, providing additional hours to meet increased demand with a Unit Hour supply improvement of 9.6% against the operational requirement (+293,484 hours) compared to 15/16. Standardising the Unit Hour production cost of £7.74 per UH.



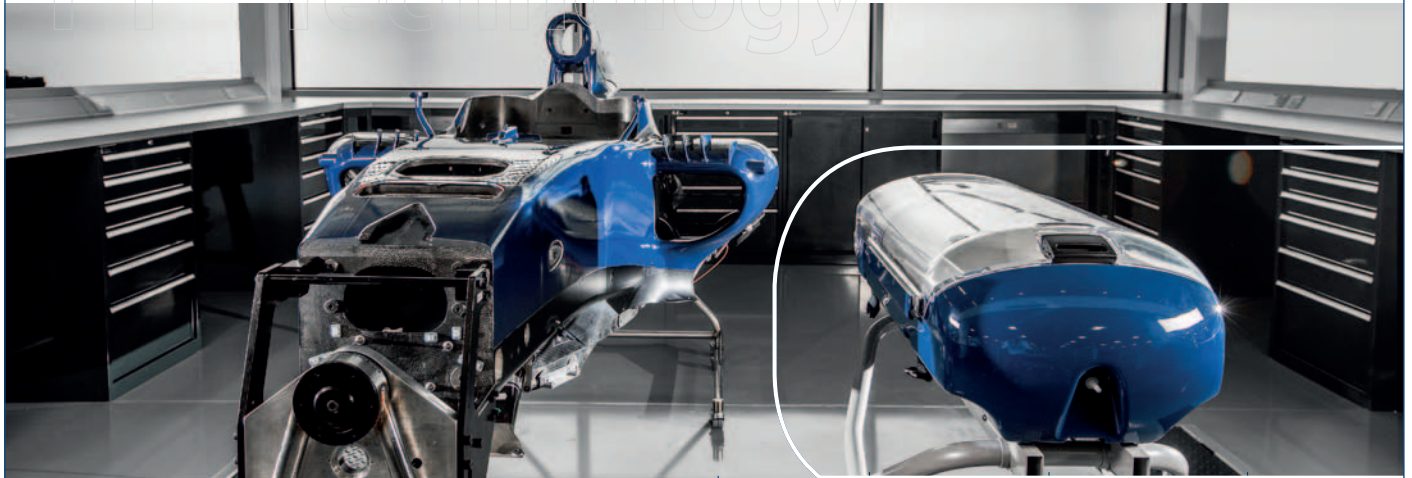
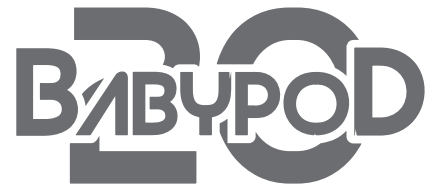
Phase I of our Make Ready programme was completed in July 17, embedding further what we have achieved but also allowing the opportunity for estates rationalisation across London, freeing up millions of pounds of taxpayers' cash which will enable further modernisation of the service to better meet the needs of the communities we serve.

To discuss the contents of this article with Justin please contact him at the following email address: justin.wand@lond-amb.nhs.uk

20G TRANSPORT SAFETY

Transport System with F1™ Technology

F1™ Technology



PROTECT BABIES

AHT

ADVANCED
HEALTHCARE
TECHNOLOGY

Universal mounting options featured ensure that patients can be safely transported by:
Ambulance, Fixed Wing Aircraft, Rotary Wing Aircraft

babypod.com

USED BY MOST UK AMBULANCE SERVICES

Ask your pharmacist about Water-Jel burn products

WATERJEL

www.waterjel.com



WATER-JEL FIRST RESPONDER – Emergency Burn Dressings

- ▶ Paraben Free
- ▶ Benzene Free
- ▶ Formaldehyde Free
- ▶ Self Wetting
- ▶ Isothiazolone Free
- ▶ A Clear Gel

AVAILABLE THROUGH
NHS Supply Chain



BURN DRESSINGS

The next Generation of



Falck

Focus on Clinical Innovation - Prehospital Capnography

Carbon Dioxide - It's not just a gas

Part 2: Resuscitation

In this article, Martin Betzer of Falck Denmark explains how end-tidal carbon dioxide monitoring might guide you in your clinical judgement of the critically ill and why you should never resuscitate without it. This article is the second of three in a special series on Carbon Dioxide monitoring.

The basics

The capnography fundamentals were reviewed in the previous edition of *Ambulance Today*. To sum up the highlights: capnography provides you with a visual, continuous and real-time, breath-to-breath insight to your patient's airway, respiratory, circulatory and metabolic state – with reference intervals within the range of 4.0-5.7 kPa or 35-45 mmHg^[1]. A variety of factors might influence the end-tidal carbon dioxide (EtCO₂) readings, and inequalities within ventilation and perfusion might lead to a so-called ventilation/perfusion mismatch (V/Q mismatch) challenging the clinician in capnography interpretation^[2]. This article reviews and discusses the usability and application possibilities of capnography during resuscitation of patients in cardiac arrest.

What you need to know

Positive-pressure ventilation during cardiac arrest enables you to control ventilation

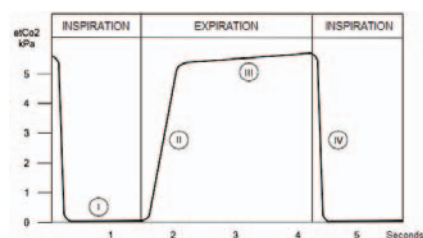


Figure 1: The normal capnogram curve. I: pause/inspiration, II: expiration of dead-space mixed gasses, III: expiration of CO₂, IV: pause/inspiration.

rates and tidal volumes. Human factors play an important role in this intervention



because we as professionals tend to excessively ventilate patients in cardiac arrest^[3]. This will not only result in hyperinflation induced hypotension leading to decreased survival^[3] but also, in the interests of this article, falsely low and unusable EtCO₂ readings. The more the rate and volume, the lower the EtCO₂ and vice versa.

To correctly interpret capnography, you need to provide continuous, regular ventilations with consistent tidal volumes within normal limits for the patient at hand^[4]. You should equip your patient with an advanced airway such as a supraglottic (SGA) or endotracheal (ET) tube making it possible to provide one ventilation with every ten chest compressions^[4] – without entering the discussion on ET tubes in cardiac arrest, that is... In the absence of an advanced airway, deliver two ventilations

every 30 compressions to the adult patient using a bag-valve mask ventilator (BVM). If you ensure these calm, regular, consistent ventilations, and if high-performance chest compressions are being performed simultaneously, capnography will be your best friend. Why? Let us have a look.

Airway patency

The EtCO₂ levels will be displayed on your monitor through a special sampling device connected to your BVM, SGA or ET tube^[4,5]. A vital part of any initial patient approach is to ensure a clear airway, and any EtCO₂ reading accompanied by a box-shaped capnogram curve as showed in figure 1, provides evidence of just that. Knowing this, you can also be sure that your airway device is correctly placed – which means a dislodged ET tube during resuscitation will be immediately identified, and if your SGA is leaking a little, a box-shaped capnogram can calm you; ventilations are still adequate^[6].

Biography: Martin Betzer



Martin Betzer is a Danish ALS-Paramedic with 12 years of experience working in different areas of the ambulance service. Furthermore, Martin has worked 6 years as instructor at the Danish ambulance technician education. Martin has a bachelor of honour's degree in Prehospital Emergency Care from Coventry University, and is currently studying at the University of Stirling on the Master of Research in Health Research programme. Martin is full-time employed with Falck Emergency in the Zealand Region of Denmark as an operational leader and clinical supervisor. Further to this, Martin is also a research assistant at Falck Research. For comments or feedback to the author or interest in the work of Falck Research, please email martin.betzer@falck.dk or follow @MartinBetzer on Twitter.



**The Ultimate
Driving Machine**



ELECTRIC BLUE LIGHT TRI-SERVICE RESPONSE.



Electric-only powered vehicles are perfect for known distance journeys, however, the Emergency Services must plan for the unknown. The BMW i3 94Ah AC REx provides the environmental advantages of an electric vehicle but with the added resilience of a Range Extender engine to cover unplanned circumstances.

For further information please contact GAAD Team on:

0370 505 0144

 www.bmwgroup-gaad.com

 GAAD.enquiries@bmwgroup.com

BMW Group – Government & Authorities Division

Summit ONE, Summit Avenue Farnborough, Hampshire GU14 0FB

Official fuel economy figures for the BMW i3 with Range Extender: 470.8mpg (0.6 ltr/100km), CO2 emissions 12g/km, total average energy consumption per 62 miles/100km (weighted combined cycle) 11.3kWh. Range without use of Range Extender: 150 miles (weighted combined cycle). Customer orientated total range (using Range Extender): up to 206 miles. Figures are based on provisional data and may be subject to change. Figures may vary depending on different factors including but not limited to individual driving style, climatic condition, route characteristics and preconditioning. The BMW i3 is an electric vehicle that requires mains electricity for charging.



Optimising chest compressions

With the airway evaluated and continuously monitored by the capnograph, it is time to focus on optimising the ongoing chest compressions. Remember, you must maintain regular ventilation rates and consistent tidal volumes. Do you have a mechanical ventilator to connect to your advanced airway? Great! Let us use it. Now, the better the chest compressions the higher the EtCO₂ values^[7]. And that is what we want – better chest compressions and higher EtCO₂ values. Use the reading to guide your partner: Push hard, push fast, in the centre of the chest, and consider provider fatigue when EtCO₂ is dropping.

Identifying return of spontaneous circulation

Our immediate treatment aim in cardiac arrest is return of spontaneous circulation (ROSC). Common ways to identify ROSC is through palpable pulses, normal breathing or through a rise in coma scores. However, none of these might be present initially in ROSC, and once again, human factors might deceive us. A sudden rise in EtCO₂ levels however is an objective and trustworthy parameter, reflecting a rise in perfusion and thereby a rise in cardiac activity^[8]. This sudden rise in EtCO₂ has actually been found to be the first sign of life in patients regaining ROSC^[9]. "Whatever!" You might think. "I am only performing rhythm analysis and looking for signs of life every two minutes anyway, and a rise in EtCO₂ would not have me interrupt the ongoing cycle." And you are right, it should not. But could this "early-warning" rise in EtCO₂ in the middle of a cycle come in handy? Read on...

Withholding adrenaline

Although not scientifically supported, European Guidelines for Resuscitation 2015 recommend adrenaline every 3-5 minutes in cardiac arrest^[4]. Adrenaline is pushed during ongoing, high-performance chest compressions, with no evaluation of signs of life before administration. So, what if... next time you are about to empty that one milligram of adrenaline into the veins of a patient receiving chest compressions, you threw your eyes at the monitor and evaluated the EtCO₂ levels first. Are they suddenly high? Maybe that 360 joule DC

shock a minute ago worked then, and maybe you should not send them back into ventricular fibrillation with an overdose of vasopressor. Let the EtCO₂ guide you on whether to withhold adrenaline until the next rhythm check.

Optimising resuscitation cycles

With the abovementioned knowledge fresh in our minds, capnography can be used as a means of optimising our resuscitation cycles. Towards the end of each 2-minute cycle, notice the EtCO₂ value – no sudden increase in EtCO₂ equals no ROSC, no ROSC equals no need for pulse check. During ongoing chest compressions charge your defibrillator; pause compressions briefly, analyse, shock or discard, commence compressions immediately.

With capnography, you will never need two pauses in compressions for rhythm analysis/pulse checks and shock again, you will only need one very short pause for a simultaneous rhythm check and possible shock. Capnography tells you what you need to know!

Support in resuscitation termination

Okay, maybe that sudden rise in EtCO₂ never came. This is despite your best efforts in ensuring regular ventilations and tidal volumes and your partner being the champ at performing chest compressions. In 2001, Ahrens T. et al. found that after 20 minutes of advanced life support resuscitation, EtCO₂ levels below 1,33 kPa/10 mmHg predicted a 0,8% chance of survival^[10]. Extremely low EtCO₂ levels should therefore be one part of your decision to terminate resuscitation – but never the only one.

Summary

This article has reviewed and discussed the usability and application possibilities of capnography during resuscitation of patients in cardiac arrest. To interpret EtCO₂ values during resuscitation, ventilations need to be regular and tidal volumes need to be consistent. Thereafter, capnography might be used as a guide in airway placement confirmation, in optimising chest compressions and cycles, in identifying ROSC, when to withhold adrenaline and as a decision tool in when to terminate resuscitation efforts.

Conversion table

mmHg	kPa	mmHg	kPa
5	0.67	45	6.00
10	1.33	50	6.67
20	2.67	60	8.00
30	4.00	70	9.33
35	4.67	80	10.67
40	5.33	90	12.00

Sources

- [1] Gravenstein, J.S. (ed.) (2011) Capnography. 2nd ed. Cambridge medicine. Cambridge; New York: Cambridge University Press
- [2] Rhoades C, Thomas F. Capnography: beyond the numbers. *Air Med J* 2002;21(2):43-8
- [3] Tom P. Aufderheide, Gardar Sigurdsson, Ronald G. Pirralo et al. Hyperventilation-Induced Hypotension During Cardiopulmonary Resuscitation. *Circulation*. 2004;109:1960-1965
- [4] Soar J, Nolan JP, Böttiger BW et al. European Resuscitation Council Guidelines for Resuscitation 2015: Section 3. Adult advanced life support. *Resuscitation* 2015;95:112
- [5] Lindström V, Svensen CH, Meissl P, Tureson B, Castrén M. End-tidal carbon dioxide monitoring during bag valve ventilation: the use of a new portable device. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine*. 2010;18:49.
- [6] Hicks I, Soni N, Shepherd J. Comparison of end-tidal and arterial carbon dioxide measurements during anaesthesia with laryngeal mask airway. *Br J Anaesth* 1993;71:734-5
- [7] Sheak, Kelsey R. et al. Quantitative relationship between end-tidal carbon dioxide and CPR quality during both in-hospital and out-of-hospital cardiac arrest. *Resuscitation* 2015;89:149-154
- [8] Pokorna M, Necas E, Kratochvil J, Skripsky R et al. A sudden increase in partial pressure end-tidal carbon dioxide (P(ET)CO₂) at the moment of return of spontaneous circulation. *J Emerg Med* 2010;38:614-21.302
- [9] Garnett AR, Ornato JP, Gonzalez ER, Johnson EB. End-Tidal Carbon Dioxide Monitoring During Cardiopulmonary Resuscitation. *JAMA*. 1987;257(4):512-515
- [10] Ahrens T et al. End-tidal carbon dioxide measurements as a prognostic indicator of outcome in cardiac arrest. *Am J Crit Care* 2001; 10(6): 391 – 8.

In the next edition...


In the next edition of *Ambulance Today*, the application possibilities of capnography in the spontaneously breathing patient will be discussed in the third and last article on EtCO₂ monitoring.

The bottom line

- Capnography interpretation during resuscitation calls for regular, consistent ventilations through a clear airway to ensure valid EtCO₂ readings

- Capnography can guide you in airway placement, performance, identifying ROSC, when to withhold adrenaline and as an aid in when to terminate resuscitation

- Capnography should be your best friend during cardiac arrest!



i-gel[®] Resus Pack:
Everything you need
to prepare, insert
and secure the i-gel[®]



Quality, innovation and choice

Interact with us



www.intersurgical.com

i-gel[®]

www.i-gel.com

AMZ: AMaZing engineering you can trust

By Joe Smith

On the battlefield, soldiers must trust in the competency of their commanding officers and their fellow platoon members. Their lives depend on it. In an emergency situation, patients put their trust in the competency of skilled paramedics. Our lives depend on it. It therefore follows that, like soldiers, paramedics have to be able to trust in their equipment and the specialist vehicles that carry it – but as we all know trust can't simply be bought; it has to be inspired.

The first impression you get when you enter AMZ's 100,000 square-metre factory site in the Polish town of Kutno is that this is a manufacturer of vehicle conversions with a level of competency and experience you can absolutely trust to get the job done. The three qualities that AMZ pride themselves in as a company are: flexibility, innovation and quality; when I toured their flagship manufacturing facility in Kutno, a thriving manufacturing town in the centre of Poland, I soon realised that this is a company living up to its own rigorous standards.

Flexibility

Ambulances are not a 'one-size-fits-all' product, and AMZ can offer a large degree of **flexibility** to its customers. The needs of EMS services can vary in thousands, if not millions of different ways - ranging from local climate to social and cultural norms. As anybody working within the sector knows only too well, no two ambulance services have the same needs or specific preferences so a competent vehicle converter must pay close attention to the all-important fine details of their specified build.

Innovation

AMZ also has the capability of **innovation** to deliver cutting-edge vehicles to the most advanced ambulance services in the world. Some of features of the Kutno plant (to be touched on later in this article) are atypical of most other factories like it; especially its capacity to deliver military standard specifications to the ambulance market.

Quality

AMZ's Kutno plant is definitely unique in its ability to deliver the very best engineering **quality** at a price that's not just reasonable, but is in fact ultra-competitive in today's market, resulting in value for money on every ambulance vehicle that rolls off its production line that simply can't be matched.

When I visited the Kutno site in August of this year the workers were busy preparing a shipment of converted Mercedes Sprinters for the final handover stage of production. The vehicles were headed for Sweden and Norway. As AMZ's Sales Director, Mariusz Wojciechowski, explained: "Countries like Sweden and Norway really set the standard for the quality of these vehicles because their ambulances have to be able to handle extreme weather conditions while carrying the best equipment available."

To the casual observer, both ambulance-builds side-by-side may at first appear almost

identical without their decals applied; they are, after all, constructed from the same base vehicle and frequently mounted on the same chassis. But if you pay close attention to the smaller details however you soon get an idea of just how much work goes into the design of each customer's order on a



Mariusz and David



job-by-job basis. In this case it even came down to something as exact but vital as the choice of fog lights; one country preferred LED while the other preferred halogen. I was impressed to find out that thanks to the Kutno site's 3D printer, AMZ can even alter the angle of side-lighting to a fraction of a degree if that's what the customer wants. This level of quality, care and attention to detail is not something you can reasonably expect on a mass-production basis because the margins for error on a typical mass-produced vehicle are surprisingly high – but this focus on guaranteeing a bespoke build, an offer AMZ makes to every individual customer, is all the more reason why each conversion has to be executed with such great precision.

The low cost of living in Poland means that AMZ's workforce of almost 400 staff can be well-paid while the cost of labour in vehicle production is kept low relative to European standards. With anything between 200 and 500 man-hours being invested into a typical ambulance conversion, any small variation in labour cost will factor up significantly in the final cost of the vehicle. As Mariusz pointed out, one of the reasons why AMZ are able to guarantee such high quality in their engineering is that their workers are well-treated. An AMZ mechanic can expect world-class on-the-job

training and a secure profession at a fast-growing firm that's likely to be around for a long time to come. It may have become something of a stereotype to think of Poles as 'hard-working,' but there does seem to be something within the culture that causes Polish people to strongly identify with their profession and hence take a lot of pride and satisfaction in their work.

Poland might seem like a far-off land to some Brits, but it's closer than you might think. A quick glance at the map will tell you that the areas occupied by Poland and the Czech Republic might more accurately be described as 'Central Europe' rather than 'Eastern Europe.' This convenient location effectively makes the country both a gateway to the West and the East, with easy access by car to most of Northern Europe and fast and efficient railways stretching well beyond the continent. Kutno in particular enjoys a convergence of high speed motorways and operates as a central railway hub for the whole of Poland (in much the same way as Crewe does for England) resulting in the fact that its superb transport links are taken advantage of by leading manufacturing companies like Kellogg's who chose to locate their largest plant in Europe within the town (think about that the next time you tuck into a bowl of cornflakes).

