

Edition 1 | Spring 2016



Clinical Connections

PROMOTING A CULTURE OF EXCELLENT CLINICAL PRACTICE & INNOVATION WITHIN NAS



Clinical Magazine from the National
Ambulance Service Medical Directorate

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Welcome

Welcome to the first edition of clinical connections, the National Ambulance Service clinical magazine from the NAS medical directorate. This publishing will aim to keep all staff up to date with clinical developments within the service.

Our goal is simple to promote a culture of excellent clinical practice & clinical innovation within the National Ambulance Service, through an environment of shared learning, reflective practice, professional debate and ongoing continuing professional competency.

Within this magazine.

- » We will take ownership of the important role we play in patient care and health service development by discussing our evolving clinical performance indicators and show how modifications in practitioner practice can improve national standards of care.
- » We will promote clinical leadership by reviewing actual cases in an easily accessible format, giving our staff an archive of material to reference and an opportunity to feedback important lessons learned.
- » We will discuss new innovations in the prehospital arena, from clinical interventions and medications to electronic patient data collection and transport options.
- » We will address challenging clinical questions and feedback lessons learned to all staff involved.
- » We will promote research relevant to the prehospital practitioner.
- » We will discuss clinical directives and clinical advisories and the science behind them.
- » We will promote local and national continuing professional competency (CPC) initiatives.

This publication was made possible with the kind support of **AstraZeneca** 

Meet The **TEAM**

DR CATHAL O'DONNELL

Dr Cathal O'Donnell is an Emergency Medicine Consultant and is the Medical Director of the National Ambulance Service. A medical graduate of University College Cork, he completed his Emergency Medicine training in a number of Irish hospitals in Cork and Dublin, and subsequently completed a Clinical Fellowship in Emergency Medical Services at the University of Toronto in 2005. This involved working with both Toronto EMS and the Ontario Air Ambulance Base Hospital Programme.

On completion of this, he returned to Ireland to take up a post as Consultant in Emergency Medicine at the Mid-Western Regional Hospital Limerick. Cathal became NAS Medical Director in 2011, initially on secondment from his hospital post – he moved permanently to NAS in 2013. Also in 2013, Cathal was appointed Adjunct Senior Clinical Lecturer at the Graduate Entry Medical School, University of Limerick. Cathal is currently studying for an MSc in Leadership with the RCSI.



DR CONOR DEASY

Conor Deasy is Deputy Medical Director of NAS and Chair of the NAS Research Committee. He is a Consultant in Emergency Medicine working at Cork University Hospital, Senior Lecturer in Emergency Medicine at University College Cork and Associate Adjunct Professor at the School of Primary Care, Monash University, Australia. Conor completed his higher specialist training program in Emergency Medicine in Ireland before moving to Australia where he worked as a Consultant in Emergency Medicine at the Alfred Emergency and Trauma Centre, Melbourne. While there he

completed a PhD at the Department of Epidemiology and Preventive Medicine, Monash University in collaboration with Ambulance Victoria.

To date Conor has published across the domains of patient safety, quality of care, systems of care, procedural sedation as well as out of hospital cardiac arrest. He is the Principle Investigator in Ireland for a number of high profile multinational randomised controlled trials (CRASH 3, HALT-IT). Conor has a particular interest in creating safe, robust, lean patient care pathways in the emergent and acute care settings.

DAVID HENNELLY

David has over 15 years' experience in prehospital care working predominantly in Limerick and the wider Mid-Western region barring a year long trip abroad sampling some of the prehospital and surfing delights of Australia and South Africa. He completed his Advanced Paramedic training in 2005 and his MSc in 2007. David has always had a keen interest in prehospital resuscitation and trauma care.

In 2013 he commenced the role of Clinical Development Manager and now works with the NAS Medical Directorate

to develop and research enhanced systems of care and improved clinical pathways such as, Cardiac Arrest Management, STEMI Care and Major Trauma Care. David also works with the Emergency Aeromedical Service and supports the clinical governance and clinical leadership of MEDEVAC112. He is a leading advocate of FOAMed, prehospital research and particularly the impact of Crew Resource Management (CRM / Human Factors) education can have on Prehospital Care in Ireland.