Due to Kutno's ideal location and advanced technical infrastructure, the nearby Kutno-Agro industrial park has attracted billions of Euros in capital investment in the last ten years, accommodating Japanese and British packaging companies like Fuji Seal and DS Smith. Lodz airport is just 60km away while Warsaw Modlin is just 100km to the east – an easy and pleasant drive across Poland's flat countryside. The two-hour plane trip to Warsaw is slightly faster than a train trip to London when travelling from Ambulance Today HQ, and, unsurprisingly with the UK's sky-high train fares, it's a lot cheaper too!

One of the ways that AMZ are able to deliver such a high standard of quality to



every customer is through their astute methods of tracking and accountability. After a 3D model of the individual order is designed and then approved by the client, each component of each vehicle is labelled with a unique job number which ensures that it ends up in precisely the place it was designed for. All employees check in at one of the many log-in stations located throughout the site before beginning work at every part of the process, stage by stage. This means that when each vehicle goes through AMZ's rigorous testing processes, if something is found to be wrong, no matter how minor, the fault can quickly and easily be traced to where it may have occurred in any similar vehicle and rectified. Not only does this allow AMZ to identify areas where individual workers can enhance their learning, but, equally importantly, this assiduous approach to tracking construction also means that they can provide a level of aftercare that was previously unheard of.

David Brophy, AMZ's MD of UK Operations, can measure AMZ's performance against a wide range of other European ambulance builders' standards due to his 25 + years high-level experience across the ambulance industry as a whole. As he proudly comments: "I'm really delighted that some of our customers have already come back to us and said that the level of aftercare they've received has been unprecedented! AMZ's



Cabinetry to suit



Loom preparation



in-depth knowledge of everything that goes into these vehicles makes fault-finding and aftercare-maintenance far easier than ever before."

Another thing that you won't find at most ambulance converters is the facility onsite to manufacture electrical wiring. In a room affectionately referred to as 'the knitting room' (because of the massive rolls of wire that resemble cotton spools) wiring is laid-out on long boards and cut to the exact lengths that will be needed for each job. This in-house production method saves on costs but also shaves off a little weight by not having a lot of redundant slack wire housed within the walls of the ambulance. Wiring looms are totally bespoke.

The tight CEN Compliance regulations (EN1789) placed on European ambulances require that no part of the vehicle, or the vital medical equipment housed inside it, becomes a projectile in the event of a collision; this is ensured through the expensive process of dynamic testing. The individually cut parts and vacuum-formed ABS mouldings keep everything packed in, making these vehicles extremely robust. AMZ can even account for the weather with their high-powered rain-testing facility. It's important that ambulances are water-tight, especially in the colder Scandinavian countries where frost can quickly damage equipment. When AMZ ambulances are finally fitted with their livery they are then subjected to powerful jets of water for extended periods of time to prove that they are ready for even the worst weather conditions. Crash testing of all AMZ-produced vehicles is a daily part of the AMZ production cycle.

I have to admit that none of the ambulance build facilities I've visited in the UK have thus far felt it necessary to retain armed guards on site on a 24 hour basis, but the parts of AMZ's massive facility that handle military production require understandably super-tight security measures. Having said that, it was such an exciting place to visit that I was only too happy to check in my camera and passport in order to get a glimpse of this most fascinating aspect of AMZ's build programme. Parked imposingly outside the high security reception area are a few eye-popping examples of AMZ's handy work, including heavy-wheeled military vehicles fitted out with blast-deflecting armour and a colossal minesweeping vehicle. Jeremy Clarkson would swoon! One of the most striking examples of their high-level front-line military vehicle builds is the aptly named 'Hipopotam'; This 10-metre-long, 32-tonne monster of an armoured transport vehicle can move at up to 70mph on rough terrain, but it can also swim - the clue, I suppose, is in the name!



AMAZing "Heavy Metal" Hipopotam

Later in my visit I was shown video footage of the 'Hipopotam' taking a test voyage on a local lake. Evidently, it's both the perfect



AMZ's history: A success series

1999 (June)

AMZ is established with staff of eight and area of 3000m²

2000 (January)

First 50 ambulances built by 60 employees

2002

Attainment of certificates ISO 9001:2001

2003

Export Department is established: first clients from Germany, Denmark, Belarus and Ukraine.

2004

Attainment of certificates AQAP 2110:2003

2005

Production of 602 vehicles - including 198 military armoured vehicles AMZ became "Business Gazelle" Prize Laureate

2007/2008

Monthly "Forbes" - distinction and title 'Diamond of Forbes' 2007/2008

2008

AMZ received ISO 14001:2004

2009

In three halls (total area of 13,000m²) 1,000 vehicles were produced by 400 high qualified employees.

2011

New AMZ-KUTNO product, low-floor bus City Smile. The official presentation of the bus took place on the 12th anniversary of AMZ.

2011-2012

Delivery of 600 Police "First Response" vehicles.

2012 - 2016

Designed, built and delivered more than 600 Ambulance units to Falck throughout Europe.

2017

In addition to many whole-vehicle type approvals already held, AMZ is now concluding full homologation for the Renault Master and new Volkswagen Crafter for both the European and UK markets.

vehicle for war-zones and extreme fishing trips. An additional 200,000 square-metres of the Kutno site is taken up by a huge outdoor testing area where many of these vehicles can really be put through their paces - yet another benefit of being located in the wide-open terrain of central Poland.

The tight security and high standard of specification for these military vehicles means that the ballistic armour and mine-

Accurate **on-the-spot** **decision making** when time is critical

For chest pain patients every moment counts. The sooner Acute Coronary Syndrome can be diagnosed, the sooner a patient can receive life-saving treatment or be discharged. Using just a single blood droplet from a simple finger-prick, Minicare I-20 gives lab-comparable results for cardiac troponin-I (cTnI) within 10 minutes at the point-of-care. The availability of the Minicare cTnI result in the ambulance supports decision making for referral prior to reaching the Emergency Department, allowing for better ambulance and hospital resources utilization.

innovation  you



Minicare I-20
www.philips.com/minicare



PHILIPS



proofing must be manufactured onsite using heavy-duty plasma and laser cutters. The 10-11cm thick windows on vehicles like the TUR V are cut using an impressive waterjet process. Also, steel pieces up to 4-inches thick can be cut using these same narrow streams of water compressed to frighteningly high pressures (you certainly wouldn't want to get in the way of them) according to tight digital specifications, laid down for military purposes.



I was lucky enough to get the chance to sit in the driver's seat of one of these armoured vehicles and, once you pull the lever to lock the airtight door behind you, there is a strange feeling of calm as most of the outside noise (even in a loud manufacturing plant) is blocked out by the heavy armour and thick glass. It must take

a special kind of bravery to drive such a vehicle in hostile environments, often over areas dotted with land-mines, but the quality of the engineering and the tangible sturdiness of the vehicle certainly inspires a powerful sense of safety. Every single component is rigorously tested to a high standard and it's hard to imagine any harm coming to its occupants.



The tyres on a vehicle like a Hippopotam are fitted with heavy runflats allowing the transporter to move forward in a runflat situation, and in case of a mine blast under the vehicle they also help to deflect the power of the blast. An interesting crossover: in the requirements of ambulances and military vehicles is the need for EMC testing – the facility for which again can be found onsite at the Kutno plant. This involves



placing the vehicle in a room that effectively becomes a Faraday cage, ensuring that no electrical equipment onboard malfunctions in the presence of strong electromagnetic pulses. That's pretty important for an ambulance too!

AMZ's expertise is by no means limited to EMS and military vehicles: amongst their impressive list of previous projects include bank cars, road maintenance vehicles, vehicles for the transportation of animals, telecommunications vehicles and minibuses. The production of their City Smile electric bus program recently had to be expanded to another site. Whatever the customer's needs are for a specialist vehicle, AMZ has the innovative, technological and logistical capability to make it happen.

During my visit to Kutno I saw first-hand that AMZ certainly has the skilled engineers, the experience and the technological resources to deliver on their promise of the best quality ambulance conversions at costs that are realistic for today's market, but does the name AMZ inspire that all-important quality - trust? Based on what I saw, I most certainly think so. Through their commitment to quality, innovation and flexibility, and through their rigid policies of transparency and accountability, AMZ have succeeded in making the extremely complex process of building a top-range ambulance into something very simple: **honest engineering you can trust.**



To find out more about AMZ visit:
www.amz.pl
 Or call AMZ UK: 07974 940121
 or 01425 602999
 Email: djb@amz.pl

Only the R6 range of Rescue Helmets are **fully certified** to these standards and more.



EN 12492:2012
(Working at Height / Engineering)



EN 16473:2014
(Technical Rescue)

Full Certification Pending



PAS 028:2002
(Water and Flood Rescue)



R6C



R6D



Introducing the R6 Dominator Rescue Helmet for RTC, Paramedic, At Height & Water Rescue

The R6 helmet range are a strong, comfortable and lightweight rescue helmets, and are **fully certified** to multiple standards. Our new R6DX conforms to the PAS 028:2002 marine standard (pending full certification). So if you and your team's activities include flood and water rescue, as well as RTC, at height rescue, technical rescue and paramedic applications - now, thanks to the R6DX you'll only need one rescue helmet in your PPE kit.



R6DX

Make your next rescue helmet a fully certified one!
Contact VimpeX today!

Visit us at The Emergency Services Show on Stand C71

www.vimpex.co.uk
sales@vimpex.co.uk
01702 216 999

VIMPEX
Advancing Rescue Technology

Vimpex Ltd, Star Lane, Great Wakering, Essex, SS3 0PJ

TESTED

ADVANCED AMBULANCE SEATING



M1 SEATS APPROVED TO LATEST
R44.04 CHILD SEAT STANDARDS



**Contact us for further
information and brochures**



EVS Europe
Emergency Vehicle Seating

1 Chilford Court, Rayne Road, Braintree, Essex
Tel: **01376 552399** Email: **enquiries@evseurope.com**
Web: **www.evseurope.com**

From the Africa Desk of Ambulance Today

An introduction to the Aeromedical Evacuation Industry in Africa



By Michael Emmerich

This Africa Quarterly editorial looks at the challenges of evacuating critically injured patients across the African Continent. I have been privileged to have been part of flight crews and numerous flight programs/ companies for the past 30 years, working as a rescue medic and paramedic on rotor and fixed-wing (pressurised and non-pressurised) aircraft.

Fixed-wing ICU medi-vacs are an essential and vital part of pre-hospital care in Africa, whereby patients are flown from across the continent, back to Level 1/Category A receiving centres. Mission times run from 5 to 40 hours from time of deployment to final patient handover; with crews spending 2 to 5 hours at the referring hospital/ country stabilising and doing further medical interventions on patients. Sometimes bad weather has rolled in trapping crews on the ground for a day or two, and they are then left to care for the patient in the referring hospital until they can fly out. Aircraft at times need to refuel en route and on their return leg to the receiving hospital, so flight crews are prepared for extended mission times.

I chatted to James Crawford-Nutt the CEO and founder of Origin Medical. He has, and continues to play an integral role in Flight Ops for the past 20 years across the continent with some of the major role players, in North, West and Southern Africa. The primary receiving hub, for most of Sub-Saharan Africa for the past 30 years has

been South Africa, and Kenya (on the east coast) has been able to handle low level ICU patients for the past 10 to 15 years. North Africa has generally been serviced via Europe with patients being flown to the UK, Spain or Italy or at times Morocco, whilst WARA has a regional footprint in West Africa, based out of Accra in Ghana. Patients needing further definitive care would then be fetched by flight crews from South Africa and flown back to Johannesburg.

The level of care offered in the fixed wing aircrafts flying patients back to South Africa is at the top end of ICU care, with Hamilton Ventilators, iStat Blood Gas Analysers, Syringe Drivers and associated multi-parameter and cardiac monitoring equipment. It needs to be, as one can have a patient in your care in a small aircraft for 5 to 15 hours, with only you and your partner; to treat the patient. Flight crews (comprising of ALS Paramedics, Doctors and ICU Nurses) go through rigorous training and specific Aviation Medicine Qualifications, plus the required aircraft specific legislative paperwork. They work as a 2-person team in the aircraft and are skilled in all levels of advanced life support from airway to pharmacology and field surgical interventions.

Many airfields that are used for landing and take-off do not have night landing capability so mission times need to be adjusted for all conditions. Ground support vehicles need to be coordinated to ferry the medical teams and all the equipment (and by all, I mean everything, right down to oxygen cylinders)

and then ferry them and the patient – who would now be securely packaged and prepped for flight transport – back to the refuelled and awaiting aircraft. Flight and medical crews need to be in constant communication with respect to fading light and changing weather conditions to be able to leave timeously if needs be. Once back aboard the aircraft discussion revolves around cabin pressure (for the patient's condition), flight times, fuel and possible weather patterns en route. We have had to fly through the eye of a monsoon at low altitude with a spinal decompression patient, as we needed to keep the cabin pressure as close to sea level as possible.

All things considered being a part of a flight medical crew working on the African continent poses unique challenges and ensures that pre-hospital emergency care remains both exciting and dynamic.

Tell Michael what you think about this article by emailing him at: mikesnexus@gmail.com

If you have any ideas for special feature articles on ambulance care in any part of Africa we would like to speak with you about them.

Equally, if you have any news items you would like us to run either in our magazine or on our daily-updated global ambulance news website please email us at: editor@ambulancetoday.co.uk



DRC Transport



CONVERSIONS
a cartwright group company

.....
T 0800 0320 279
.....

Conversions at the cutting edge

Cartwright Conversions bring you the best of the market's tried-and-tested design with engineering advancements to keep you at the forefront of patient care.

Our range of ambulances are engineered to work efficiently in the field with a modern, clinical design and customisable options to suit your individual needs.

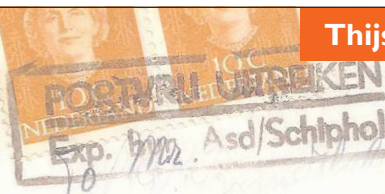
All our ambulances are quality assured and comply with BS EN 1789 (CEN) and European Community Whole Vehicle Type Approval (ECWVTA).

.....



Cartwright Conversions
Hop Hills Lane, Hatfield
Doncaster, DN7 4JU

0800 0320 279
sales@cartwrightconversions.co.uk



VIA AIR MAIL

IT Editor

'THANK YOU FOR YOUR GOOD CARE'

We hear this sentence so many times that we tend to forget the meaning of it. In fact, it means a lot, certainly for the patients and the families that utter these words. For them, the fact that an ambulance has visited them is - most of the time - a unique experience and leaves a big impression.

We may not always realize this ourselves but our behaviour on an accident or emergency scene is put under a magnifying-glass. In these circumstances of fear, anxiety and unrest, people are very vulnerable. Finding the right words, doing the right things in the right way in the right moment is very important. And if you succeed, the six words from the title of this article are your reward.

Of course, there are people who go further in expressing their appreciation for your care. Quite often our service is surprised by messages, cards, flowers - even cakes being delivered as a means of saying 'thank you very much.' Some people have planted trees in honour of the ambulance crews that attended their family member, even if they were not successful in bringing someone back to life.

I have had my share as well. Cards, and nowadays, emails sent to the ambulance service do come in, though it is not very often I must admit. I remember that I was once contacted by parents who wanted to meet me to thank me in person for

treating their son who had suffered from a severe brain injury after a bicycle accident. It turned out to be an emotional, but very nice meeting including the patient's sister and the patient himself, for he had made a remarkable recovery and was about to begin studying medicine.



A less lucky incident was a lady who was almost stalking me after I had reassured her when her 18-year-old son had fainted while taking a shower. She called several times and visited the station twice, looking for me, but my chief nurse was well aware of the situation and was able to put her off. He had been contacted numerous times by the lady asking about me, and also sensed that there was a jealous and abusive husband in the background.

Speaking of this shadowy side of saying thank you, I remember I was working in the control room when we received a call from a lady who wanted to know more about an incident involving her husband. He had suffered from a concussion and a head injury. We put her on hold and looked into the files to see what had happened. Guess what! The man had sustained his injuries after falling from the stairs of a sex club. The ambulance had picked him up and brought him to the hospital. Oops! We went back to the lady asking her why her husband did not call. She replied that he did not remember the whole incident but wanted to know what had happened. You could hear that she suspected something and was fishing for clues. We told her we could not give

this information, but she was smart and said: "But I want to thank the ambulance crew!" Against this friendly request we could not

put up a fight. We informed her that she should call to station X because the crew that had attended her husband was there and hung up. Our next call was of course to the crew in station X to warn them about an inquisitive woman that was about to call them and we explained the situation.

Last month I received a very warm message from someone we helped two years ago. It was a very complex situation, involving not only a patient (who we had to resuscitate), but also a person in the patient's immediate vicinity who we hadn't forgotten about - our help proved to be a very important factor in this person emotionally coming to terms with an overwhelming situation. After two years this person felt it was important to tell us we had done a very good job.

I always feel privileged to receive a warm handshake and a sincere thank you from a person my colleagues and I had taken care of, and I don't mind if this 'thank you' is followed by: "But I hope we will not meet again." Then I invariably reply: "We can always say hello when we pass each other on the Leidsesquare (the main outgoing square in Amsterdam)."

This gratitude is one of my motivations to keep up the good work. Training colleagues is nice; giving a lecture can be rewarding; doing office work is sometimes important; writing articles (or columns) is a great way to relax - but I could not do without "thank you for your good care."



Tell Thijs what you think about this article by emailing him at: tgras@xs4all.nl

Access to Summary Care Record in ambulances



**Smart
Monitoring**



**Smart
Documentation**

For the first time paramedics are able to access SCR in ambulances

MobiMed Smart gives paramedics at South Central Ambulance Service NHS Foundation Trust fast and secure electronic access to SCR, giving them essential clinical patient information at the scene. It is expected to give the clinicians an increased ability/effectiveness to make informed decisions and an increased efficiency in delivering appropriate care to patients.

MobiMed Smart supports the needs of a modern 21st century ambulance service.

We are ISO-certified:

ISO 20000

IT Service Management

ISO 27001

Information Security
Management Systems

ISO 13485

Quality Management System
for the Design and Manufacture
of Medical Devices

Features

- Summary Care Record (SCR)
- Smart-card login
- Personal Demographics Service (PDS)
- Monitoring with clinical background from cardiac critical care
- Easy to configure and adapt to any clinical standard, such as JRCALC, Snomed, etc
- Easy to integrate with CAD, Defibrillators, information systems at hospitals, etc

Paramedicine Across Canada Expo (PACE) 2017

PACE2017 welcomed paramedics from across Canada this past August. Hosting this 2nd bi-annual conference was the beautiful Quebec City, Quebec, Canada. This two-day conference was packed with educational content.

Two pre-conference workshops offered Advanced Medical Life Support (AMLS) and Learning Essential Approaches to Palliative Care (LEAP). These pre-conference workshops are often a great opportunity to gain new information and achieve competency maintenance credits.

PACE2017 was pleased to offer an informative panel discussion on Paramedicine Self-Regulation. As many of the Paramedic Association of Canada's Provincial Chapters are seeking to establish Self-Regulatory Colleges this panel discussion was an excellent opportunity to share knowledge with those provinces that have successful Colleges and those in the process of bringing a College of Paramedics to fruition.

A National Education Chapter meeting was also held on August 17th to offer information on this exciting, new Chapter of the Paramedic Association of Canada. This new National Education Chapter will bring together Canada's educators and provide a platform for collaboration and knowledge sharing.

Also on August 17th was the Annual General Meeting (AGM) of the Paramedic Association of Canada (PAC). A record-breaking attendance for the AGM was welcomed as those in attendance were updated on the many initiatives that PAC has been working on throughout the last year. The AGM was also an opportunity for each Provincial Chapter to give an update on local issues.