Ask The **MEDICAL DIRECTOR**

I am delighted to formally launch Clinical Connections Magazine. This publication is designed to support and enhance our staffs clinical knowledge base and understanding of key clinical strategies that your service is undertaking.

From my perspective as Medical Director I often meet staff around the country who are keen to understand the thought process behind a new clinical directive or a future strategy that the service is striving to achieve.

With each challenging question we open ourselves to a learning opportunity and in turn develop a greater understanding of the service in which we work. Sharing those questions is a key aspect of enhancing staff engagement within our service.

With this in mind I would like to introduce a regular column to our magazine called

“Ask the Medical Director”

In this section we aim to address those challenging clinical questions. We are asking practitioners to pose those questions directly to me, they may be associated with a complex clinical case, a recent change to practice or possibly questions on future clinical direction of the service.

You decide the question and I will endeavour to give you the answer.

Please email questions titled “Ask The Medical Director” to:
medicaldirector.nas@hse.ie

Designed to support and enhance our staffs clinical knowledge base

Looking forward to hearing from you

Dr Cathal O'Donnell
Medical Director
National Ambulance Service.



CLINICAL CASE REVIEW

Massive Haemorrhage

PRESENTATION

2pm on a winters afternoon I was working as part of a crew when we received a call to a farm accident in a rural town approx. 20min from our location and at least an hour from a major receiving hospital.

PATIENT

The patient was a 58yo male with a history of Ischemic Heart Disease who was working at the back of his tractor when he was struck in the leg with a piece of metal moving at speed.

INITIAL EXAMINATION

On arrival the patient was laying at the back of the tractor. We noted a large pool of blood by the patients left leg that was still actively bleeding, a friend was attempting to control the bleeding with direct pressure while another was reassuring him and keeping him still, The patient was conscious and self-ventilating adequately but very pale and diaphoretic. Concerned about the amount of blood loss we rapidly exposed his leg to find a LARGE wound to medial aspect of the distal left femur with ongoing uncontrolled haemorrhage.

- » HR 130 (Peripherally weak)
- » RR 28 (B/S Clear and Equal Bilaterally)
- » SPO2 90% (cold peripherally)
- » BP 82/50
- » GCS 15 (No LOC)
- » BM 4.3
- » ETCO2 30
- » Temp 34.2
- » Abdomen Soft & Non Tender / Pelvis Stable / No obvious extremity fractures.

CLINICAL IMPRESSION

Uncontrolled massive haemorrhage with possible arterial involvement.

KEY INTERVENTIONS

We applied wound dressings and pressure to the patients left leg and quickly established that we needed to use a Tourniquet to control the haemorrhage.

- » Administered O2
- » Established IV access and titrated BP to 90 Systolic
- » Administered Tranexamic Acid.
- » Positioned the patient in a vacuum mattress to aid temperature management and avoid unnecessary movement.
- » Administered analgesia.

OUTCOMES

Patients Condition improved steadily once the haemorrhage was controlled and his BP stabilised. We ceased field therapy after 500mls and maintained his BP around 90 systolic. Patient was transported to the closest major hospital. During further assessment and history taking we established that the patient was on Pradaxa.



DISCUSSION & LEARNING POINTS

This was a good opportunity to use all the principles of Damage Control Resuscitation which are highlighted very well in the Anaesthesia Trauma and Critical Care (ATACC) Manual. Available for free from the following link; <http://www.atacc.co.uk/e-learning/> and supported in the updated European guidelines Management of bleeding following major trauma <http://www.ccforum.com/content/14/2/R52>.

In training and practice we are becoming more aware of specific care bundles targeting individual patient's needs. The key elements for NAS practice that we need to be aware of for the management of massive haemorrhage are;

Prevent Further Blood Loss

Early recognition and treatment of haemorrhage sites and potential sites. Pelvic immobilisation should be considered as an early intervention in all multi system trauma patients with mechanism of injury suggestive of an obvious or occult pelvic injury.