Opening ceremonies on Friday, August 18th kicked off a robust conference schedule filled with the most current, cutting-edge information delivered by a host of exceptional speakers. An impressive and impeccably-dressed Paramedic Honour Guard marched in dignitaries filling the room with the regal sound of a ceremonial march. Over 500 delegates enjoyed some toe-tapping ditties from local Quebec musicians. An energizing way to kick off the morning!

PACE2017 was proud to welcome International guests to Quebec City. Bringing greetings from across the globe were representatives from Germany, Turkey, USA,



and Ireland. The Paramedic Association of Canada has nourished global relationships and was very proud to have their International friends join PACE2017. There is much excitement to expand the global reach for PACE2019!

The Exhibitors' Floor opened to delegates streaming into the largest Paramedic trade floor in Canada. Delegates highlight the trade floor as an integral component of the conference and PACE2017 did not disappoint. The Exhibitors' Floor hosted each nutrition and lunch break becoming a central meeting place for all friends new and old.

Four learning tracks at PACE2017 were Clinical/Leadership/Education/Community Paramedicine. Each track was filled with the industry's most dynamic speakers. From cutting-edge simulation, to hands-on workshops and knowledge-sharing around leadership, each delegate departed PACE2017 more informed and better equipped to provide quality care within their respected workplace.

Unique to PACE2017 was the FREE session 'When you have a Paramedic in the Family.' This session was free to all delegates spouses/families. An opportunity to share experiences of living with a Paramedic in your family and discuss successful ways to manage work/life balance. Sessions such as this encourage delegates to have their family join them at conference destinations.

The Paramedic Association of Canada held its inaugural Awards Ceremony Friday, August 18th. We congratulate the following recipients and recognize their outstanding contributions to the Paramedic profession, the patients and communities they serve:

Kelly Williams, Prince Edward Island

2017 PAC Paramedic of the Year

Sponsored by Kid Co

Steven Mills, British Columbia

2017 PAC Award of Excellence for

Education and Training

Sponsored by Kid Co

**Dr. Aaron Sibley,
Prince Edward Island**

2017 PAC Award of Excellence for

Innovation and Research

Sponsored by Med Three Insurance

Clarke McGuire, British Columbia

2017 PAC Award of Excellence for

Leadership and Community Builder

Sponsored by Paramedic Association of Canada

Delegates energized by all the day's information gathered at an evening Networking Reception on the Exhibitors' Floor to meet with new and old friends. The reception offered all vendors an opportunity to spend a leisurely evening with conference delegates wandering throughout the exhibition floor.

So much fun must eventually come to an end! Closing ceremonies were addressed by inspiring closing remarks from Joel Lightbound, the Parliamentary Secretary to the Minister of Health.



Mr. Lightbound delivered a heartfelt message to Paramedics for the important work they do every day.

Closing ceremonies also unveiled the best kept secret.... PACE2019 will be held in Winnipeg, Manitoba, Canada, September 19-21. Come explore the center of Canada, from polar bears to the Canadian Museum for Human Rights, Winnipeg's diverse culture welcomes you in 2019!

**For more information on PACE2019
watch our website: pacexpo.ca**



WOUNDCLOT™

Hemostatic Gauze

SOLUBLE CELLULOSIC STRUCTURE

FOR MODERATE TO SEVERE ARTERIAL AND VENOUS BLEEDING

- Life Threatening Bleeding
- Lacerations and Avulsions
- Abrasions
- Soft Tissue Injuries
- Operative and Post Operative
- Traumatic Injuries

See Woundclot at the Emergency Services Show 2017

www.woundclot.com

Email: info@woundclot.com



Vehicle-ramming attacks:

An EMS perspective from Magen David Adom

Vehicle-ramming attacks are a tactic employed by terrorists across the world, looking to instill fear and to cause maximum death and injury by using a simple and freely available means – a car, truck, or any type of vehicle. It is often perpetrated in lone-wolf style attacks, where there is not necessarily any direct link between the perpetrator and a particular terrorist organization, but often there is the influence of a particular ideology that leads to carrying out the attack.

Vehicle-ramming attacks have become an all too recognized sight on world streets over the past few years. The UK, France and Germany being just some of the places where this terrorist tactic has been used to deadly effect.

This type of attack that has more recently become synonymous with, but not exclusive to, Islamist terrorism, causes widespread death and injury and is very difficult to prevent. The sight of a vehicle travelling down a main street is unlikely to cause alarm prior to its use as a weapon. Over the years, many different types of vehicles have been used in these attacks, ranging from private, family-style cars to trucks and even bikes.

In Israel, where this type of attack has become all too frequent, over 30 vehicle-ramming attacks took place in a wave of Palestinian terror since 2015, and there have been eight such attacks in 2017 alone (January - August), leaving at least 5 people killed and 7 injured (perpetrators excluded). Several measures such as concrete blocks and bollards have been put in place in order to reduce the number of casualties.

These measures are only partially effective, particularly against small vehicles. However, on at least two occasions in Jerusalem heavy tractors have been used, increasing the damage to other vehicles and casualties.

Magen David Adom EMTs and Paramedics have become more adept at treating the victims of these type of incidents.

From an EMS point of view, treating these incidents is fraught with hazards, for several reasons.

The first is the fact that a vehicle-ramming attack can lead to a large "hot-zone" area, whereby the victims may be spread across a wide area with no specific epicenter. This was particularly evident in the attack in Nice on 14th of July 2016, where a truck

was driven through crowds for a distance of over a mile, leaving 86 dead and almost 500 injured.

Secondly, these attacks often have combined elements – for example in Jerusalem in October 2015, where a vehicle-ramming attack took place at a bus stop, once the car had come to a halt the terrorist began to attack the injured with a butcher's knife, leading to the death of one of the victims. It is possible that EMS could be called to the scene to find that it is still active.



This was also the case in the Westminster Bridge attack in London in March of this year. Once the vehicle had come to a halt due to a physical barrier, and not before killing four pedestrians and injuring another 50, the assailant then attacked and killed a police officer by stabbing him.

Many lessons can be learnt from these attacks.

- The ability of the Dispatch Center to recognize the incident as an attack, and not merely a traffic accident (MVA), for example, in the case of the MVA, the driver will normally stop and assess as soon as possible.

Magen David Adom uses trained EMTs and Paramedics in their Dispatch Centers, often leading to a better initial assessment of both the situation and the condition of the victims.

- Awareness that the scene and incident may still be live.
- Preparedness for the scene to include multiple casualties, with multi-trauma injuries, including unseen internal injuries.
- The possibility that there may be several scenes, or a large area to cover, and therefore an increased number of resources may be required.
- The importance of immediate triage, and the decision-making process regarding order of evacuation from the scene when resources are limited.
- Magen David Adom crews, both front-line EMTs and Paramedics, as well as Dispatch Center teams are well trained in dealing with such incidents, and, unfortunately, many are well practiced.
- Post-incident debrief should be carried out as soon as possible after the attack, and special attention paid to the mental as well as physical welfare of the crews involved.

From an EMS perspective and with the ever-present threat of further attacks, lessons from these types of events must be learnt and implemented, including recognition, resource allocation, triage, treatment and evacuation, all whilst taking into account the complexity of such attacks and the potential added risks and challenges that they pose to the general population and to the crews themselves.

To find out more about MDA:
Email: info@mda.org.il
Facebook:
www.facebook.com/mdaonline

LOCAL RESILIENCE | CBRN | MASS CASUALTY | FLOODING
TELECOMMUNICATIONS | HAZARDOUS AREA RESPONSE TEAM - HART
RECOVERY | INTEROPERABILITY | INFECTIOUS DISEASE | HUMAN WELFARE



Ambition

THE EPRR EXPO

6-7 March 2018
Olympia, London

**Europe's leading event
for the emergency
preparedness, resilience
and response community**

Supported by



Cabinet Office

BOOK YOUR STAND TODAY

www.ambitionexpouk.com/ambulance

or contact Sophie McKimm,

Event Manager +44 (0)20 7384 7894 | Sophie.McKimm@Clarionevents.com

www.ambitionexpouk.com

Part of UK Security Week



PEOPLE MOVEMENT
& MANAGEMENT SHOW

6-7 March 2018 | Olympia, London

Follow us on



Organised by



Competence and the EMS Dynamic

By Daniel R. Gerard, MS, RN, NREMT-P,

EMS Coordinator for the City of Alameda in California and Secretary of the International Association of EMS Chiefs.



Every day our competence is informally assessed by our patients, our partners, and the ED staff. A simple definition of competence is that it encompasses the knowledge, skills, abilities, and traits that are required to be successful; that the provider will understand the limitations of their skill set and will know when those limitations have been reached.

The determination of the competence of an EMS provider happens throughout their career. The American College of Surgeons recognized this in 'Resources for the Optimal Care of the Injured Patient.' They identified a correlation between competence and the frequency of patient contacts to achieve and maintain competency.

For EMS, this is a challenging dynamic that sits at the intersection between clinical care, education, and quality assurance. These processes need to be stimulating and rigorous but they are not exercises in intimidation or in futility. If staff are distrustful of the system you have then you have a much larger issue.

Outcomes and Competence

There is an old saying in medicine: 'The operation was a success but the patient died.' We care about patients, the care they have received, and the outcome they had with our system. We cannot provide good patient care without competent providers but we face many hurdles. For example, students need to acquire competence in intubation but we must compete with other disciplines for those limited opportunities.

The formula we use for quality derives from the Donabedian model of care:

Patient + Intervention + Process =
OUTCOMES

We cannot control the patient but we do have control over the process (employees hired, training/education, etc.) and the interventions (treatment algorithms, tools, etc.). This is how we improve the outcomes; by adapting the processes and interventions to achieve success.

Identifying a Competent Provider

Issues surrounding competence may be identified during the QI process; it may arise during a check ride; or it may become evident during periodic competency assessments. Informally it will be known within your organization who is 'good' and who isn't - perhaps a more accurate benchmark.

Degrees of Competence

We develop and maintain competence through introductory clinical education, on-going training and work experience. An EMS provider may have the knowledge and skill but use it poorly because of individual factors (abilities, traits, inertia, etc.) or external factors (unavailability of equipment, organizational support, failure to provide training, etc.). There are four degrees of competence:

Novice - your day one student at any level.

Apprentice - your new hire. Do you hire new graduates or experienced providers? What are your expectations?

Journeyman - has successfully completed their apprenticeship. They will develop their skills and begin the process to becoming a master clinician.

Master clinician - has developed the knowledge, skills, abilities, and traits that allow them to impart knowledge to others and ensure a high degree of clinical care.

Developing Competencies

There are four steps in developing competencies:

1. What are our purposes and outcomes?
2. What are the purposes of the assessment?
3. Plan out the assessment and program.
4. What are the processes and frequency (daily, monthly, yearly)?

Frequency is a unique challenge for us. For example, some organizations may 'assess' competency in CPR by utilizing biennial re-certification.

In Ventura County, California paramedics have to demonstrate skill maintenance in CPR by using a recording manikin every six months. Using this process, they have had a documented increase in survivability from cardiac arrest.

Competency Assessment Methods

An assortment of tools will assist us in developing and maintaining proficiency, the methods should assess:

1. Knowledge
2. Critical-Decision-Making
3. Practice Performance
4. Skills/Tasks

Phillip G. Bashook, Ed.D, established the first office on research of medical education in the U.S. He said that actual observation is the gold standard for the assessment of skills and tasks, but a single observation is not enough to determine competency. We may need to use lab-generated scenarios that are reliable and valid for part of our evaluations. You should also develop what I call the 'Kobiyashi Maru Scenario' (see Star Trek).

The participant would be faced with a challenge, to oxygenate a patient with severe airway compromise, but the scenario is designed to be unwinnable - the patient cannot be ventilated or oxygenated. During the evolution of this ever-increasingly complex presentation the participant would have to use all of his capabilities in their attempts to resuscitate the patient. The purpose is to allow students to fall and land safely, our goal is to develop novices into masters over time.

Summary

Provider clinical competence is a challenge that faces every modern EMS organization because it is a career-long trajectory and must be continually developed and assessed. Education, quality improvement, and competency assessment lie at a complex intersection, but are not exercises in intimidation; they should inspire confidence and success in our members.

Tell Dan what you think of this article by emailing him at: daniel.gerard@post.harvard.edu

For more information about IAEMSC please visit: www.iaemsc.org



PROTECTING HEALTHCARE PERSONNEL WITH BODY WORN CAMERAS

LEARN ABOUT BODY WORN CAMERAS AT THE EMERGENCY SERVICES SHOW

The VideoBadge and VideoTag series from Edesix offer protection against threats and abusive behaviour, and have proven to be valuable assets for facilitating training and operational de-brief.

If you'd like to learn more about the Body Worn Camera favoured by Ambulance Staff, or see a demo of the new VideoTag VT-50 incident recorder, then visit us at the Emergency Services Show.

KEY BENEFITS:

- ➔ Evidential quality video and audio recording
- ➔ Secure encryption and data protection controls
- ➔ 8-14 hours recording time (VideoBadge) or up to 3 months standby battery life (VT-50)
- ➔ Full audit tracking from camera to courtroom using VideoManager
- ➔ WiFi-streaming options available with optional integration to current CCTV Video Management Systems

VISIT US @

Emergency Services Show
Booth E42 | Sept 20-21



Edesix will be presenting on its' deployment of Body Worn Cameras to West Midlands Fire Services on day 2 of the show.

TRIAL OUR KIT

If you'd like more information on the Edesix range of Body Worn Cameras, or wish to sign up for a trial, please contact us at:

✉ sales@edesix.com

quoting "AMB2DAY" or call us on

☎ **0131 510 0232**

Tackling Neonatal Mortality in India

Neonatal mortality in India remains very high at 28 per 1000 live births, with wide variation between urban (15) and rural (31) populations. Pre-term babies with complications are the leading cause of NNMR (44%). Other major causes are intra-partum complications (19%), sepsis (20%), malformations (8%) etc. The national health policy endorses the national consensus on accelerated achievement of neonatal mortality targets to single-digit figures.

At GVK EMRI presently, 1.2% to 1.4% of the 24,740 patients attended to belonged to the newborn age group. Everyday 109 child births are assisted by the trained EMTs in the total of 10,856 ambulances. So far, 472,248 deliveries have been assisted by GVK EMRI ambulances. A specially-developed Disposable Delivery Kit (DDK) ensures infection control.



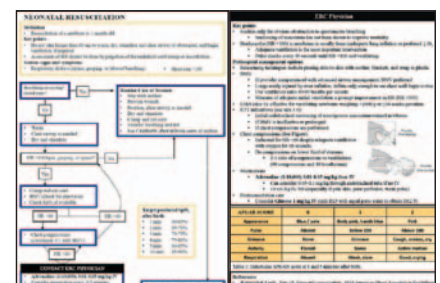
In India New Born Corners (NBC – Level 1) provide basic care at Primary Health Centres; district level Sick New Born Care Units (SNCU-Level 2) provide secondary level care while state level Neonatal Intensive Care Units (NICU-Level3) provide tertiary level care. The neonate after assessment at a Level I/Level 2 unit would be referred to a higher center for admission. Distances between these centers being long, and high-end neonatal care skills being present only at NICU, special neonatal ambulance services for transfer of high-risk new-borns between different levels of neonatal centres in public health care delivery system were found to be essential. Neonatal ambulance services have been initiated in PPP framework in the South Indian State of Tamil Nadu by GVK EMRI since July 2011. Currently there are

60 neonatal ambulances in this state (an average of 2 for every district). On average, 18,364 sick newborns are benefited by the 60 neonatal ambulances. All of these neonatal ambulances are equipped with incubators and all have advanced medical equipment needed for the assessment of a sick neonate, stabilization at the scene, and close monitoring during transport.



A special cadre of Neonatal EMTs (NEMTs) were trained for 45 days by GVK EMRI with the support of faculty from the Institute of Child Health, Chennai. All the NEMTs selected had a 3-year qualification of General Nursing and Midwife (GNM). Neonatal resuscitation, sick new-born assessment, new born transport, management of hypothermia, hypoglycaemia, shock, seizures, respiratory distress, sepsis, jaundice, fluid management, breast feeding, use of incubators, phototherapy, IV cannulation, gastric lavage, oxygen administration form important aspects of NEMT foundation training. Doctors working in the NICU centre called Neonatal Emergency Response Centre Physicians (N-ERCPs) are available for medical direction during transport of sick new-borns. Communication protocols, transport protocols, transfer protocols and treatment protocols guide the care in neonatal ambulances.

A study published in "Seminar in Foetal and Neonatal Medicine - 2015(1-9)", on the neonatal transports from 2011-2014 observed that, of the babies transferred, 43.5% were in the low birth weight category; 64% of the babies were critically ill. The majority of the babies (80%) reached the facility in a stable clinical condition: normal temperature, stable blood sugar; airway, breathing stabilized, and circulation maintained. Of the neonates transported, 85% survived in 2011 and this has increased steadily to 94% in 2014. This observed improvement was significant ($P = 0.02$). Tamil Nadu, where exclusive neonatal transport is being practised, has shown encouraging progress. It is expected that similar programs for neonatal transport across the country will be soon be implemented.



References:

1. Kumutha J, et al., The GVK EMRI maternal and neonatal transport system in India: A mega plan for a mammoth problem, *Seminars in Fetal & Neonatal Medicine* (2015), <http://dx.doi.org/10.1016/j.siny.2015.07.003>
2. www.emri.in

To find out more about GVK EMRI visit their website at: www.emri.in

Penthrox®

methoxyflurane

Advancing Acute Pain Management

At last, PENTHROX® is here...

Fast, effective pain management designed for fast, efficient patient management.

PENTHROX is indicated for the emergency relief of moderate to severe pain in conscious adult patients with trauma and associated pain¹

Now there's a PCA* in a non-invasive, lightweight, portable, handheld inhaler for the emergency relief of moderate to severe pain in conscious adults with trauma. With easy set-up, administration and proven pain relief within 6-10 inhalations,^{1,2} PENTHROX quickly controls patient pain without the need for canisters, cannulas or opioid-related ED attendances.