Avoiding Clot Disruption

Consider permissive hypotension, as increasing the BP over 90 systolic may disrupt clots that have already formed. Patients who have a suspected traumatic brain injury and raised ICP may require a systolic BP closer to 120 to maintain cerebral perfusion pressure. Reduce potential patient movement to avoid clot disruption.

Promoting Clot Formation

Administration of TXA and splint where appropriate.

Managing Temperature

Remove from the environment and package appropriately. Patients who have a core temp <35 Degrees have been shown to have significantly reduced clot formation.

Appropriate Packaging/Transport

Patients should be transported urgently but smoothly to an appropriate receiving facility, this may be best achieved by utilising Aeromedical support where suitable

Appropriate Pre-Alerting and Handover Information

A. Early notification of patients who may require Massive Transfusion

The majority of Emergency Departments who are used to receiving major trauma will have massive transfusion protocols in place, but the process of activation can be time consuming. As with all major trauma patients it is vital to pre alert the

Receiving ED but in particular with this subgroup of patients with suspected massive haemorrhage EARLY notification may benefit timely interventions on the receiving ED.

B. Ensuring anticoagulant status is discussed during the handover process.

What is the relevance of the PRADAXA?

Pradaxa (Dabigatran) is an oral anticoagulant that is used as an alternative to warfarin.

Why is this important?

If a patient is actively bleeding and on Warfarin the effects can be reversed with a prothrombin complex concentrate (PCC) and fresh frozen plasma (FFP). Vitamin K1 is also administered and is essential for sustaining the reversal achieved by PCC and FFP.

There is currently NO reversal agent for Pradaxa and the patient may require haemodialysis early in their treatment to reduce the impact of the anticoagulant.

Future Considerations and areas of research for the National Ambulance service.

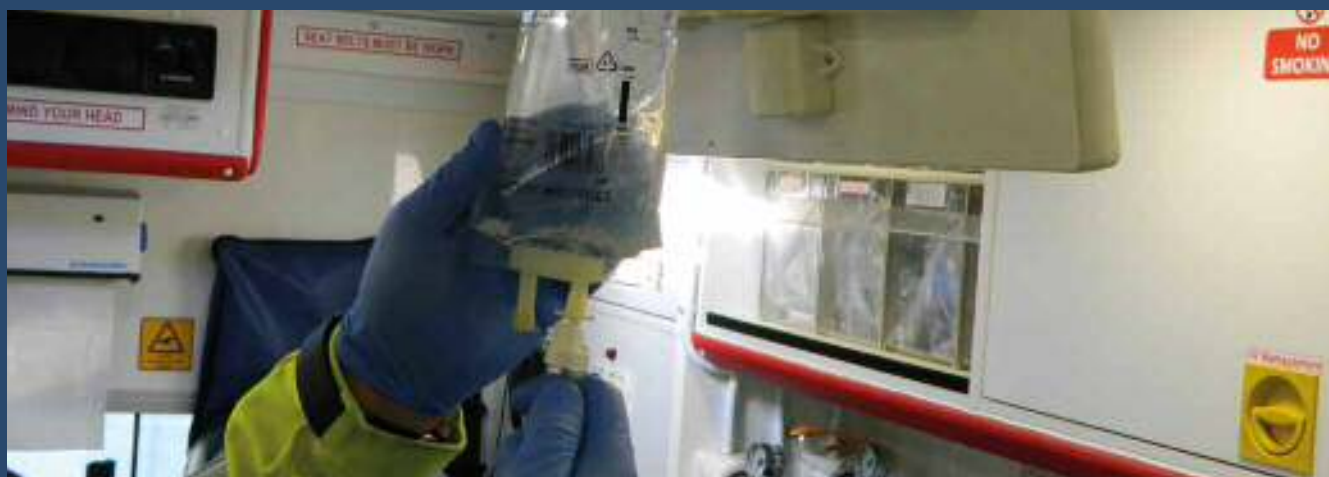
Improved recognition occult intra-abdominal haemorrhage by the introduction of prehospital Ultrasound (FAST Scanning - Focused Abdominal Sonography in Trauma). Small study in the US showed some interesting findings; <http://onlinelibrary.wiley.com/doi/10.1111/j.1553-2712.2010.00755.x/pdf>

The introduction of prehospital predictive tools to identify patients suitable for massive transfusion protocol activation. Such as the following study;

<http://www.ccforum.com/content/18/6/648>

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WE NEED YOUR CLINICAL CASES!!!