PENTHROX ▼ 3mL inhalation vapour, liquid. Please refer to the Summary of Product Characteristics (SPC) before prescribing. **Abbreviated Prescribing Information.** Presentation: Each vial of PENTHROX contains 3mL of methoxyflurane 99.9%, a clear, almost colourless, volatile liquid, with a characteristic fruity odour. Each PENTHROX combination pack consists of one 3mL bottle, one PENTHROX Inhaler and one Activated Carbon (AC) Chamber. **Indications:** Emergency relief of moderate to severe pain in conscious adult patients with trauma and associated pain. **Dosage and administration:** PENTHROX should be self-administered under supervision of a person trained in its administration, using the hand held PENTHROX Inhaler. **Adults:** One bottle of 3mL PENTHROX to be vapourised in a PENTHROX Inhaler. On finishing the 3mL dose, another 3mL may be used. The dose should not exceed 9mL in a single administration. Methoxyflurane may cause renal failure if the recommended dose is exceeded. The lowest effective dosage to provide analgesia should be used. Onset of pain relief is rapid and occurs after 6-10 inhalations. Patients are able to titrate the amount of PENTHROX inhaled and should be instructed to inhale intermittently to achieve adequate analgesia. Continuous inhalation provides analgesic relief for up to 25-30 minutes; intermittent inhalation may provide longer analgesic relief. Administration on consecutive days is not recommended and the total dose to a patient in a week should not exceed 15mL. **Children:** PENTHROX should not be used in children under 18 years. For detailed information on the method of administration refer to the SPC. **Contraindications:** Use as an anaesthetic agent. Hypersensitivity to PENTHROX or any fluorinated anaesthetic. Patients with known or genetically susceptible to malignant hyperthermia or a history of severe adverse reactions in either patient or relatives. Patients who have a history of showing signs of liver damage after previous methoxyflurane use or halogenated hydrocarbon anaesthesia. Clinically significant renal impairment. Altered level of consciousness due to any cause including head injury, drugs or alcohol. Clinically evident cardiovascular instability. Clinically evident respiratory depression. **Warnings and Precautions:** Methoxyflurane causes significant nephrotoxicity at high doses. Nephrotoxicity is also related to the rate of metabolism. Factors that increase the rate of metabolism such as drugs that induce hepatic enzymes can increase the risk of toxicity with methoxyflurane as well as sub-groups of people with genetic variations that may result in fast metaboliser status. The lowest effective dose should be administered, especially in the elderly or patients with other known risk factors of renal disease. Methoxyflurane should be cautiously used in patients with conditions that would predispose to renal injury. Methoxyflurane is metabolised in the liver, therefore increased exposures in patients with hepatic impairment can cause toxicity. PENTHROX should be used with care in patients with underlying hepatic conditions or with risks for hepatic dysfunction. Previous exposure to halogenated hydrocarbon anaesthetics (including methoxyflurane) when used as an anaesthetic agent, especially if the interval is less than 3 months, may increase the potential for hepatic injury. Cautious clinical

judgement should be exercised when PENTHROX is to be used more frequently than on one occasion every 3 months. Potential effects on blood pressure and heart rate are known class-effects of high-dose methoxyflurane used in anaesthesia and other anaesthetics. Caution required in elderly due to possible reduction in blood pressure. Potential CNS effects such as sedation, euphoria, amnesia, ability to concentrate, altered sensorimotor co-ordination and change in mood are known class-effects. The CNS effects can be a risk factor for potential abuse. To reduce occupational exposure to methoxyflurane, the PENTHROX Inhaler should always be used with the AC Chamber which adsorbs exhaled methoxyflurane. Multiple use of PENTHROX Inhaler without the AC Chamber creates additional risk. Elevation of liver enzymes, blood urea nitrogen and serum uric acid have been reported in exposed maternity ward staff when methoxyflurane was used in the past at the time of labour and delivery. PENTHROX is not appropriate for providing relief of break-through pain/exacerbations in chronic pain conditions or for the relief of trauma related pain in closely repeated episodes for the same patient. **Interactions:** Methoxyflurane is metabolised by the CYP 450 enzymes, particularly CYP 2E1 and to some extent CYP 2A6. It is possible that enzyme inducers (such as alcohol or isoniazid) for CYP 2E1 and phenobarbital or rifampicin for CYP 2A6 which increase the rate of methoxyflurane metabolism might increase its potential toxicity and they should be avoided concomitantly with methoxyflurane. Concomitant use of PENTHROX with CNS depressants, such as opioids, sedatives or hypnotics, general anaesthetics, phenothiazines, tranquilisers, skeletal muscle relaxants, sedating antihistamines and alcohol may produce additive depressant effects. If opioids are given concomitantly with PENTHROX, the patient should be observed closely. Concomitant use of methoxyflurane with medicines (eg contrast agents and some antibiotics) which are known to have a nephrotoxic effect should be avoided as there may be an additive effect on nephrotoxicity; tetracycline, gentamicin, colistin, polymyxin B and amphotericin B have known nephrotoxic potential. Sevoflurane anaesthesia should be avoided following methoxyflurane anaesthesia, as sevoflurane increases serum fluoride levels and methoxyflurane nephrotoxicity is associated with raised serum fluoride. When methoxyflurane was used for anaesthesia at the higher doses of 40-60mL, there were reports of drug interaction with hepatic enzyme inducers (eg barbiturates) increasing metabolism of methoxyflurane and resulting in a few reported cases of nephrotoxicity, reduction of renal blood flow and hence anticipated enhanced renal effect when used in combination with drugs (eg barbiturates) reducing cardiac output; and class effect on cardiac depression, which may be enhanced by other cardiac depressant drugs, eg intravenous propofol during cardiac surgery. **Fertility, pregnancy and lactation:** No clinical data on effects of methoxyflurane on fertility are available. As with all medicines care should be exercised when administered during pregnancy especially the first trimester. There is insufficient information on the excretion of methoxyflurane in human milk. Caution should be exercised when methoxyflurane is administered to a nursing mother. **Effects**

on ability to drive and use machines: Methoxyflurane may have a minor influence on the ability to drive and use machines. Patients should be advised not to drive or operate machinery if they are feeling drowsy or dizzy. **Undesirable effects:** The most common non-serious reactions are CNS type reactions such as dizziness and somnolence [≥1/100 to <1/10] and are generally easily reversible. Serious dose-related nephrotoxicity has only been associated with methoxyflurane when used in large doses over prolonged periods during general anaesthesia. **Adverse drug reactions observed in PENTHROX clinical trials in analgesia:** **Common** [≥1/100 to <1/10]: Amnesia, anxiety, depression, dizziness, dysarthria, dysgeusia, euphoria, headache, sensory neuropathy, somnolence, hypotension, coughing, dry mouth, nausea, feeling drunk, sweating, uncommon [≥1/1,000 to <1/100]: paraesthesia, diplopia, oral discomfort, fatigue, feeling abnormal, increased appetite and shivering. **Post-marketing experience:** rare [≥1/10,000 to <1/1,000] reports of hepatic failure/hepatitis have been observed with analgesic use of methoxyflurane. Other events linked to methoxyflurane use in analgesia include drowsiness, agitation, restlessness, dissociation, affect lability, disorientation, altered state of consciousness, choking, hypoxia, oxygen saturation decreased, blood pressure fluctuation, vomiting, hepatitis, increased liver enzymes, jaundice, liver injury, increased serum uric acid, urea nitrogen and creatinine, renal failure, blurred vision and nystagmus. **Overdose:** Refer to SPC. **Legal Category:** POM. **NHS Price:** £17.89. **Marketing Authorisation Holder:** Medical Developments UK Limited c/o Price Bailey LLP, Causeway House, 1 Dane Street, Bishop's Cleeve, Herts, CM23 3BT, United Kingdom. **MA Number:** PL 42467/0001. Full prescribing information available from: Galen Limited, Seagoe Industrial Estate, Craigavon, BT63 3UA, United Kingdom. **Date of Preparation:** November 2015.

Adverse events should be reported. Reporting forms and information can be found at www.mhra.gov.uk/yellowcard. Adverse events should also be reported to Galen Limited on 028 3833 4974 and select the customer services option, or e-mail customer.services@galen-pharma.com. Medical information enquiries should also be directed to Galen Limited.

Reference: 1. Penthrox Summary of Product Characteristics, December 2016. 2. Coffey F et al. Emerg Med J 2014; 31: 613-618. Date of preparation: May 2017. MA7-PEN-UK-000043.

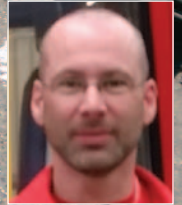
GALEN

For more information visit:
www.penthrox.co.uk

Before administering PENTHROX, make sure you have read and fully understood the SmPC and educational materials, which provide important information about how to safely use the device to minimise risk of serious side effects. PENTHROX educational materials and training on its administration are available from Galen on request.

*PENTHROX should be self-administered under supervision of a person trained in its administration, using the handheld PENTHROX Inhaler.¹

Penthrox® (methoxyflurane) in the Pre-Hospital Arena



By Davy Green

Pain relief in the pre-hospital environment can often be very challenging for many reasons relating to the patient or to the environment. Intravenous access can be difficult as patients are often cold and/or wet and intramuscular administration of drugs can be unpredictable, so other routes of analgesia should be available to the pre-hospital practitioner. The ideal analgesic agent should be easy to administer, quick to work and well tolerated by patients.

Penthrox® (methoxyflurane 3ml inhalation vapour, liquid) is indicated for the emergency relief of moderate to severe pain in conscious adult patients with trauma and associated pain.¹ Penthrox® was launched in the UK in January 2016 and it is working its way into both hospital and pre-hospital practice. It is widely used in Australia and New Zealand and in both these settings has been available for over 35 years. In the past, methoxyflurane was used in much higher doses as an anaesthetic agent. These higher doses caused many of the complications associated with its use, with the primary complication being dose-related nephrotoxicity, but the doses used for inhaled analgesia (i.e. 3 – 6 ml) are much lower meaning the risk is significantly reduced.



Often known as 'The Green Whistle', Penthrox® is self-administered by the patient under the supervision of a person trained in its administration. Penthrox® is administered by pouring 3 ml of methoxyflurane into the green inhaler which contains a wick. The wick absorbs the methoxyflurane and the patient then simply breathes in and out through the inhaler. Analgesia begins rapidly within 6-10 breaths and can last for up to one hour with just one device.² Penthrox® is easy to set up and generally well tolerated by patients.^{1,3} There is an attached Activated Carbon Chamber to adsorb any exhaled drug so that healthcare professionals are protected against occupational exposure.

Having gained experience using Penthrox® in the management of many different injuries over the last year in the Emergency Department in Antrim Area Hospital, we have become familiar with its use and now consider it to be a very important drug. It has allowed us to reduce dislocations, manipulate fractures and treat other injuries without the need to monitor patients for sustained periods of time as we would with procedural sedation or opioid administration. It also allows us to get patients out of pain quickly. As a BASICS Doctor I could see that the benefits of Penthrox® could be easily transferrable to the pre-hospital environment and I have found it particularly useful there on many occasions.

For patients where inhaled analgesia is the preferred method of administration, the only other real pre-hospital alternative is

Entonox (nitrous oxide and oxygen gas). Penthrox® is different to Entonox in a number of ways. For example, there are no contraindications to using Penthrox® in patients with a suspected pneumothorax¹ as it doesn't cause expansion of air-filled spaces. Penthrox® is also very light, weighing only 80 grams,⁴ which is advantageous in a pre-hospital setting.

Penthrox® is quick to prepare, easily administered and patient-controlled and these benefits have been seen many times in my day-to-day job. At a road traffic collision (above) with a motorcyclist who had collided with a car, Penthrox® was our first-line analgesia as it was considerably quicker to get pain relief to the patient this way. While the initial assessment was ongoing and his leathers were being cut and intravenous access gained, the motorcyclist was able to get comfortable and have good pain relief using Penthrox®, allowing the significantly displaced compound fracture of his tibia/fibula leg to be reduced, before any ketamine was given!

Image above shows an RTC scene of a motorbike vs car where a Penthrox® whistle was used. Quick and easy first line analgesia.

Biography: Davy Green



Dr Davy Green is an Emergency Medicine Consultant in Antrim Area Hospital and an active member of BASICS (NI) and a HEMS consultant with NIHEMS.



Canoe folded against bridge. The canoeist was trapped in her canoe being battered against the bridge for a significant length of time before rescue and Penthrox® allowed good analgesia before intravenous access was obtained.

In one particular multi-agency incident, a canoeist had become trapped at a bridge.

Her rescue was difficult and prolonged due to the nature of the incident. After approximately two hours she was rescued but at this time she was hypothermic, wet and in pain. Even before intravenous access was able to be attempted, Penthrox® was used to great effect to keep her comfortable. This then allowed the patient a much easier and less painful assessment and onward transport to hospital.

Early use of Penthrox® allowed for packaging and transport of the patient to hospital. Whilst still on the rescue boat, Penthrox® was administered and rescuers did not have to manage large gas cylinders and tubing, which in this environment would not have been practical.

Another benefit of Penthrox® is that it is not a banned substance in sport. I have used it successfully to treat ligament injuries in a top national cyclist following a road traffic collision. Penthrox® is carried by the doctor at some of our local rugby matches which has allowed injured players to get analgesia or joint reductions at the side of the pitch.

Ambulance crews who have seen Penthrox® used in the Emergency Department or at



(Patient permission obtained).

the side of the road will now often request a BASICS doctor to administer it (it is not yet carried by ambulance service crews in my area) to provide early pain relief to the patient, especially if intravenous access is proving challenging.



Climate controlled healthcare for professionals on the move

Simple to use, effective in performance and reliable in operation.
The Eberspächer climate control system.



A WORLD OF COMFORT

www.eberspacher.com – 01425 480151



40 YEARS OF UK
INNOVATION
1977-2017
Eberspächer

As Medical Advisor to Northern Ireland Search and Rescue, I have made others aware of its pre-hospital use and some of the teams are now carrying it. Dr Charles O'Brien of the Mourne Mountain Rescue team says, "In my experience as a mountain rescue team medical officer, Pentrox® has provided noticeable pain relief when Entonox had been initially used and reported to be ineffective, typically for isolated limb fractures. Pentrox® is now our inhalation analgesic of choice in multi-trauma where chest injuries are likely and has the additional value of being made easily available to casualties over terrain where the transportation of cylinders is problematic."

Overall, in my opinion, I have found that the benefits of using Pentrox® in the pre-hospital environment cannot be underestimated in the right situation with the right patient. Due to its ease of use, its



The Mourne Mountain Rescue Team in action evacuating a casualty from the mountains. Carrying Pentrox® over this terrain is preferable to carrying bulkier analgesic equipment.

efficacy, portability and growing familiarity with its administration, we are likely to see its use increasing in the pre-hospital setting.

Pentrox educational materials and training on its administration are available from Galen on request.

THIS ARTICLE HAS BEEN COMMISSIONED AND FUNDED BY GALEN LIMITED. GALEN HAS HAD NO EDITORIAL INPUT APART FROM REVIEW FOR MEDICAL AND GRAMMATICAL ACCURACY AND TO ENSURE COMPLIANCE WITH THE ABPI CODE OF PRACTICE

References

1. Pentrox Summary of Product Characteristics. December 2016
2. Data on File 1 Galen 2017
3. Coffey F et al. Emerg Med J 2014; 31: 613-618
4. Data on File 2 Galen 2017

PENTHROX 3mL inhalation vapour, liquid: Please refer to the Summary of Product Characteristics (SPC) before prescribing.

Abbreviated Prescribing Information. Presentation: Each vial of PENTHROX contains 3mL of methoxyflurane 99.9%, a clear, almost colourless, volatile liquid, with a characteristic fruity odour. Each PENTHROX combination pack consists of one 3mL bottle, one PENTHROX Inhaler and one Activated Carbon (AC) chamber. **Indications:** Emergency relief of moderate to severe pain in conscious adult patients with trauma and associated pain. **Dosage and administration:** PENTHROX should be self-administered under supervision of a person trained in its administration, using the hand held PENTHROX Inhaler. **Adults:** One bottle of 3mL PENTHROX to be vaporised in a PENTHROX Inhaler. On finishing the 3mL dose, another 3mL may be used. The dose should not exceed 6mL in a single administration. Methoxyflurane may cause renal failure if the recommended dose is exceeded. The lowest effective dosage to provide analgesia should be used. Onset of pain relief is rapid and occurs after 6-10 inhalations. Patients are able to titrate the amount of PENTHROX inhaled and should be instructed to inhale intermittently to achieve adequate analgesia. Continuous inhalation provides analgesic relief for up to 25-30 minutes; intermittent inhalation may provide longer analgesic relief. Administration on consecutive days is not recommended and the total dose to a patient in a week should not exceed 15mL. **Children:** PENTHROX should not be used in children under 18 years. For detailed information on the method of administration refer to the SPC. **Contraindications:** Use as an anaesthetic agent. Hypersensitivity to PENTHROX or any fluorinated anaesthetic. Patients with known or genetically susceptible to malignant hyperthermia or a history of severe adverse reactions in either patient or relatives. Patients who have a history of showing signs of liver damage after previous methoxyflurane use or halogenated hydrocarbon anaesthesia. Clinically significant renal impairment. Altered level of consciousness due to any cause including head injury, drugs or alcohol. Clinically evident cardiovascular instability. Clinically evident respiratory depression. **Warnings and Precautions:** Methoxyflurane causes significant nephrotoxicity at high doses. Nephrotoxicity is also related to the rate of metabolism. Factors that increase the rate of metabolism such as drugs that induce hepatic enzymes can increase the risk of toxicity with methoxyflurane as well as sub-groups of people with genetic variations that may result in fast metaboliser status. The lowest effective dose should be administered, especially in the elderly or patients with other known risk factors of renal disease. Methoxyflurane should be cautiously used in patients with conditions that would pre-dispose to renal injury. Methoxyflurane is metabolised in the liver; therefore increased exposures in patients with hepatic impairment can cause toxicity. PENTHROX should be used with care in patients with underlying hepatic conditions or with risks for hepatic dysfunction. Previous exposure to halogenated hydrocarbon anaesthetics (including methoxyflurane when used as an anaesthetic agent), especially if the interval is less than 3 months, may increase the potential for hepatic injury. Cautious clinical judgement should be exercised when PENTHROX is to be used more frequently than on one occasion every 3 months. Potential effects on blood pressure and heart rate are known class-effects of high-dose methoxyflurane used in anaesthesia and other anaesthetics. Caution required in elderly due to possible reduction in blood pressure. Potential CNS effects such as sedation, euphoria, amnesia, ability to concentrate, altered sensorimotor co-ordination and change in mood are known class-effects. The CNS effects can be a risk factor for potential abuse. To reduce occupational exposure to methoxyflurane, the PENTHROX Inhaler should always be used with the AC Chamber which adsorbs exhaled methoxyflurane. Multiple use of PENTHROX Inhaler without the AC Chamber creates additional risk. Elevation of liver enzymes, blood urea nitrogen and serum uric acid have been reported in exposed maternity ward staff when methoxyflurane was used in the past at the time of labour and delivery.

PENTHROX is not appropriate for providing relief of break-through pain/exacerbations in chronic pain conditions or for the relief of trauma related pain in closely repeated episodes for the same patient. **Interactions:** Methoxyflurane is metabolised by the CYP 450 enzymes, particularly CYP 2E1 and to some extent CYP 2A6. It is possible that enzyme inducers (such as alcohol or isoniazid for CYP 2E1 and phenobarbital or rifampicin for CYP 2A6) which increase the rate of methoxyflurane metabolism might increase its potential toxicity and they should be avoided concomitantly with methoxyflurane. Concomitant use of PENTHROX with CNS depressants, such as opioids, sedatives or hypnotics, general anaesthetics, phenothiazines, tranquilisers, skeletal muscle relaxants, sedating antihistamines and alcohol may produce additive depressant effects. If opioids are given concomitantly with PENTHROX, the patient should be observed closely. Concomitant use of methoxyflurane with medicines (eg contrast agents and some antibiotics) which are known to have a nephrotoxic effect should be avoided as there may be an additive effect on nephrotoxicity; tetracycline, gentamicin, colistin, polymyxin B and amphotericin B have known nephrotoxic potential. Sevoflurane anaesthesia should be avoided following methoxyflurane analgesia, as sevoflurane increases serum fluoride levels and methoxyflurane nephrotoxicity is associated with raised serum fluoride. When methoxyflurane was used for anaesthesia at the higher doses of 40-60mL, there were reports of drug interaction with hepatic enzyme inducers (eg barbiturates) increasing metabolism of methoxyflurane and resulting in a few reported cases of nephrotoxicity; reduction of renal blood flow and hence anticipated enhanced renal effect when used in combination with drugs (eg barbiturates) reducing cardiac output; and class effect on cardiac depression, which may be enhanced by other cardiac depressant drugs, eg intravenous practolol during cardiac surgery. **Fertility, pregnancy and lactation:** No clinical data on effects of methoxyflurane on fertility are available. As with all medicines care should be exercised when administered during pregnancy especially the first trimester. There is insufficient information on the excretion of methoxyflurane in human milk. Caution should be exercised when methoxyflurane is administered to a nursing mother. **Effects on ability to drive and use machines:** Methoxyflurane may have a minor influence on the ability to drive and use machines. Patients should be advised not to drive or operate machinery if they are feeling drowsy or dizzy. **Undesirable effects:** The most common non-serious reactions are CNS type reactions such as dizziness and somnolence ($\geq 1/100$ to $< 1/10$) and are generally easily reversible. Serious dose-related nephrotoxicity has only been associated with methoxyflurane when used in large doses over prolonged periods during general anaesthesia. **Adverse drug reactions observed in PENTHROX clinical trials in analgesia:** **Common ($\geq 1/100$ to $< 1/10$):** Amnesia, anxiety, depression, dizziness, dysarthria, dysgeusia, euphoria, headache, sensory neuropathy, somnolence, hypotension, coughing, dry mouth, nausea, feeling drunk, sweating. **uncommon ($\geq 1/1,000$ to $< 1/100$):** paraesthesia, diplopia, oral discomfort, fatigue, feeling abnormal, increased appetite and shivering. **Post-marketing experience:** rare ($\geq 1/10,000$ to $< 1/1,000$) reports of hepatic failure/hepatitis have been observed with analgesic use of methoxyflurane. Other events linked to methoxyflurane use in analgesia include drowsiness, agitation, restlessness, dissociation, affect lability, disorientation, altered state of consciousness, choking, hypoxia, oxygen saturation decreased, blood pressure fluctuation, vomiting, hepatitis, increased liver enzymes, jaundice, liver injury, increased serum uric acid, urea nitrogen and creatinine, renal failure, blurred vision and nystagmus. **Overdose:** Refer to SPC. **Legal Category:** POM. **NHS Price:** £17.89. **Marketing Authorisation Holder:** Medical Developments UK Limited c/o Price Bailey LLP Causeway House, 1 Dane Street, Bishop's Stortford, Herts, CM23 3BT, United Kingdom. **MA Number:** PL 42467/0001. **Full prescribing information available from:** Galen Limited, Seagoe Industrial Estate, Craigavon, BT63 5UA, United Kingdom. **Date of Preparation:** November 2015.