To make this initiative effective and practitioner focused I would ask all staff to become part of the content, We are asking YOU the frontline NAS Practitioners to submit Medical or Trauma Clinical Case Presentations to the Medical Directorate to be published in Clinical Connections.

We hope you find this format of reflective learning in which cases of actual patients with a specific diagnosis are shared will increase clinical knowledge and professional development.

And as if that was not enough motivation Each published case will receive a station / personal profile. So get writing.....

To maintain consistency we would request that you use the headings shown here for your clinical case. Cases should be concise with the focus on the key reflective learning points or new knowledge garnered that can be shared. Please do not include any private information that would identify the patient or images of patients. Inclusion of hi resolution stock images, anonymised ECGs and information tables are encouraged. Content will be reviewed by the Medical Directorate and credited to the submitting practitioner. Please forward clinical cases to medicaldirector.nas@hse.ie with the title "Clinical Connections Clinical Case and your name"

TITLE OF CASE PRESENTATION

PRESENTATION

- Set The Scene
- 1 Phase of Shift
- 2 RRV /Crew
- 3 Weather
- 4 Distance
- 5 Information available

PATIENT

- Patient Characteristics
- 1 Age
- 2 Gender
- 3 Occupation
- 4 PMHx

INITIAL EXAMINATION

- On Examination
- 1 Initial Findings
- 2 Physical Examination
- 3 Vital Signs / Tests

CLINICAL IMPRESSION

- Summarization of Examination Findings & Working Diagnosis

INTERVENTIONS

- Clinical and/or Non Clinical Interventions

OUTCOMES

- Initial Response and /or Response over time

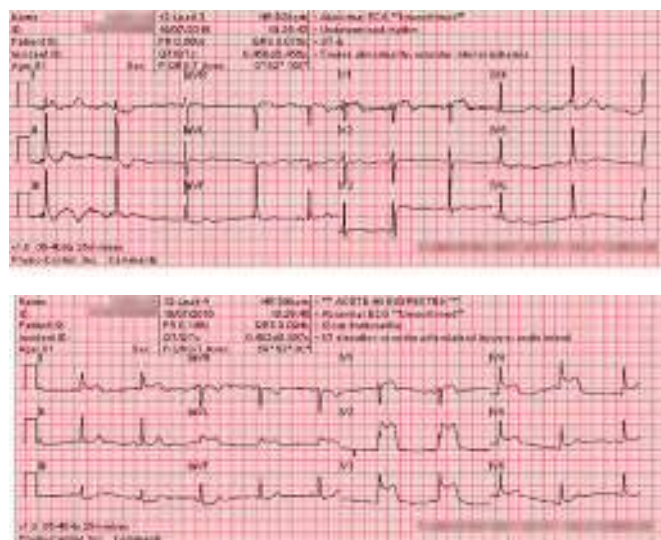
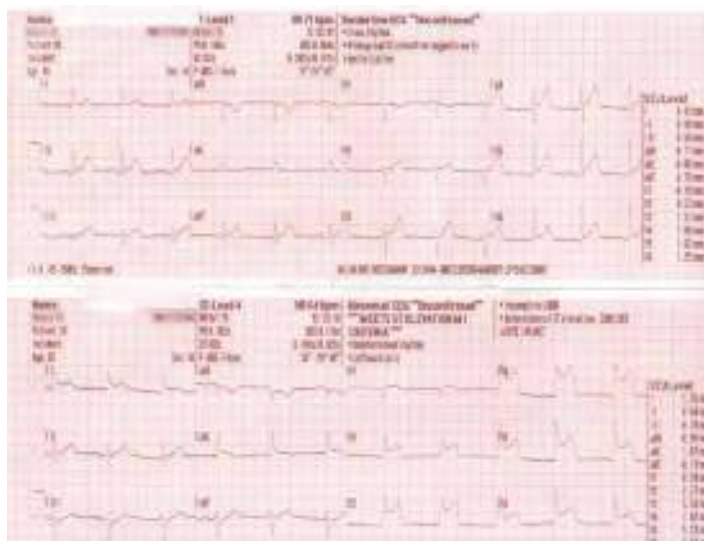
DISCUSSION & LEARNING POINTS

- Can include related findings in the literature, key aspects of the condition / injury, potential impact on clinical practices, Key learning outcomes and shared knowledge.