Adverse events should be reported. Reporting forms and information can be found at www.mhra.gov.uk/yellowcard. Adverse events should also be reported to Galen Limited on 028 3833 4974 and select the customer services option, or e-mail customerservices@galen-pharma.com. Medical information enquiries should also be directed to Galen Limited.

Digital Transformation in Emergency Services – A new age of public communication?



By Markus Bornheim

Markus Bornheim is Avaya's Consulting Sales Engineer for Public Safety and Emergency Services in the EU and Vice Chair of the European Emergency Number Association (EENA) Technical Committee. Here, Markus outlines the four areas of digital transformation that will improve public access to emergency services:

When we find ourselves in an emergency, we dial a number on our phone and we're connected to a call-taker who makes sense of the situation. That person then, if necessary, dispatches response personnel to resolve the emergency. This time-tested process is about to change, however.

Although this approach is still valid and very effective in principle, we have seen communication habits transform beyond recognition, starting with the introduction of widely available GSM mobile phone services in the 1990s. Since then, the mobility of the caller has become the biggest driver in how to approach emergency resolution.

3G mobile internet services were introduced in the early 2000s and, after the advent of the smartphone as a mass communications device in 2007, we saw an increasing adoption of text-based communication and a decline in voice calls, especially among digitally native demographics.

These were two major paradigm shifts for the communications landscape, and mass



mobile adoption changed our expectations forever, redrawing the requirements for emergency services provision. Four main challenges for authorities emerged, manifest in conversations around Digital Transformation and Industry 4.0, throwing a new focus on the automation of communications processes inside and between organizations.

1. How to introduce Multi-Channel public access (voice, video and text)
2. Gathering precise information on caller and incident locations
3. Consolidating Public Safety Answering Points (PSAPs)
4. Ensuring effective multi-agency and cross-border responses

1. Introducing Multi-Channel public access to emergency services

A traditional phone handset is no longer the only option for public communication, considering the massive shift in preference towards text-based and video-enabled communication, especially for younger demographics.



'Voice-only' options have limitations in a diverse society, where not every member of the public has the same level of language skills to describe their emergency, or to understand questions from a call-taker. New communications technologies, such as text and video, enable all types of caller, especially those with accessibility requirements, to benefit equally from fast emergency response times.

For call-takers, opening visual-oriented channels provides access to situational context and evidence of a crime, so they are better equipped to make faster and more effective decisions in response to the situation.

Video communication can be an enabler for digital transformation when established between the ambulance vehicle and the hospital, supporting challenging situations for the ambulance crews by giving access to medical experts via video.

Last but not least, video as an element of telemedicine between the caller and the call-taker can help to prevent sending an ambulance to an incident when it's not really needed.



2. Getting precise information on caller and incident location

To send responders to an emergency, the information must be as precise as possible. There can sometimes be a degree of confusion and anxiety on the caller's side which makes getting clear details take several minutes. Since around 70% of all emergency calls now originate from a mobile phone, determining the dispatch address can be time-consuming.

The introduction of Advanced Mobile Location (AML) as a feature available on mobile phones with Android Operating Systems has been a big step forward. But the overall approach to mobile phone-supported transmission of location data with satellite precision should be based on the multiple methods available. This could mean using an HTML5 internet connection through a web browser; or usage of location services from messaging apps, to provide the largest possible coverage for as many mobile phone types as possible.

3. Deciding whether to consolidate Public Safety Answering Points

Most existing Emergency Response Organizations and their PSAPs have grown to serve demand in the past few decades, resulting in a constellation of multiple small locations with a small number of call-takers (typically 2-5). This worked well in the 90s because of lower call volumes - anyone who wanted to urgently report a traffic accident had to knock on someone's door and ask for a phone. Now, however, the number of emergency calls per incident has increased significantly because of mobile adoption.

A single incident will receive multiple calls that all need to be answered by call-takers and dispatchers. In large incident situations, the traditional PSAPs experience severe call flooding, resulting in long waiting times and lost calls due to capacity constraints in access lines, as well as call-taking personnel.



From a traffic-handling perspective, the PSAP islands will always be stretched by managing large number of calls on their own, but if we consolidate their efforts they can manage the volumes more effectively. Networking multiple PSAPs to share high-traffic volumes can solve this, supporting call-takers in very busy regions by adding capacity from other regions that face normal conditions. For example, 10 PSAPs with four call-takers combined into a single virtual PSAP construct could share traffic and would, therefore, be three times more effective than 10 isolated islands.

4. How to ensure effective multi-agency and cross-border response

Effective collaboration between different emergency response organizations becomes even more challenging when they belong to different agencies, or if a cross-border response is required. Information is typically exchanged by phone calls, faxes, and manual re-typing of incident data into independent case management systems and, obviously, this is error-prone due to the human-factor when acting under stress.

Multi-agency response can also be challenging if each agency has different information. Cross-country response often happens at national borders, but even

more often at the limits of smaller areas of responsibility, regional or even municipal borders. Here also, collaboration is often limited to phone calls, written notes and faxes, rather than a structured exchange of data enhanced by an appropriate means of modern real-time communication.

Overall, more accurate and accessible information about emergency response cases will improve collaboration across borders and between agencies.

Conclusion

Understanding these four challenges will lay the foundations for the digital transformation that is required to enhance and future-proof the operation of emergency response call centers everywhere. It will facilitate a more agile, flexible, and effective collaboration within and between all organizations involved in emergency response.

Processes and procedures driven by events, enhanced by the capabilities of fast and structured exchange of context and situational data, as well as enriched by real-time communication through all available channels (audio, visual and text), will become an integral part of next generation emergency communication. This trend is set to help a wide range of organizations collaborate in emergency response and healthcare.

But beyond that, the public will always want a more comprehensive style of engagement in an emergency, one that delivers faster response times and a higher quality of care. Today's voice-call centric emergency does not enable or support the necessary transformation in the best possible way.



**To find out more about AVAYA
please visit their website:
www.avaya.com/en**

LIV IQ®

Digital therapy device

The new intelligent oxygen therapy device from BOC Healthcare

- Visible and audible warning signals
- Time remaining in hours and minutes at the selected flow rate
- Large, clear digital display
- Live contents gauge

BOC: Living healthcare

BOC Healthcare

Customer Service Centre, Priestley Road,
Worsley, Manchester M28 2UT

Tel 0800 111 333, Fax 0800 111 555

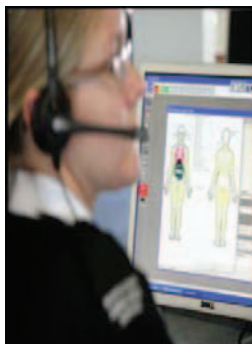
bohealthcare-uk@boc.com, www.bohealthcare.co.uk

 **BOC**
A Member of The Linde Group



 **CLERIC**
software solutions

PEOPLE, PLACES, PROBLEMS



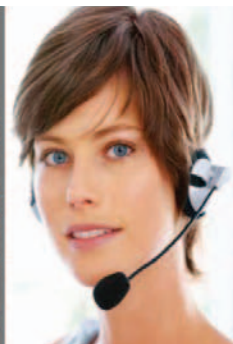
Emergency Medical Services



Health Transport



Call Centre Applications



Transport Logistics



Ambulance Emergency Dispatch & Control
Non Emergency Patient Transport
Nursing Domiciliary Visits
Call Centre Applications
Fleet Management

The systems of choice for health professionals

Over 14 million patient journeys are handled
annually by Cleric systems

visit us at: **www.cleric.co.uk**

Three's a crowd ... unless they're a team!

By Rebecca Barrus & Audrey Fraizer

At least, that's the case in New Zealand and the Republic of Ireland, with both countries proving the highest standards of emergency medical dispatch (EMD) in communications. On July 7, 2017, New Zealand's three communication centers were approved for medical accreditation by the International Academies of Emergency Dispatch® (IAED®).

The Republic of Ireland's three communication centers achieved medical accreditation on three separate occasions, although they do share a history of using the Medical Priority Dispatch System® (MPDS®).

The Health Service Executive (HSE) National Emergency Operations Centre (NEOC) — with centers in Tallaght, Dublin, and Ballyshannon, Co. Donegal — was accredited in 2015. The Dublin Fire Brigade (DFB) communication center was accredited in 2006. All three centers are medically accredited ACEs.

New Zealand

The three communication centers — the St. John Ambulance Service Emergency Ambulance Communication Centre (EACC) with locations in Auckland and Christchurch and the Wellington Free Ambulance Service — merged operations in 2007 to provide a virtual single system of emergency communication to 4 million people, and the millions of vacation and business travelers visiting the country each year (estimated 3.6 million in 2017). Nearly three-quarters of the population lives in urban areas, leaving large rural areas characterized by dramatic topography and relatively small populations.

The merger created a national ambulance communication system that provides cooperative advantages in training, purchasing, maintenance, and other support. A single network connects the centers, and each center has remained in its pre-merger location.

The joint structure in communication also increases the ability of call-handling and, through shared communications technology

that includes a prioritized dispatch system (MPDS), geographic information systems, and incident data transmission to ambulances.

Calls from the North and South islands are answered at centers in Auckland and Christchurch, respectively. Calls made in the central New Zealand are answered by EMDs at Wellington Free Ambulance Headquarters in Wellington at North Island's southern tip.

If all calltakers are busy at any one of the centers, the system redirects the call into the national queue for either of the two other centers. The CAD system also maintains real-time information on the majority of ambulance resources available for deployment.

Nationally, there are more than 445,000 "111" calls for ambulances each year, and the number continues to grow about 3 percent each year. They dispatch a fleet of more than 600 ambulances, 250 rural doctors and nurses, 40 emergency helicopters, and the Coast Guard. They coordinate patient transfer services for district health boards.

"We're a team," said Laura McConchie, CCS Training & Quality Manager, National Headquarters, St John, New Zealand. "The next available calltaker at any of the centers takes the call. If a computer goes down, or if something else happens, we can still handle the call."

Republic of Ireland

The NEOC—with its two centers in Tallaght, Dublin, and Ballyshannon, Co. Donegal—serves all 4.7 citizens of the Republic of

Ireland. Calls to 999 or 112 are connected to an emergency service operator who directs the call to the appropriate emergency service. The 155 EMDs dispatch 92 ambulance stations covering 43,666 square kilometers in 26 counties.

Similar to New Zealand's network, the NEOC operates its two sites over a singular ICT platform. The two centers — working as one — were created as part a national Control Centre Reconfiguration Project to centralize operations.

The newer of NEOC's two centers in Tallaght, opened as the main call center in July 2015, integrates six regional services and is backed up by the control center in Ballyshannon. The center in Tallaght also houses the National Ambulance College and the National Aero-medical Coordination Centre. The college trains calltaking and dispatch staff, EMTs, and paramedics and advanced paramedics.

The Dublin Fire Brigade (DFB) communication center handles the fire and EMS emergency calls for the majority of Leinster and also the emergency ambulance calls for Dublin City and Dublin County.

This center processes more than 150,000 '999'/'112' emergency calls annually, using both the MPDS and the Fire Priority Dispatch System™ (FPDS®). The 65 EMDs/ EFDs dispatch 13 fire authorities and four EMS authorities in an area covering 920 square kilometers.

Dublin, rich in history and cultural diversity, makes it an exciting place to live and work, according to John Moody, third officer of the ERCC.

"Dublin is a multicultural city with inhabitants from all over the globe. The language of choice is English, but multiple facilities are available," Moody said. "For example, Dublin City Council can provide assistance and documentation in many languages, including Chinese, Polish, Russian, and French."



NEOC staff at the Ireland NAVIGATOR

To find out more about IAED or to get involved, visit:
www.emergencydispatch.org

Visit our website at www.emergencydispatch.org

Getac

*Rugged Mobile
Computing Solutions*

See us at
ESS2017
STAND G31



RX10 10.1" Fully Rugged Tablet

Visit our website to see all the latest products.

For more information or to request an evaluation unit,
please contact our sales team on:

Tel: +44 (0)1952 207220 Email: Sales-Getac-UK@getac.com

www.getac.com

Copyright© 2017 Getac Technology Corporation and/or any of its affiliates. All rights reserved.

Code Blue Specialist Vehicles: the new force in Ambulance and Specialist vehicle supply



Code-Blue
Specialist Vehicles



Telephone: 0800 061 4785
Email: chris@codebluesv.com
www.codebluesv.com



We also supply
Patient
Handling
Equipment

TASC tackles stress-related illness with Zeal

A series of workshops aimed at helping past and present ambulance staff cope with stress-related illness or Post Traumatic Stress Disorder (PTSD) have moved a step closer to being realised. Contracts have been signed between TASC The Ambulance Staff Charity and psychology consultancy Zeal Solutions to research and develop the new workshops.



It is now hoped to train sufficient facilitators in order to run a 12-month pilot scheme from April or May 2018.

The aim of the workshops is to help ambulance service staff struggling with stress-related illness, including PTSD. They will include immediate family members, such as partners, and/or a close friend.

Dr Antonio Zarola, Managing Director of Zeal Solutions Ltd, said the programme of work has three key areas:

"The first stage is research and involves developing an accurate understanding of the concerns of ambulance personnel and their family members. The next step involves using this understanding to identify and design appropriate tools and/or interventions for both ambulance staff and their family members.

"The final stage of the process is evaluation, making sure what happens works. Or, if not, is something preventing it from working? These are the three broad parts of the programme."

Zeal, which is based in Nottingham, operates heavily within the health sector and, in particular, the ambulance service. They are also the research and evaluation partner of the National Ambulance Resilience Unit (NARU).

Dr Zarola added: "The TASC programme will commence by going through the process of research – what are ambulance staff facing whether it be Post Traumatic Stress Disorder or the day to day stresses of the job, and are they coping with it?"

"So it's about getting an understanding of what's going on and seeing if there are any knowledge or skill gaps with the individual person and their families. We also want to try to make sure that they make the best use of the resources available to them.

"What's really important in the research phase is to meet staff who have gone through the process, speaking to their families, and also speaking to TASC given the resources they have available. Then, we will sit around the table and see what sort of framework can have the best possible effect on the individual staff and their family members.

"We also have to determine whether the children of individuals need to be factored into the workshops."

Dr Zarola said it would then be a question of putting the framework into practice, to see how the workshops would operate and the particular topics that should be included. They would also determine how long the workshops should run for.



He added: "Our role will not only be to design the framework for the workshops but also train up the facilitators who will take it forward. And then evaluate as the programme goes along. We want to make it a sustainable programme for TASC."

The research stage has just started with both TASC and Zeal asking if anyone wants to be part of the initial phase.

"That will take 2-3 months, and then the aim is to train TASC facilitators ready for a 12 month pilot workshop from April or May next year. The research phase will also look at suitable venues to hold the workshops," Dr Zarola said.

Following the pilot, evaluation will be carried out to track people who have been involved in the workshop, to identify how they used the information and support provided or, if they didn't use it, why not.

Jean Hayes, Director of Support Services at TASC, said: "We have reached a key milestone in this important project by now signing contracts for Zeal to research and develop workshops to support ambulance staff struggling with poor mental health and, in particular, PTSD."

Funding for this important pilot has been provided by TASC partners, Blue Lamp Foundation and CSIS Charity. Delivery of the workshops over the next 3 years by TASC will be aided by a £2.3 million grant from the Labor Funding initiative which was announced in last year's Autumn Statement.



TASC vice chairman Gordon Enstone (left) signs PTSD workshops contract with Zeal Solutions managing director Dr Tony Zarola

For more information about TASC, The Ambulance Staff Charity please visit www.theasc.org.uk or call 0800 1032999.

XPLORE™

THE RUGGED TABLET AUTHORITY™

Emergency Services Mobility Solutions Based on over 20 Years of Field-Tested Engineering.



A Broad Range of Tablets Built to Support Your Response.



Application Flexibility



Real-time Data Transmission



GPS Routing for Faster Response



Infection Prevention and Control



Extreme and Routine Response



Detailed, Coordinated Communication with Receiving Hospital

When you choose from the most complete line of rugged tablets on Earth, you don't have to compromise on mobile computing power, rugged strength, or real-time, around-the-clock connectivity. You get every specialised tool to respond the way you need to respond. When you choose to work with Xplore, the market leader in rugged mobility, you get all of the above – plus a long-term partner committed to helping you save lives when time matters most.

To learn more about Xplore Tablets for Emergency Services, visit us at **The Emergency Services Show** on Stand C55

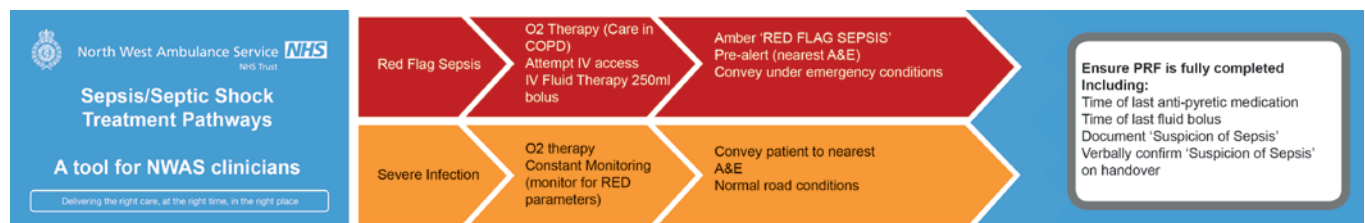
Ready to see firsthand how Xplore's rugged tablet-based solutions can serve all of your specialised mobility needs? Contact us today: **+44 (0) 1926 356 560**



By **Stuart Lee**,
Advanced Paramedic

Sepsis: Providing excellent and appropriate care

Sepsis is defined as a life-threatening organ dysfunction due to a dysregulated host response to infection. In simple terms, this would be classed as a bad infection which can cause organ failure. Sepsis is split into two subsets: sepsis and septic shock. The phrase 'severe sepsis' is no longer used in clinical practice.



It is important to remember the impact sepsis can have on those who survive, as post-traumatic stress disorder is noted in around 40% of survivors and many struggle to return to a fully functioning life post-sepsis. The impact of sepsis on the lives of patients and their families can be truly devastating.

The national driver for change was the 2014 National Patient Safety Alert (NPSA) which stated that clinical staff should have access to screening and treatment tools. As an emergency and acute care provider, the North West Ambulance Service (NWAS) has, until recently, provided variable levels of care to patients with sepsis, leading to under and over triage. With that in mind, the challenge was to establish evidence-based guidance that would allow patient-facing staff to consistently provide excellent and appropriate care to patients across the North West.

As evidence has shown a clear link between early identification and a reduction in mortality, the NWAS medical directorate confirmed sepsis as one of their five key clinical priority areas for development over the next five years.

As early identification of sepsis is key, as well as understanding what an infection looks like in each system, the trust put together a project group to develop a screening tool.



Pictured left to right: Chief Executive Derek Cartwright, Advanced Paramedic Stuart Lee, Advanced Paramedic Danny Butterworth, Chairman Wyn Dignan, Consultant Paramedic Duncan Robertson and Medical Director David Ratcliffe

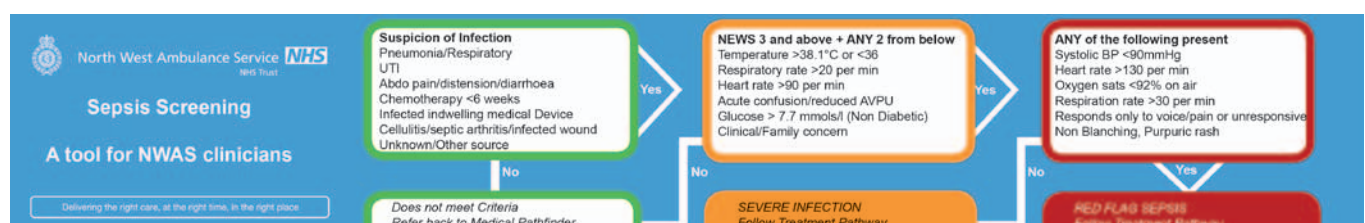
This project consisted of input from many directorates within NWAS, and while clinically-led, is the sum of efforts from a very engaged and driven set of individuals with different skill-sets and experiences. Support for developing a project plan came from the Project Management Office. With their help a multiple phase project was designed which allowed the implementation of the sepsis screening tool. Introducing a tool raised the question of how best to measure its use and success, which led to the early involvement of the Clinical Audit Team. Training materials were required, along with a platform to host them, and the tool needed to work visually and be well designed. Communication and engagement was key to the successful design and we

used Yammer, a private social network that enables effective team work, as the preferred engagement platform.

Working closely with the Education, Training and Learning department, a training system was developed allowing Senior Paramedics to present information and the tool face-to-face. This also involved providing a method of cascading the materials down the clinical management teams and creating a link with the Education, Training & Learning Department administration team to collate and report all the training data to ensure compliance with the trust requirements, and aims of the project.

The prospect of the project remaining static has been addressed by collaborating with trust experts in quality improvement and measurement along with the trust informatics team. The goal for the project team is to continue to develop and refine how we recognise and respond to severe infections and sepsis and that the tool used is fit for purpose. Any future changes have to be based on sound evidence which is why the trust will work with other acute trusts to share clinical data and pool expertise.

To find out more about NWAS, visit the trust's website at:
www.nwas.nhs.co.uk



Stone Hardy

Raising Standards

Stone Hardy is the market leader in the service and repair of tail lifts, passenger lifts, shutters and winches for commercial and passenger vehicles. We offer 24 hours a day, 365 days per year service with teams throughout our regional locations in Bathgate, Bristol, Birmingham, Manchester, London and Northampton.

We currently have 65 mobile tail lift engineers which enable us to provide extremely good coverage within the UK. Our Service vans are well specified in terms of equipment and carry a good selection of manufacturer's parts. Our engineers are well trained, knowledgeable and can deal with most emergency situations.

For more information, please contact Dave Aylott:

Tel: 01604 683495 • Mobile 07713 316366

Email: enquiries.sales@stonehardy.co.uk



BATHGATE • BRISTOL • BIRMINGHAM • MANCHESTER • LONDON • NORTHAMPTON



Healthcare on the Move

Improve the reliability, lower the fuel costs and reduce the fleet maintenance of your emergency and medical product transport vehicles.

webasto.co.uk
info-uk@webasto.com

For your vehicles:

- Lower fuel costs
- Greater efficiency
- Reduced engine wear and tear
- Smaller maintenance bills
- Lower environmental impact

...and for your crew:

- Improved readiness for action
- A pleasant working environment
- Increased operational safety

Webasto
Feel the Drive



Making our World a More Secure Place

Ambition: The EPRR EXPO, 6-7 March 2018, Olympia, London

For many nations across the globe, the threat from international terrorism remains severe. Physical attacks, carried out by terror cells and radicalised individuals, in Barcelona, London, Manchester, Stockholm, Paris and Brussels have been coupled with an increasing number of cyberattacks. With the issue of national security and counter terrorism at the top of government agendas, Clarion Defence and Security Ltd. has announced the launch of UK Security Week that will start on 6 March 2018.

Designed to help international security professionals debate the ever evolving range of threats, define operational strategies and help shape future policy, UK Security Week will include Security & Counter Terror Expo (SCTX), World Counter Terror Congress (WCTC), Forensics Europe Expo (FEE), Ambition, and the new People Movement and Management Show (PMMS). The events have the ultimate objective of helping those tasked with preserving national security, protecting assets and individuals against terrorism.

The emergency preparedness, resilience & response community event

Ambition is Europe's No. 1 event for those who must prepare for and respond to terrorist attacks or mass casualty emergencies. Supported and chaired by the Cabinet Office, the Ambition event will run from 6-7 March at London Olympia. The exhibition and conference is aligned with the National Resilience Capabilities Programme and the National Respond and Rescue Strategy.

Ambition will bring together the policymakers, senior operational managers and industry professionals to focus on how multiple parties work successfully on an



integrated emergency management plan in "major incident" emergency scenarios.

At the heart of the exhibition sits the free-to-attend conference. Visitors will hear from leading experts from emergency management organisations worldwide on a range of key up-to-the minute topics such as the future of emergency services, pandemic diseases, response to terrorist attacks and resilience for businesses, as well as being about to investigate the latest equipment.

Ambition will provide professionals from government departments, the NHS, ambulance services (including Hazardous Area Response Team- HART), councils, local resilience forums, ambulance trusts, fire and police organisations and specialist agencies with the unique opportunity to meet, network and debate the latest challenges facing the EPRR community today.

For Exhibitors and Sponsors

If you are a supplier to this fast growing sector, Ambition is your direct route to

senior EPRR end users and procurement professionals. The exhibition will showcase the latest products and services available to both category 1 and category 2 responders.

Remember this is the key annual event attracting all senior players in the growing emergency preparedness, resilience and response market. There is no other event that is directly targeted at this unique audience.

If you are tasked with preparing for or responding to emergency situations, then Ambition is an essential visit to see the equipment and services shaping your industry.

BOOK YOUR STAND TODAY at:
www.ambitionexpouk.com/ambulance

**Or contact Sophie McKimm,
Event Manager on:**
+44 (0)20 7384 7894

Sophie.McKimm@Clarionevents.com
REGISTER TO ATTEND AS A GUEST
www.ambitionexpouk.com/ambulance



Allows your **LIFESAVERS** to **SAVE LIVES**



The last thing you want your trained paramedic to be doing at the start of their shift is cleaning, stocking and checking their vehicle.

Each hour spent preparing a vehicle is an hour not spent saving lives.



Churchill Make Ready Ambulance Services frees up every paramedic unit hour by providing:

- Comprehensive recruitment and training for all Make Ready operatives
- Bespoke service tailored to your needs
 - Standardised and consistent preparation and packing of all vehicles across all sites
 - Full Make Ready and Deep Clean Audit of all vehicles to agreed timescales
 - Full, transparent and reportable audit trails (including swabbing)
 - Daily reports covering performance, standards and stock control
 - Key asset tracking and medicines management

To find out what Churchill Make Ready Ambulance Services can do for you please contact:

Churchill HelpPoint 0845 345 1576
helppoint@churchillservices.com

Stephen Purcell 07837 398035
Stephen.purcell@churchillservices.com
www.churchillservices.com



Visit the only daily ambulance news site on the net at:
www.ambulancetoday.co.uk

New home for Merseyside NWS ambulance staff



North West Ambulance Service staff currently based at Elm House, Anfield, are to relocate eight miles to Speke into a brand new, state of the art property.

The Trust purchased, Estuary Point for £2.9m and has begun planning to the new location on Liverpool International Business Park which will accommodate the 999 emergency control room as well as corporate services and new training facilities.

The current area office on Belmont Grove, was built in the early 19th century as a family home, spent some time as part of the Belmont Workhouse and then in 1979 became the headquarters for the then Mersey Metropolitan Ambulance Service.

Director of Finance, Tracy Ellery comments: "The Trust has been searching for a suitable property for its Merseyside staff for some

time as we are well aware that Elm House is no longer fit for purpose. This is a substantial investment for the Trust and fully establishes our position in Merseyside, retaining jobs in Liverpool and also importantly providing the opportunity for expansion, particularly for our 999 emergency control centre.

We are now consulting with the staff regarding Estuary Point's configuration and have been arranging site visits for those staff that will be based there. The feedback we have received is extremely positive."

Tracy adds: "The Trust is very proud of its commitment to minimising its impact on the environment and this was a key factor in selecting a property to purchase. Compared to Elm House, Estuary Point will enable us to make impactful savings on our energy costs."

Estuary Point is a new build property comprising of 40,000 sq ft of office space over three floors. It is located in the centre of the business park with views over the Speke Garston Coastal Reserve and the River Mersey.

Timescales have yet to be fully agreed but it is hoped that the building will be fully functional by late summer 2018.



Save the date for IAEMSC's Annual Leadership Summit

The International Association of EMS Chiefs will hold their Annual Leadership Summit on October 6-8, 2017 in Washington Marriott Georgetown, Washington D.C.

The summit offers the opportunity for current and prospective EMS leaders to network and participate in discussions on relevant EMS topics with federal partners and leaders in the EMS profession.

For their 2017 Annual Leadership Summit, the IAEMSC is going to disrupt the traditional model of a conference. They invite delegates to be a part of something new and different, and to join them as colleagues in solving problems, promoting better care and outcomes for patients, and leading innovation in EMS. This conference model will entail providing information to attendees in advance, robust discussions with speakers, and

the capturing of the intellectual products of these discussions.

The 2017 IAEMSC Annual Leadership Summit will focus on trauma care, and particularly the implementation of recommendations from the National Academies of Science, Engineering and Medicine report, A National Trauma Care System: Integrating Military and Civilian Trauma Care Systems to Achieve Zero Preventable Deaths After Injury, in the prehospital realm. Combining the collective experience and expertise of the group, IAEMSC will gather insights through a five-step process, synthesizing these shared perspectives into actionable solutions.

For more information please go to: laemsc.org



SKELTON

SOFTWAIR™

ADDED COMFORT WITH AGION®
TREATED ANTIBACTERIAL,
MEMORY FOAM SOCK LINER



EVA MIDSOLE

ENGINEERED TO BE
LIGHTWEIGHT AND
FLEXIBLE

ENHANCED TRACTION

HIGH GRIP ON VARIED
SURFACE CONDITIONS AND
A 90° HEEL-BLOCK FOR
LADDER-GRIP



DRMARTENS.COM/SERVICE

Visit the only daily ambulance news site on the net at:
www.ambulancetoday.co.uk

New NEAS specialist service will be 'first of its kind' in the North

A specialist ambulance service will soon be available to ensure the wishes of terminally ill patients in the North East are respected.

The new partnership between Macmillan Cancer Support and North East Ambulance Service NHS Foundation Trust (NEAS) aims to address problems which have been highlighted across the UK around the quality of care and support for patients at the end of their lives.

The Macmillan Supportive, Palliative and End of Life Service, which is believed to be the first of its kind across the North, is set to launch at the start of 2018.

Macmillan has invested £350,000 funding over a three-year period, to enable North East Ambulance Service (NEAS) to recruit three new roles: a Macmillan Nurse Facilitator; a



From left, Tina Thompson, Macmillan Partnership Manager in the North East; Dawn Orr, End of Life Care Nurse Consultant in Palliative Care and Alison Kimber, Clinical Services Manager at NEAS.

Macmillan Engagement Officer and an admin support role.

Working from within the Operations Centre at NEAS, they will be tasked with equipping ambulance staff with the specialist skills necessary to support terminally ill patients, and the people around them, whether that be on an emergency 999

call, a NHS 111 call or as part of a scheduled ambulance transport service.

The dedicated Macmillan team will also work with other healthcare and social care providers throughout the North East to ensure patients' care plans are fed into the system so their wishes can be respected throughout the process.

As well as providing better patient care, it is hoped this service will mean more patients can continue to be cared for at home and prevent unnecessary admissions to hospital.

Tina Thompson, Macmillan Partnership Manager in the North East, said: "End of life care is a major issue and it's something Macmillan has campaigned about and called on the government to make a priority. Our research has highlighted numerous issues around the UK, such as people with cancer not

being able to die at home, or not receiving adequate pain relief. These problems can be addressed when staff are given specialist care skills to provide excellent support for people at the end of their lives, and those around them. We're really pleased to have linked up with the North East Ambulance Service and are confident this work will make a huge difference to people with cancer."

Recruitment of the team will begin in the autumn.

Money from Macmillan used to fund the new staff at the North East Ambulance Service has been raised thanks to donations from the public.

To get involved with fundraising for Macmillan in the North East, call Macmillan's fundraising support centre on 0300 1000 200 or email fundraising@macmillan.org.uk

Assaults on SWASFT emergency crews - unacceptable

The emergency services from across the South West have come together to highlight the unacceptable trend in the number of assaults on their staff while on duty.

Police, ambulance, fire and healthcare staff are regularly subjected to attacks from those they are trying to help, including verbal abuse, spitting, biting and even sexual assault.

During 2016, paramedics from South Western Ambulance Service NHS Foundation Trust (SWASFT) were on the receiving end of more than 161 assaults, this is an increase of 20% compared to five years ago. The type of injuries ambulance crews have received range from cuts and

bruising and sprains through to more serious injuries such as dislocations and fractures.

Out of the 140 reported incidents by crews, 50 have resulted in successful police cautions and prosecutions which range from suspended sentence, community service orders, restorative orders, fines and even imprisonment.

One incident in Torquay saw Paramedic Stuart Riley and Karen Lott, Emergency Care Assistant (ECA) subjected to a prolonged serious assault. They were attempting to treat a person who was under the influence of a new psychoactive substance who turned violent. Karen is bravely back at

work, even though the vicious attack has affected her.

David Partlow, Consultant Paramedic for SWASFT, said: "We take a zero tolerance approach to any form of physical or verbal abuse towards our staff, and all reports of violence and aggression are taken very seriously. We work closely with the police to seek prosecutions where possible.

"Every member of the Trust staff plays a vital role in serving the community by helping to deliver the right care in the right place at the right time and staff should be able to fulfil their life-saving role without fear of abuse or assault."

The Trust encourages all incidents to be reported as soon as possible and



has a robust reporting mechanism in place. Staff are also supported by the SWASFT Staying Well Service which provides immediate access to numerous sources of support including specialist counselling and physiotherapy. Police and other blue light services also have similar welfare services in place for their staff.

Devon and Cornwall Police, alone, have seen 2,009 days lost to police officers unable to work on the frontline as a result of being assaulted throughout 2016; this equates to around £1m in salary costs.

ACUTE trial is a breath of fresh air for patients with respiratory failure

West Midlands Ambulance Service and the University of Sheffield have launched a trial which could save lives, reduce the time patients spend in hospital and save money.

The 'ACUTE' trial is looking at patients who suffer from life threatening acute respiratory failure. The condition often results in patients spending long periods of time in hospital, frequently in intensive care.

The condition happens when heart or lung disease suddenly develops or worsens and leads to patients being unable to maintain oxygen levels in the blood. As many as one in eight patients will die from the condition.

Patients with conditions such as COPD (chronic obstructive pulmonary disease) and particularly serious cases of pneumonia are often victims of the condition, where they struggle to breathe.

Ambulance staff currently provide oxygen delivered at normal pressure through a loose fitting mask. Under the trial, ambulance crews will use a CPAP device (continuous positive airway pressure). It involves delivering oxygen under increased pressure through a close-fitting facemask effectively forcing oxygen into the lungs. This allows the oxygen to be taken into the blood stream and also allows carbon dioxide to be released.

The ACUTE (Ambulance CPAP: Use, Treatment effect and Economics) trial, will involve ambulance crews in Staffordshire and Birmingham. Staffordshire historically has higher rates of respiratory disease. This pilot study will be used to see if a full trial of CPAP (Continuous Positive Airway Pressure) is feasible, acceptable and cost-effective.

WMAS Lead Research Paramedic, Andy Rosser, said: "We know that



WMAS Lead Research Paramedic, Andy Rosser,

CPAP is used very effectively in hospitals. Small studies outside of the UK suggest that using CPAP in an ambulance may save more lives, particularly where the patient is in a more rural location and has further to travel to hospital. Where CPAP is used, the patient would start to

receive treatment sooner, rather than waiting until they arrive in hospital."

Research paramedic, Josh Miller, said: "What we want to establish is whether using CPAP in a pre-hospital setting will make a difference to a patient's survival and reduce hospital stays at the same time. It has the potential to save many lives."

Consultant Paramedic, Matt Ward, said: "Patients who are to be recruited into the trial will receive a full briefing from the ambulance staff so that they can make an informed choice. One of the key issues is making sure ambulance staff can explain the trial in simple terms."

Research Paramedic, Imogen Gunson, added: "The mask and straps may not be pretty on the eye, but patients report that it can make a big difference as to how they feel and also how easily they can breathe."



Former Ambulance Trust Chief Executive Becomes Charity Chair

The former head of an ambulance trust has been appointed as the new chair of TASC The Ambulance Staff Charity.

Sue Noyes, who was previously the CEO of East Midlands Ambulance Service Trust, takes over from Roy Norris who has stood down due to new commitments in Wales.

She had recently been appointed as a new Trustee of TASC.

Sue, who served as head of East Midlands Ambulance for two and a half years, had previously worked as a finance director at a variety of trusts within the NHS.

She said: "I have been involved in charities for about 10 years as well as

my NHS work as I always knew that I wanted to give something back.

"The ambulance service gets under your skin, so when the opportunity came up to support ambulance staff by becoming a trustee at TASC I was really pleased to become involved.

"I am now absolutely delighted to have been appointed as the new chair. It is a real privilege for me to undertake the role and one I am really looking forward to."

Sue, who is married with a son and three step-daughters, added: "We all know at TASC that we have real opportunities for the future and we want to work hard to ensure we make a real difference to the lives of hard-working ambulance staff and their families.

"The work that ambulance staff do can take its toll and, as I have done a lot of work with mental health trusts, I was particularly interested in what I could do to support ambulance staff in this area through TASC.

"The key role for me is to further build relationships with ambulance trusts and the independent sector,



Sue Noyes, then CEO of EMAS, speaking at the IAA (Independent Ambulance Association) 2015 conference on patient safety

as well as other charity partners, so we can provide the best possible service going forward."

Sue, who previously qualified as a chartered accountant, went into the NHS in 1990 as part of the major reforms at that time.

As well as becoming a trustee and chair at TASC she has also become a lay member at South Warwickshire Clinical Commissioning Group and recently started her own personal and team coaching business.

A spokeswoman for TASC said: "Sue is well respected in the NHS and the ambulance service and is particularly well known for her passion for supporting staff. We are delighted to welcome her as the new chair of the charity and look forward to developing both our services and influence in the future."

For more information about TASC, The Ambulance Staff Charity please visit:
www.theasc.org.uk
or call 0800 1032999.