ECG

Acute Coronary Syndromes & STEMI Care

In a recent series of cases highlighted to the Medical Directorate, practitioner and nursing staff have given us some excellent ECG's that highlight an important learning point. The following ECG's display significant and very visible ECG changes, thanks to Darren Figgis AP Roscommon RRV & EAS and Rosemary Walsh CNM2 CCU Galway University Hospital. What you will be interested to note is that they are taken only minutes apart (Case 1 30min) (Case 2 a ridiculous 4 min)



"Just wanted to share these 12 lead ECGs, performed on a patient who had been experiencing acute onset of severe chest pain while playing golf. Had history of previous PCI w/stent performed 2 years ago; described his symptoms as "much worse than then", and was becoming visibly more unwell/unstable in front of our eyes."

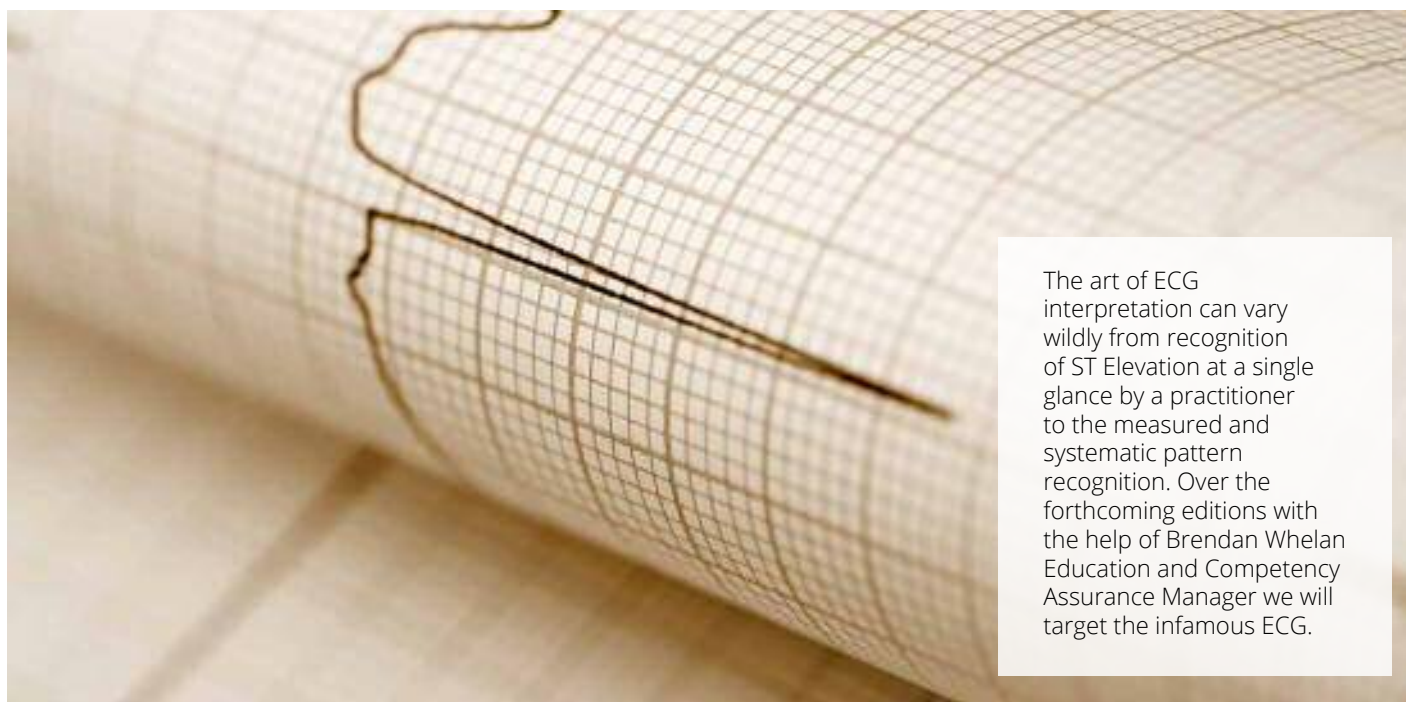
Darren Figgis AP

"I have attached two ECGs' taken 4 mins apart on a patient that was referred to us during the summer. Again really good example demonstrating the benefit of repeating ECG's"

Rosemary Walsh CNM2 CCU

TAKE HOME MESSAGE

Don't underestimate the ability for your patients ECG to change dramatically in a relatively short space of time. Repeat ECG's manually or set your monitor to take frequent 12 Lead snapshots and update your care and patient pathway accordingly.



The art of ECG interpretation can vary wildly from recognition of ST Elevation at a single glance by a practitioner to the measured and systematic pattern recognition. Over the forthcoming editions with the help of Brendan Whelan Education and Competency Assurance Manager we will target the infamous ECG.



One Life

EVERY ACTION COUNTS

Over the past two years the National Ambulance service (NAS) has engaged with both the country's leading resuscitation experts and our international counterparts in a collaborative project focused on developing and expanding the National Ambulance Services response to Out of hospital Cardiac Arrest. Integrating all the key stakeholders to achieve a single objective... to save more lives.

The project is focused on systematically improving outcomes for patients who suffer an out of hospital cardiac arrest in Ireland. The One Life Project not only represents our commitment to improve standards of care it also represents our commitment to measure and publicly report on clinical outcomes of patients. The implementation strategy is broken into four strategic pillars.