Uniform Express

NEW PRODUCTS NOW AVAILABLE TO ORDER

AMB SShell3
Softshell Jacket £29.95

AMB BJKT2
Bomber Jacket £29.95

Contact us at
sales@uniformexpress.co.uk
01295 709774

www.uniformexpress.co.uk

Products & Suppliers News

Visit the only daily ambulance news site on the net at:
www.ambulancetoday.co.uk

BOC: Providing Healthcare Professionals with Peace of Mind

BOC is the UK and Ireland's leading supplier of medical gases and related services for healthcare professionals. BOC Healthcare strives for continuous improvement, shown in our latest cylinder innovations.

The new intelligent therapy device LIV IQ® calculates the time remaining according to the gas content in the device and the selected flow rate.



The result is shown on a large and clear digital display which indicates device content, selected flow rate and time remaining for patient treatment. The visible and audible low cylinder content warning signal provides healthcare professionals with the peace of mind that the

delivery of medical oxygen is maintained to the patient at all times.

For more information on LIV IQ® or BOC Healthcare, please contact us on: 0161 930 6010 or email bochealthcare-uk@boc.com

SP Services launch Crowded Places Crisis Response Kits

The UK's National Counter Terrorism Security Office has published their new Crowded Places Guidance, written to help those charged with security at crowded places to mitigate the threat and help make the UK less vulnerable to an attack. Part of this guidance includes advice on putting together Crisis Response Kits.

Crowded places include shopping centres, sports stadia, bars, pubs and



clubs which are easily accessible to the public and attractive to terrorists. SP Services have developed a SP Crisis Response Kit that conforms to the NaCTSO guidance and then enhanced it with their own extensive product experience and then put all

the items in one handy equipment holdall.

Paul Watts, Head of Business Development at SP Services said "The new Crowded Places Response Kits are ideal for when the sudden evacuation of buildings or crowded places should occur. With our kits you have the peace of mind knowing that if an emergency evacuation is necessary, you have all the equipment you need, in one place, to ensure the safety of your workforce

or members of the public."

Paul added "At SP Services we can also produce other kits, large and small, that meet an organisation's specific requirements, that's why we can be relied upon to provide Everything You Need in an Emergency".

For more information contact sales@spservices.co.uk or call 01952 288 999.



Promote Your Product or Service to a Global Audience Here

Ambulance Today is now read globally by well over 400,000 ambulance people so if you would like your product or service featured in our popular Products & Supplier section just email us at: editor@ambulancetoday.co.uk

Or call the editor on: +44 (0) 7914 606 693

Today Ambulance



Supplied with pyjamas, overalls available to purchase separately

TALK TO THE EXPERTS

01490 413 282

WWW.RUTHLEE.CO.UK



RUTH LEE™



FOR PROFESSIONALS WHO SAVE LIVES

Your job is not the typical 9-5 and your training shouldn't be either.

Ruth Lee are the experts in training manikins with over 60 years' experience.

Our Patient Handling manikin is the perfect choice for training to safely move people to and from ambulance beds and chairs. Constructed to sit upright in a wheelchair if required.

We also provide a range of Bariatric manikins which will allow you to create plans to safely manoeuvre heavier patients.

Train your staff to avoid the back injuries associated with unsafe, high risk moves by training with these realistic 'patients'.



Visit the only daily ambulance news site on the net at:
www.ambulancetoday.co.uk

BabyPod 20 Emergency Transport System with FI™ Technology Keeps Babies Safe

Emergency hospital transfers for sick newborns will be revolutionised this month by a new hi-tech 'supercot' transport system using the same Formula 1™ technology found in racing cars.

UK company Advanced Healthcare Technology has teamed up with Williams Advanced Engineering, the engineering and technology services division of the Williams Group that includes WILLIAMS MARTINI RACING, to create the BabyPod 20, which can withstand 20 G Force in a crash due to its strong carbon fibre



shell – the same composite material that protects drivers in its high-speed racing cars.

The 9kg (20lbs) pod is quick and easy to fix into place in a road or air ambulance, and uses the same

strapping that secures a racing driver into an FI™ car. It is currently being manufactured alongside the cars at Williams Group HQ in Grove, Oxfordshire.

The Children's Acute Transport Service (CATS) based at Great Ormond Street Hospital have trialled the new pod and assisted with the design requirements.

The traditional way of transporting babies is in large, heavy, expensive metal incubators which need an



electricity supply and specially-adapted ambulances, which are not always available.

However, during road accidents, these incubators, which weigh up to 120 kg, were found to cause severe injuries to both the babies and the ambulance crew if they broke free.

To find out more about BabyPod, please visit:
www.babypod.com

Manual handling is a weighty issue... but we can help!

Did you know that statistically, people working in the health and care sectors (including paramedics and ambulance crew) are at high risk of work-related lifting and handling injury?

According to the HSE report for 2014/15 each year in the health and social care sector there are 86,000 self-reported non-fatal workplace injuries, with 27% of these involving lifting and handling.

Workplace injury leads to around 0.7 million working days lost, with one third of over 7-day absences due to lifting and handling accidents.

As a paramedic, your priority is to your patients but is essential that

you are able to manoeuvre people safely to ensure your own health and wellbeing long term.

Whilst there is excellent lifting equipment available these days, there will always be an element of risk when transferring patients and therefore training to avoid unnecessary strain is an excellent precaution.

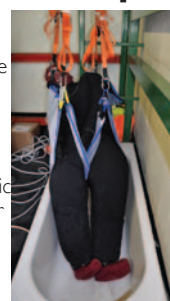
Why use training manikins?

Using a Ruth Lee Patient Handling Manikin will allow your team to complete safer moving and handling training. Not only have you eliminated the risk to a 'volunteer' by using manikins, but all of the team can participate to get the most out of the exercise. Unlike a volunteer, a

manikin will not 'help' either and because they are constructed to be anatomically correctly weighted, they provide a realistic casualty for your training.

A weighty issue...

Increasingly, obesity is a prevalent issue in the UK and our Bariatric range will allow you to create plans to safely manoeuvre heavier people in your care. With a range which includes manikins at 90, 180 and 260kgs, the lighter manikin is perfect



for when you want to train with a bulkier manikin without excessive weight. We also provide a Water-fillable Bariatric Suit which covers an adult Ruth Lee manikin into a bariatric. With this suit you can add up to 150kg of additional weight, but before filling, it is light enough for one person to carry and position in the training scenario.

For expert advice on which manikin would be best for your training, call us today on 01490 413 282 or visit www.ruthlee.co.uk to find out more about the full range.

Burn Treatment the Professionals Use

The Water-Jel Burn Dressings stop the burning process, reduce burn progression, cool the skin, protect against airborne contamination, and help relieve pain all in one simple step. No special training and no pre-cooling required.

These sterile dressings are soaked in a water-based/water-soluble, bacteriostatic and biodegradable gel and are nonadherent to burn injuries. They are composed of a medical grade, nonwoven polyester carrier. All dressings can be used on superficial, partial and full thickness

burns. Water-Jel Burn Dressings are available in six convenient sizes and have a 5-year shelf life.

Water-Jel Fire Blankets offer one of the quickest, easiest and most direct methods of administering emergency first aid burn care. Our gel-soaked blankets cool the skin, protect against airborne contamination, and help relieve pain all in one simple step, with no special



training required. They can also be used to extinguish flames on a victim and smother small fires. Our Water-Jel Fire Blankets are composed of a 100% worsted-wool carrier absorbing up to 13x its own weight, soaked in a water-based, watersoluble gel that is bacteriostatic and biodegradable. They are available in three sizes and packaged in high-visibility, orange, wall-mountable canisters or pouches.

Various Water-Jel Burn Kits are available to meet the different work environments of first responders,



safety managers, and medical professionals.

Developed in collaboration with paramedics around Europe, these burn kits offer different combinations of our Burn Dressings, Burn Wrap/ Fire Blankets, and Burn Jel to meet any burn emergency. All Water-Jel Burn Kits come in handy transport and storage bags.

To find out more about Water-Jel please go to:
www.waterjel.com

Fantastic new jackets for CFRs, events, PTS and frontline staff from Uniform Express

Uniform Express are one of the largest suppliers of Ambulance and Paramedic Clothing in the UK.

We are delighted to announce two exciting garments to compliment our existing range. A new softshell jacket with all the features the industry demands, fully EN471 compliant this garment is competitively priced and ideal for CFR's, events, PTS and frontline. It

is comfortable to wear offers great protection from the rain, wind and the cold.

Also launched is a new bomber jacket, waterproof, fully EN 471 compliant with ambulance green trim including the epaulettes. Again this is ideal for CFR's, event staff, PTS and frontline work.



Both garments lend themselves to many different branding options to enhance a companies or individuals image and job function or rank. These are available in a comprehensive size range to cater for all needs.

To order please visit our website:
www.uniformexpress.co.uk
or call: 01295 709774

Visit the only daily ambulance news site on the net at:

www.ambulancetoday.co.uk

Full body to arm immobilisation - are vacuum splints the only real answer?

The GERMA Range from FERNO takes the full immobilisation of a suspected break very seriously, ensuring the patients injury does not move and maintains the maximum of comfort during transport right through to scanning or X-Ray, without having to remove the splint until treatment.

Achieve secure immobilisation with improved vacuum technology

The Splints advanced technology delivers superior immobilisation,

exactly where and when it's needed, using enhanced internal chamber technology for superior stability.

However sophisticated an immobilisation technique may be, it also needs to be quick and easy to apply. We have improved performance here too, as the suction device attaches directly onto the splint valve so no



time is wasted attaching adaptors – and easily adjusted strap mechanisms ensure operators can save time when it's needed most.

- **Durable and highly effective** – double layered material helps maintain vacuum longer
- **X-ray and MRI transparent** – no need to move the patient to another device for diagnostics
- **Easy storage** – folds easily to take up 20% less space than other designs of vacuum mattress



- **Improved design gives better linear rigidity** – using new channel granule chamber system
- **Exceptional stability** – granulates spread evenly to support the limb
- **Easy to use** – applied quickly with minimum preparation
- **Hygienic and fire retardant** – PVC-coated polyester fibre is easy to keep clean and disinfect

To find out more please go to: www.ferno.co.uk

Avaya as an eCall partner

Avaya is helping emergency services providers across Europe prepare for the onset of automated emergency 112 calls that will be generated from the introduction of EU eCall in all cars from April 2018.

EU eCall is a potentially life-saving initiative with the purpose of bringing rapid assistance to motorists involved in a collision anywhere in the European Union. From April 2018, all new passenger car types

must be equipped with a device that automatically contacts emergency services by dialling the European emergency number 112 with key vehicle data, including GPS position in the event of a crash. This upgrade is estimated to reduce response times by up to 60% and will save hundreds of lives a year.

Avaya has supported the development of systems in France, Portugal, and the Netherlands to help routing and processing of both manual and automatic emergency eCalls – which, by some estimates, will generate over 5,000 new calls within the first year of implementation.

By October 2017, all 112 and 999 systems will be tested to see if they can handle the basic level automated emergency calling cars



will now, by default, send in case of a collision. With the forthcoming development of Next Generation eCall and other innovations in emergency communication, however, public safety answering points in the EU may also have to receive and interpret video communications, as well as other non-voice communications technologies. Sensors in seatbelts will let emergency operators know how many passengers are in the car; accelerometers will provide data on the force of impact, video cameras



will provide a real-time view both inside and around the vehicle.

Avaya has committed itself to helping emergency services stay up to date with these changes, offering adopting a flexible, open, platform-based approach to eCall that meets the technology, policy and public demands.

Markus Bornheim is Avaya's Consulting Sales Engineer for Public Safety and Emergency Services in the EU and Vice Chair of the European Emergency Number Association (EENA) Technical Committee.

To speak to Avaya about transforming your emergency services please contact Markus on: bornheim@avaya.com or +49 69 7505-6213.

Protecting Staff with Edesix VideoBadge Body Worn Cameras

Body Worn Cameras are now a widely employed tool amongst the UK's Emergency Services teams. Each of the Bluelight services has its own motivations for utilising the cameras, however the benefits are widely recognised across them all – reduced aggression towards wearers, confidence amongst staff and improved training procedures.

Edesix VideoBadge Body Worn Cameras have been used, not only to protect staff from aggression and capture evidential quality footage, but also for training and discerning best practice in the field.

The Emergency services show, taking place on September 20th -21st at the NEC in Birmingham,

is an ideal opportunity to learn more about the latest in Edesix's innovative Body Worn Camera solutions. The most recent development from Edesix, the VideoTag incident recording device, will be available for demonstration at the event, on Edesix booth E42.

Edesix Business development manager, Scott Armstrong, will also be holding a talk on the second day of the show in conjunction with West-Midlands Fire Services,



who rolled out a suite of Edesix VideoBadges to their watch commanders at the end of 2016, with enormous success.

The VideoTag is a low maintenance solution, requiring minimal attention, and can remain on standby for up to 3 months prior to incident recording. The VideoTag, VT-50, offers video streaming capability, allowing real-time response based on the footage captured.

"VideoTag offers huge potential for optimising high performance resuscitation teams. It is a very versatile means of recording and streaming - unobtrusive, quick and easy to deploy, while requiring virtually no training"

Dr Gareth Clegg MB ChB, BSc, PhD, MRCP, FCEM, FCPA - Group



Leader - Resuscitation Research Group, Edinburgh

When rolled out with Edesix VideoBadges, managed in the state-of-the-art, industry leading VideoManager video management system, the VideoTag forms part of a complete security solution.

To learn more about the VideoTag and VideoBadge range of cameras, or to meet the Edesix team at The Emergency Services Show, please contact us on: sales@edesix.com.

Wherever you are in the world... We want your news!

Email your stories to: editor@ambulancetoday.co.uk

Don't forget you can visit: www.ambulancetoday.co.uk every day and keep up to date with ambulance news from around the world.

TODAY Ambulance

Visit the only daily ambulance news site on the net at:
www.ambulancetoday.co.uk

Cartwright Unveils New PTS Seating System

Cartwright Conversions has launched a new seating system on a PTS ambulance that enables seats to be quickly transformed into a secure wheelchair position.

In less than three minutes and without any extra equipment, a driver can change a seat to a wheelchair position that is complete with headrest and three-point seat belt.

The RolliBox technology is provided by German company Schnierle

and Cartwright Conversions has exclusive use of it in the UK for ambulances.

The new seating system will be fitted as standard on Cartwright's Renault Master PTS vehicle with a lightweight and easy-to-clean lining, side-step and fold-out grab handles, cant rail lockers on both sides and a lift. There is also space for storing oxygen and a carry chair.

Steve Shaw, Operations and Commercial Director at Cartwright Conversions said: "The Renault



Photo shows a wheelchair in position on a vehicle fitted with RolliBox technology.

Master is the newest addition to our fleet of PTS vehicles available to buy or hire.

"Fitted with RolliBox technology it will be configured to seat three passengers, the driver, two wheelchair users and still have space for a stretcher. We are confident that the versatility of this system will prove to be very popular with our customers."

Find out more at:
www.cartwrightconversions.co.uk



Webasto Offer Innovative Engine Off/Preheat Setting

A warm engine

For every deployment on every drive, Webasto understand the importance of being fully focused from the start which is why our engine preheat and parking heaters make no exceptions. Thanks to developments in our engine-off technology solutions both Webasto Thermo Top and Air Top heaters ensure that windows are ice and fog-free even before the drive begins.

A preheated engine brought up to operating temperature before

ignition is much more efficient, lowering fuel costs and reducing engine wear

and tear. It is also kinder to the environment, with less idling time meaning fewer exhaust emissions. So with Webasto you can experience a safer, more comfortable and better driving experience with every passing mile.

We understand that Emergency vehicles are called to action all



Air Top 2000 STC

year round, but how can crew and vehicle retain an optimum operating temperature given the variable Great British outdoor temperature?

The most common practice, but not the most economical one, is to keep the engine running. Ultimately costly fuel is wasted, engine wear and tear is increased and operating costs soar.

The Webasto alternative

Thanks to innovative Engine-off Technology, the temperature remains constant at the chosen optimum range even when the engine is switched off. This efficient heating



method ensures both crew and vehicle are ready to go when it really matters.

Crucially, cost savings are so enormous that the investment can pay for itself within a single year of operation.

**Further information please contact: Pete Anderson
Market Manager – Vehicle Conversions
Pete.anderson@webasto.com**

Dr. Martens Launch new Service collection

Dr. Martens has been supplying workers worldwide with staple uniform footwear since the 1960s. Dr. Martens has announced the launch of its new service collection that has been developed for uniformed workers, including the emergency services.

The new range is comprised of three collections: *Response*, *DMs Lite* and *Lightweight Heritage*.

Response

The *Skelton* and *Attend* have been designed to provide all-round protection, comfort and traction. These quick-response boots have

a triple black finish to provide a clean, uniform appeal while the EVA midsole offers exceptional, lightweight cushioning and flexibility.

DM's Lite

New additions to the *DM's Lite* range include the *Watch* 8-tie high-cut and *Haste* mid-cut utility boot have been engineered using athletic inspired industry materials. Waterproof, breathable and heat resistant to 300°C.

Lightweight Heritage

The *Calshott* 6" soft-toe work boot and Chelsea boot *Howden* are designed with premium materials delivering greater flexibility and



enhanced cushioning. Designed for great durability and slip-resistance whatever the work-place.

Jon Marchant, Global Category Manager at Dr. Martens says: "The footwear needs for service sector professionals have changed dramatically over recent years and we wanted to create a range of performance styles that meet the



specific, technical requirements that allow the individuals to focus on their role, not their feet.

"As a brand, we are fully focused on providing the correct footwear for service sectors across the globe by ensuring that our products deliver quality and are fit for the job."

For further information about Dr. Martens' industrial, visit drmartens.com/uk/industrial

Lift your Standards with Stone Hardy

Stone Hardy is the market leader in the service and repair of tail lifts, passenger lifts, shutters and winches for commercial and passenger vehicles. They offer a 24-hours-a-day, 365-days-per-year service with teams throughout their regional locations in Bathgate, Bristol, Birmingham, Manchester, London and Northampton.

Stone Hardy currently has 65 mobile tail lift engineers which enable them to provide extremely good coverage within the UK. Their service vans are well-specified in

terms of equipment and carry a good selection of manufacturer's parts. The engineers are well trained, knowledgeable and can deal with most emergency situations.

Stone Hardy are agents for all the major tail lift manufacturers,



and they have many blue-chip companies as their customers, with a turnover of approximately £10m a year; and a skilled and knowledgeable workforce with a wide range of experience in all aspects of the industry.

In 2016, the company upgraded their facilities in Bathgate by moving to a new site. More than £1 million was invested during 2015-17 in a new fleet of fully-equipped service vans, and six new rapid response vehicles, providing genuine national coverage ability for its 76 engineers. Technical innovations, such as digital technology and new computer



systems, are always being introduced on a rolling basis, bringing the company a long way since its inception 40 years ago.

**For further information please contact:
Dave Aylott
Tel: 01604 683495
Mobile 07713 316366
Email: enquiries.sales@stonehardy.co.uk**

Visit the only daily ambulance news site on the net at:
www.ambulancetoday.co.uk

The i-gel O₂™ Resus Pack from Intersurgical

In emergency medicine you need equipment that's easy, rapid and reliable to use. The i-gel O₂ Resus Pack contains everything you need to prepare, insert and secure the i-gel O₂ quickly and efficiently: an i-gel O₂ supraglottic airway, a sachet of lubricant, and an airway support strap. A suction tube is also included in the pack (except in the US market).

The i-gel O₂ has been designed to facilitate ventilation as part of standard resuscitation protocols, such as those designated by the European Resuscitation Council (ERC) and the

American Heart Association (AHA). However, the i-gel O₂ incorporates a supplementary oxygen port, so it can also be used for the delivery of passive oxygenation as part of an appropriate CardioCerebral Resuscitation (CCR) protocol.

The i-gel O₂ gets its name from the innovative soft, gel-like material from which it is made. It is the innovative application of this material that has enabled the development of a unique non-inflatable cuff. This means there is no need for cuff deflation prior to insertion and no cuff inflation after placement to secure a seal, shortening and simplifying the preparation and insertion procedure.



The i-gel O₂ is incredibly easy to use. Insertion is rapid and can normally be achieved in less than 5 seconds.

The pack includes a specially designed airway support strap for securing the i-gel O₂ in position. This makes it ideal for use where adhesive tape is unsuitable.

The i-gel O₂ Resus Pack – everything you need to prepare, insert and secure the i-gel O₂.



For further information, please contact Intersurgical:

**Intersurgical
Crane House
Molly Millars Lane
Wokingham
Berkshire RG41 2RZ
England**

Tel: +44 (0)118 9656 300

Fax: +44 (0)118 9656 356

**Email:
info@intersurgical.com**

**Website:
www.intersurgical.com**

Getac's new rugged tablet enhances performance and security for ambulance workers

Getac recently launched its largest fully rugged tablet, the A140. Designed specifically to optimise computing capabilities for first responders, such as ambulance workers, it is packed with features that improve productivity and efficiencies within their increasingly demanding work environments.

The A140 offers best-in-class performance Intel Core i5 and i7 processors, dual hot-swappable batteries for continuous use and a

suite of security features. Its 14-inch sunlight readable display means operatives can see data displayed at any one time and the display can be operated using disposable gloves or other protective wear. The device has a multifunction hard handle which serves as a support stand and cradle when stationary, and an effective way to grab-and-go when time is critical, and it can be easily docked inside a response vehicle.

Getac devices are already used by the likes of East Midlands Ambulance Services, which selected Getac's

RX10 as part of a project to enhance its electronic patient record system and help improve the care and treatment received by patients across the East Midlands. As part of this, EMAS chose to replace its current Toughbook laptops with a new tablet, Getac RX10, which was chosen based on feedback relating



to its weight, handling, infection prevention and control compliance and screen ease of use. The devices will also have 4G connectivity to improve data transfer.

For more information about the new Getac A140 and RX10 fully rugged tablets or other devices suitable for ambulance workers, visit en.getac.com, call 01952 207 221 or email: Sales-Getac-UK@getac.com.



Code Blue - Highest quality vehicles and medical equipment

Code Blue Specialist Vehicles continue to supply the highest quality medical vehicles and associated medical equipment

We offer a range of medical vehicle designs, including PTS, Event Support, HDU and A&E, on a multitude of chassis options. Supplied with European Community Whole Vehicle Type Approval and CEN EN1789 compliance where required.

Our exemplary build quality, coupled with competitive pricing and our industry leading 3-year warranty give impressively low whole life costs.

Code Blue Specialist Vehicles individually tailor the design of every vehicle around our customers' requirements, giving medical professionals a clinical workspace which has unparalleled ergonomics,



exceeds the highest safety standards, and is easy to clean.

Code Blue SV also offer a range of patient handling and treatment equipment from our partners at 'Promeba Medical and Rescue', including our latest addition, a fully featured Electric Tracked Stair Chair at only £2250 plus VAT. Giving a CONSIDERABLE SAVING over other similar products.



For further information on our exceptional range of vehicle conversions and associated medical equipment, contact us on:

**0800 061 4785,
view our website at:
www.codebluesv.com
or email:
chris@codebluesv.com**

The Professional Rescue Helmet Designed to Dominate

Pacific's R6 Dominator Rescue/Paramedic Helmet provides the most up-to-date form of head protection available, importantly it is lightweight and comfortable to wear.

Manufactured using a Kevlar® reinforced composite shell, R6 helmets provide the perfect combination of safety, balance and wearer comfort. Options such as adjustable air vents, neck protectors and goggle straps mean that your helmet can be designed to be as versatile as your job is varied.

Use of fibre-reinforced materials means the R6 helmet range have less mass than those manufactured from thermoplastics. A lightweight helmet ensures all users can concentrate on their job rather than neck ache.

R6 Helmets have the same flammability rating as firefighting helmets, plastic helmets



do not. Our composite shells are totally UV resistant and there is no need to put a limit for useful service like the plastic shells. A plastic shell will typically last for around 2-3 years and have to be removed from active service after this time for fear of structural degradation by UV radiation.

Our shells are also chemically inert and are coated with an acrylic-urethane paint that is very hard wearing and very resistant against a wide range of chemicals. The helmets therefore retain their shine and still



look brand new after several years of service.

For more information or to discuss your requirements, contact Vimpex on: 01702 216999, or email: Sales@vimpex.co.uk or if you're attending The Emergency Services Show, visit our Stand C71 where we will have the R6 range available for you to see.



AMZ - KUTNO S.A.

TRUSSURE.

(1714) 190 The Trussing up of Thieves is the Security of Honest Men. 1823 P. Nicholson *Pract. Builder* 124 To frame linbers, so that their external surfaces shall keep this position, is the business of trussing. 1852 Mrs. Stowe *Uncle Tom's C.* iv. Not a chicken, or turkey, or duck, but looked grave when they saw her approaching... she was always meditating on trussing, stuffing, and roasting.

2. *concr.* The timber or other material forming a truss (Truss sb. 6); a work or structure consisting of trusses.

1840 *Civil Eng. & A* trussed foot-bridge, of frames. 1850 W. J. C temporary girders... stre

3. *attrib.* Adapted ing, or tying up (*adj* coffer, gear, mail, for being 'trussed' (*obs. exc. Hist.*), as used for trussing (i as (sense 1 d) *trussi* (sense 11) -*hoop, m* -*piece, -rod*; also + *cf.* Truss sb. 3 a; *tr* worn under armour.

1843 *Penny Cycl.* X2 retains this curvature ally press upon the *Gaunt* in Armature Sm corps, appelles en Engle PASTON in P. Lett. I trussing bedde. 1872 One trussing bedd for Portable beds were ofte *Wards, Kath. Arrang* 'trussing bedsteeds' 1910 E. R. SUFFLING ster, a padded belt for the heavy cuirass. 184 these eyes were passe 1440 in Pencock *acc.* C. challis and my highest c. 14 Item for a 'trussing chesse il. s. a 1562 CAVENISH Wolney (1803) 257 Sytting upon a trussing chesse. 1834 *Leisure Hour* Apr. 233/1 Large trunks, used for general packing, were called trussing-chests. 1493 *Will of W. Quency* (Somerset Ho.), A 'trussing coat. 1397 TAYVIA *Higden* (Rolls) VII. 185 His malya, his bouges and his 'trussing coffers. 1485 in *Ripon Ch. Acts* (Surtees) 368, ij trussing coffers 38... unum magnum trussing mayle preci 25. 1466 *Mann. & Household Exp.* (Roxh.) 367, I payd fore viij. heles (= alis) of kansas for 'trousseage gear, xx. d. 1688 R. Holme *Armoury* pt. 108/1 'Trussing Hoop, is a large strong Hoop, first put about the Barrel staves to draw them to their compass. 1621-2 in Swayne *Sarum Churchw. Acc.* (1806) 172, ix 'trussing keyes. 1877 *Kniver Dict. Mech.* 'Trussing-machine, one for drawing the truss-boops upon casks. 1853 *Fisheries Exchib. Catal.* 83 'Trussing machine and accumulator. 1483 'Trussing mayle (see trussing coffer above). 1621-2 in Swayne *Sarum Churchw. Acc.* (1806) 172 One Hundred of 'Trussing tayles 10d. 1846 *Soven Cookery* 149 To try when done run a 'trussing needle into them. 1823 P. Nicholson *Pract. Builder* 295 'Trussing-piece, such timbers in a roof as are in a state of compression. 1928 *Excor. Strigementum*... it maie be used for a 'trussing pointe. 1843 *Penny C* XXX. 319/1 A formula for calculating the size of 'trussing-rods. 1420 in *For. Acc.* 3 Hen. VI, G j hauser pro 'trussing rope. 1369-72 *Exch* Bundle 178 No. 16 m. 4 (P.R.O.) [iij] halistaurum, ij lb. 'trussingthred. 1 lb.

+ **Tru-sure.** *Obs.* [a. OF

troussure, -*ture*], med.L.

to TRUSS: see -**TRU**]

1295 *Acc. Exch. K.*

et j. Cable emptis

surs, Girdlinge

Trust

trust

T

Early

ent.: see T

n or reliance o

a person or thing.

Const. in (*cf.* *ov*,

1225 *Aner. R.* 273 He haue

ever is neid butte gif bilene truki

Cott. Hou. 187 As mi trust is per to

13... Guy Warw. (AJ) 7242 He a

Of his brini, jat alle his trust was on. 1484 CAXTON

Fables of Aulian i. He is wel a fole that setteth his hope and

truste in a woman. 1505 in *Mess. Hen. VII* (Rolls) 275

Don Fernando of Aragon bathe no confidens nor trust

unto the Kyng of Romaynes. 1605 *Stow Ann.* 671

A staffe of feede, of the which there is no trust. 1611 SHAKS.

Wint. T. iv. iv. 607 Ha, ha, what a Foole Honestie is I and

Trust (his sworne brother) a very simple Gentleman. 1793

Bortala Stern. Wks. 1874 II. 189 To see and know and feel

that our trust was not vain. 1823 *Scott Quentin D.* xiii.

The honour and trust which were about to be reposed in

him. 1860 *Tynodall Glac.* i. xix. 134 We had... to get round

overhanging ledges, where our main trust was in our feet.

B. 1982 *Wyllis Prom. Ill.* 5 Haue trust. In the Lord, of

all thin here. — *Jan.* xxxi. 1 Hauende trost (1388 trust)

upon four borid carres. c.1440 *Promp. Parv.* 253/1

Troste, confidencia, fiducia. 1648 *Hamilton Papers* (Camden)

228 The trust reposed in me by your Lordships.

b. Take on or upon trust (i receive, take up in

trust, take up upon trust), to accept or give credit

to without investigation or evidence.

1641 *Nicholas Papers* (Camden) 4 Being constrainyd to

take up all my intelligence concerning Parliament affaires

upon trust... from others. c.1645 *Howell Lett.* (1650) L. 67

Ey-witnesses of those things which other receive but in trust.

432

TRUST.

Ibid. II. The Vote I ij b, Scribling Pamphlets... trust Lame things upon the world, I line up in trust. 1662 *Strillmurt.* *Orig. Sacra* i. iv. 83 The story was taken upon trust by Herodotus, Pliny, and many others. 1797 *Gowrie Enquirer* i. vi. 36 Active spirits... take... little upon trust. 1824 *Examiner* 357/1 That numerous body who take things on trust. 1869 J. MARTINEAU *Est.* II. 93 Take what is set before him on trust.

c. *transf.* with possessive: That in which one's confidence is put; an object of trust.

1826 *Pilgr. Post* (W. de W. 1826) 8 h. Let him be all your

Crown alone. 1684 *Scanderbeg* *Radio.* iii. 32 It was not fit two such Great Trusts, as Marshal and General should both be managed by one Person. 1750 *Johnson Rambler* No. 71 P 14 The few moments remaining are to be considered as the last trust of heaven. 1822-34 *Good's Study Med.* (ed. 4) II. 463 The digestive powers, or some of them, do not perform their trust as they should do. 1844 G. N. *Bacon in Massachusetts Acts* 65 Public offices are public trusts, created for the benefit of the whole people, and not for the benefit of those who may fill them. 1868 *Sophia M. PALMER in Ld. Selborne Mem.* I. p. v. (Notice) These Me-

Trust

noun

- Firm belief in the reliability, truth, or ability of someone or something.

'relations have to be built on trust'

'AMZ Kutno - the Polish company to Trust to build the Ambulance

you want'

- The hardest thing to gain and the easiest thing to lose.

'you've let me down, I trusted you'



I had even intended to ask your attention for a little while on trust... until [etc.].

4. The quality of being trustworthy; fidelity, reliability; loyalty, trustiness. Now rare.

1470-85 *MALORY Arthur* xxv. v. 850 Comfort thyself... doo as well as thou mayst, for in me is no truste for to

ia. c. 1489 CAXTON *Sommes of Apyen* vii. 166 The

truste in hym And therefore I wyl kepe me fro

MARLOWE *Edm. II.* iii. ii. Our friend Lev

full of trust. 1594 SHAKS. *Rom. & Jul.*

trust, no faith, no honestie in me

(1622) D iv, Well I beleue the

Thy trust in this. 1655 *Pa*

Allion shall, with faith

Reliques guard. 182

doe well.—I tha

5. a. The

in one,

in t

ith something; esp.

one's trust, under trust.

a. V 21, I dare putte no persone

his keyning, but my selfe only. 1577

Hist., *Socrates* i. xxvi. He putteth the

with his testament. 1609 *SKENE Reg. Maj.*

er, of our Sovereine Lords lieges, quere the

slaine is vnder the trust, credit, assurance, and

of the slayer, in treason and lese majestie. (Mergin)

aucter vnder trust. 1611 *BIALE* i. Thess. ii. 4 As we were

allowed of God to bee put in trust with the Gospel. — 1 Tim.

vi. 20 O Timothy, keepe that which is committed to thy

trust. 1675 *Tr. Camden's Hist. Elix.* ii. (1685) 174 Such

Letters I should never have committed to Barker's Trust.

1817 W. SELWYN *Law Nisi Prius* (ed. 4) II. 821 A devisee

or executor in trust, who has acted, may be examined as a

witness in support of the will. 1818 *SCOTT Br. Lamm.*

xviii. The celebrated case of Sir Coolie Condill of Con-

distribuc

on advantage; spec.

commercial or industrial

central governing body of

olds a majority or the whole of

each of the combining firms, thus

controlling vote in the conduct and

on of each. Cf. trust-certificate in 8 b.

7 *Fall Mill G.* 2 Nov. 6/1 A high customs tariff offers

a special temptation to indulge in corners, pools, and trusts.

Ibid. 16 Nov. 12/1 A distillers' trust has been formed... in

order to regulate the production and price of spirits, and

another large section of the trade have combined to curtail

the production. 1888 *Haver Amer. Comm.* III. 415 Those

anomalous giants called Trusts... groups of individuals and

corporations concerned in one branch of trade or manufac-

ture, which are placed under the irresponsible management

of a small knot of persons, who, through their command of

all the main producing or distributing agencies, intend and

expect to dominate the market. 1890 in G. B. Shaw

Philos. Ess. Socialism 91 A trust is defined... as a combina-

tion to destroy competition and to restrain trade. 1894

W. T. STREAR *Uf Christ* came to Chicago 191 The Gas Trust

is as arbitrary as any Persian satrap in its dealings with the

citizens.

8. *attrib.* and *Comb.*, as trust-betrayer, -breaker;

trust-breaking, -winning adjs.; also in sense 6,

trust-beneficiary, -estate, -fund, -gift, -money,

-right; in sense 7 b, trust-maker, -regulation,

-share; trust-holstering, -controlled, -ridden adjs.

1675 *Cotton Scoffer* *Sof* 28 And like a treacherous

Trust-breaker, Lewelly embelz'd your Exchequer. 1766

Blackstone Comm. II. xx. 337 They now consider a trust-

estate... as equivalent to the legal ownership. 1776 *Anas*

Surrey W. N. n. iii. (1859) i. 341 The... allotment... of this fund

by any... trust-right or deed of mort-

in *Ration, Judic. Evid.* (1827) II. 114

not-breaking humanity of judges. 1827

Devise (ed. 3) II. 99 He gave several

of his said trust monies and personal

Dorrit ii. 5, Flanders, forgers, and

by scots. 1872 *TALMAGE Sermon*, 293

my are fast getting to be those who

loving 'trust-funds'. 1880 *MURHEAD*

quest to heir, legatee, or even a trust-

act to the trustee's wishes. *Ibid.* ii.

8 271 A legacy cannot be charged upon a legatee, but a

trust-gift may. 1881 *AL. A. Lewis Two Pretty G.* II. 201

All the more trust-winning, solid qualities. 1892 *Daily*

News 21 Dec. 7/3 Trust shares received a smart shock.

Banks are reported unwilling lenders on some trust securities.

1896 S. PALMSON in *Westm. Gaz.* 3 June (1895) 7/1,

I would rather than see our English shopkeepers and

manufacturers dragged... to a similar position, see those

trust-makers one and all hanging from lamp-posts. 1901

Sin C. FURNESS *Ibid.* 22 Feb. 6/2 An object-lesson... as to

the trust-holstering effect of the tariff. 1901 *Spectator*

20 July 5/1 The Trustmakers are seeking monopoly. 1904

Daily Chron. 26 Apr. 5/1 Weep as you think of these

Trust-ridden isles! 1904 *Westm. Gaz.* 28 Aug. 1/3 The

striking fact is that President Roosevelt should have thrown

himself into the Anti-Trust or Trust-regulation movement.

Ibid. 5 Nov. 5/1 The whole of the share capital will stand

in the names of five voting trustees... These voting trustees

will issue voting trust share certificates which will be negoti-

able and will entitle the holders of them to all dividends

declared upon the shares, but all voting powers upon the

shares are reserved to the voting trustees. 1908 *Ibid.* 5 Nov.

2/1 All 'articles entering into competition with Trust-

controlled products'.

b. Special combs.: trust-certificate (in full

trust-share certificate), a negotiable certificate

AMZ - THE company to Trust for your vehicle conversions

military employments of good trust. 1790 *Tatius Lett.* xxvii. (1820) 282 Until parliament itself betrays its trust, by contributing to establish new principles of government. 1784 J. BROWN *Hist. Brit. Ch.* (1820) II. vi. 239 Bringing them into places of power and trust. 1849 *MACAULAY Hist. Eng.* vii. II. 236 Grave apprehensions that, if Roman Catholics were made capable of public trust, great evils would ensue. 1907 *Penny Men* I. 72 A breach of trust.

c. The condition of that which is entrusted to

some one. Only in phrase in (*cf.* *an*) trust.

1425 W. PASTON in P. Lett. I. 20 The whiche procuracie and

apelle I shal sende to yowr person, with moneye onward,

on trust. 1596 *SPENSER F. Q.* v. iv. 2 To knights of great

emprise The charge of Justice given was in trust, That they

might execute her judgements wise. 1608 SHAKS. *Per.* i. iii.

15 His sealed Commission, left in trust with me. 1664 *Bortala*

Hud. II. i. 507 To make over in trust your fortune to your

Lover. 1827 *JARMAN F. J. Fenell's Devices* (ed. 3) II. 17

A gift to a college, in trust for another charitable object.

1858 O. W. HOLMES *Ant. Breakf.* i. ii. (1851) 49 Put not

your trust in money, but put your money in trust.

d. (with *pl.*) A duty or office, also a thing or

person, entrusted to one.

1643 *CHAR. I Treaty at Oxford Wks.* 1662 II. 283 Those

Trusts which the Law of the Land hath settled in the



More power to you



Safety. It's a powerful thing.

At Stryker, patient and caregiver safety is top priority. That's why we created our Powered System to help improve operator and patient safety by supporting the cot throughout the loading and unloading process.

Simplicity. It's a powerful thing.

Our Powered System loads and unloads patients with the push of a button, helping make you more efficient.

Durability. It's a powerful thing.

We designed our Powered System to perform. That's why we conduct lifecycle testing on our products.

This document is intended solely for the use of healthcare professionals. A healthcare professional must always rely on his or her own clinical judgement when deciding which treatments and procedures to use with patients. For verifying availability of Stryker products in your area please contact your Stryker representative. Copyright © 2017 Stryker. The product shown above is CE marked. Stryker Corporation or its divisions or other corporate affiliated entities own, use or have applied for the following trademarks or Service marks: Stryker, Power-PRO XT, XPS, Power-LOAD.