Build community resilience by developing complementary models of OHCA response and expand Community First Responder (CFR) Schemes. Expand the National Ambulance Services role in public health promotion and education.

Refine call taking, resource allocation and dispatcher assisted CPR of OHCA cases by the National Emergency Operations Centre (NEOC) and promote the vital role they play in outcomes of the OHCA patient.

Enhance the quality of care delivered by Emergency Medical Services at the scene and cultivate a coordinated approach to Return Of Spontaneous Circulation (ROSC) Care.

Refine the process and quality of data management, clinical audit and research for OHCA and improve feedback to all stakeholders.



The One Life Project has developed a number of supporting materials for NAS staff, the wider Health Service and the Public. The Publications and videos can be found on the HSE Webpage <http://www.hse.ie/nas/onelife>

ONE LIFE IN ACTION.

The One Life Project has developed a comprehensive Position paper on the Optimal Scene Management of an Out Of Hospital Cardiac Arrest which will be released early in 2016. The document and supporting Videos focus on the best evidence in resuscitation care outlining the principles of High Performance Resuscitation and Human Factors Management, the objective of which is to improve the quality and dignity of care delivered by NAS practitioners at the scene.

One of the early innovations of the One Life Project was the Identification of the issues surrounding Out Of Hospital Cardiac Arrest Registry (OHCAR) data collection and processing. To that point there had been no single approach to the collation of OHCAR data from each region within the NAS.

The One Life Project has developed and Instituted a National process of data collection, regional collation and data processing; with collaboration from OHCAR the NAS can now track each OHCA event from inception to conclusion and has significantly reduced the data processing required and allowed greater emphasis on Validation of the data and feedback to the appropriate stakeholders.

Since July 2014 NAS practitioners place completed PCRs in specially provided OHCAR/ONELIFE envelopes. Filled envelopes are then deposited into PCR boxes in each

ambulance station. Envelopes are collected together with all PCRs from each station on a monthly or fortnightly basis and sent for digital processing. OHCAR PCRs are prioritised for digital processing and scanned images of the PCRs are created and the OHCAR dataset is extracted and sent in SPSS and EXCEL format.

In November 2015 the NAS Medical Directorate introduced Quarterly OHCA Infographics to highlight the important work NAS practitioners are carrying out in each of their own areas.

The One Life Project will continue to work with OHCAR to maximise the data collection and processing in line with future technological advances.

The benefits to patients and their families remain the overarching focus of the One Life Project. Our services goal is to treat effectively as many people in cardiac arrest as possible so that they are neurologically intact and ready to resume their role within their family and society.

Since the introduction of this quality improvement initiative we have seen a steady rise in the percentage ROSC at ED rates, this is down to the consistent professional effort by YOU the front line call takers, dispatchers and practitioners.

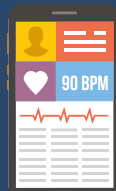
In each future edition of Clinical Connections, I will be updating staff on the progress of the One Life Project. By working together, the implementation of this project will improve patient outcomes for each cardiac arrest call and dramatically increase our chances of saving that 'One Life'

David Hennelly AP MSc
Clinical Development Manager
One Life Project Lead

	Number of OHCAR Cases Identified	Comparator Cases	% ROSC on arrival	Target
Quarter 4 2014	417	62	24%	40%
Quarter 1 2015	451	57	37%	40%
Quarter 2 2015	356	52	40%	40%
Quarter 3 2015	404	53	42%	40%

FOAMed Update

JAMES WARD



The internet revolutionised how we access information, most of us don't need to walk into a library to look at a journal article. More recently, social media has further revolutionised how we access information. Friendships and networks have developed across Twitter and Google hangout, colleagues in Emergency Medicine, Retrieval, Critical Care and PreHospital Care are using social media, blogs & Podcasts to share ideas, discuss, debate and learn. Live tweeting from conferences, study days and governance meetings are shared across the globe in real time. An article published today will be summarised, debated and shared tomorrow for all to see and learn.

This novel approach to sharing educational content which is free to the end user has gained cult status; not least due to the name it has been given. It's Free, Open Access Medical education or FOAM. The term FOAM was coined over a few pints of Guinness at The International Conference on Emergency Medicine held in Dublin in 2012, (see #ICEM2012) to quote Mike Cadogan, "FOAM is the concept; #FOAMed is the Twitter hashtag". You can read more about the birth of FOAM here, <http://lifeinthefastlane.com/foam/>

So how can you use FOAM to enhance your learning? Well, it's not intended as a substitute for formal education, nor is it intended to replace reading journal articles to keep abreast of new developments. However, what FOAM can do is open up new ways to source information, new ways for you to find content that is up to date and relevant. In fact, there are so many different FOAM resources out there now that it can be difficult to keep on top of things. Thankfully Google came to the rescue here with a dedicated search engine, GoogleFOAM, all the best of the web based FOAM, powered by Google.

3 things to do, today, to enhance your learning;

1. Join Twitter, I can't stress this enough... join twitter, choose a name, use your own name, make up a name, write a quick bio, choose a profile picture and start finding people to follow.
You can learn all about twitter from the internet but here's a good introduction which focuses on FOAM. <http://iteachem.net/2013/06/ten-tips-for-foam-beginners/>. Check out #IrishEMS for a weekly discussion on a different topic with an Irish slant, Monday nights at 9.
2. Explore Life in the Fast Lane, one of the best websites for what's new each week. Just search "LITFL" on Google and click the first result. The best thing about LITFL is that they do a weekly review of the hottest things in Emergency Medicine & Critical Care; they do a review of blogs and podcasts and other websites and also a review of the latest research.

3. Download a few podcasts, search for EMCRIT, ERCAST, RAGE and SMACC... If I had to recommend any in particular, I would search for Dr. Cliff Reid (Making Things Happen or Own the Resus) or the late Dr. John Hinds (Cases from the Races, Cricolol or Crack the Chest, Get Crucified). These may be available on YouTube too. As well as being highly entertaining, these talks offer insight into the mental challenge of managing our own thoughts and emotions while working under pressure, tips on how to lead a team when it feels like everything is going against you and provokes your thoughts on how to make tough decisions for your patients when it counts.

In the coming editions we will endeavour to build upon this short introduction to internet based learning. If you take the first step now and join Twitter, I'll include some recommendations on who is worth following. The internet has a lot of free CPD opportunities and we'll discuss some of these next time. I also think it's worth looking at how and when it is appropriate to use these blogs and websites in academic work and so we'll look at how to use FOAM wisely and how to reference your source.

There's a busy schedule of conferences coming up in 2016 and Ireland has a big role to play as we're hosting the Social Media and Critical Care conference in 2016, check out #SMACCDUB for more. Of course, there's also The EMS Gathering in Killarney in June which has a great line up again this year. I'll be explaining a bit about how you can follow the best bits of the conference of your choice whether you're actually attending or not.

Every day is a school day when it comes to the internet, what FOAM offers is some structure on the information that's out there. It aids us in separating the good stuff from the not so good. It gives us a 'heads up' for new publications that are hot off the press and it puts you in the room with some clever people around the world as they dissect and debate the pros and cons of everything from some random thought to a peer reviewed publication.

I'll leave you with the now famous quote from Dr. Joe Lex;

If you want to know how we practiced medicine 5 years ago, read a textbook.

If you want to know how we practiced medicine 2 years ago, read a journal.

If you want to know how we practice medicine last year, go to a (good) conference.

If you want to know how we practice medicine now and in the future, use FOAMed.

Conflict of Interest: None. (Sadly, I'm not sponsored by Guinness or Google but if there are a few free tickets to #SMACCDub going... I'll take them)



James Ward is an Advanced Paramedic in Midleton, Co. Cork. Before joining the National Ambulance Service in 2008, James was an Emergency Department nurse, working in Cork University Hospital and The Royal London Hospital before finally succumbing to his prehospital addiction.

James holds the Twitter handle @IrishParamedic and has been salient in ensuring the evolution of Pre-Hospital Social Media use remains engaging, challenging and always professional. Over the forthcoming editions James will be updating us on the top webpages, blogs and links to enhance your clinical knowledge and support your professional development.

The Emergency Aeromedical Service



HUMAN FACTORS AND CRM IN PREHOSPITAL CARE

The Emergency Aero-medical Service (EAS) commenced operations on the 4th June 2012, this project was designed to evaluate the efficacy of a Helicopter Emergency Medical Service (HEMS) for Ireland. It was set up as a pilot project between the NAS and the Air Corps, and gets additional support from the Irish Coast Guard. A cross sectoral working group has examined ways to provide a permanent dedicated service. Both Ministers Leo Varadkar and Simon Coveney have considered the Group's report, and it has been agreed to establish a permanent service continuing the current service model.

Minister Varadkar said: "I'm delighted that the Government has agreed to put the Emergency Aeromedical Support Service on a permanent footing. It's a great example of co-operation across Government and it shows what can be achieved by using existing resources, even following a deep financial crisis. The service has been great for patients and ensures that those in remoter areas, particularly in the west, have timely access to specialised treatment available in the larger hospitals.

The collaboration between the NAS and Air Corps has been quite remarkable." Minister Coveney said: "I welcome the establishment of a permanent EAS service and the ongoing support to the National Ambulance Service and the Defence Forces in providing such a valuable service to people in rural communities. The professionalism and commitment of the Air Corps in providing a dedicated helicopter service to date has been exemplary.

Commenting on the service, HSE Director General Tony O'Brien noted: "Having recently spent some time accompanying the National Air Corp and Ambulance Service

on important tasking's, I have seen first-hand the enormous difference this work makes, especially to those in rural and remote areas. To be without them now would be unthinkable and it is good news for all, that this service has been put on a more permanent footing."

The primary phase in developing the role of the EAS was on the operational development and complex infrastructure required to deliver such a service, including the development of a dedicated National Aero-medical Co-ordination Centre (NACC) that co-ordinates all aero-medical calls including the EAS the Coast Guard and Air Ambulance transports. The training of the selected Advanced Paramedics focused teamwork with the Air Corps crewman and pilots and general orientation on safely operating together in this new environment. As the service developed a Clinical Governance framework has been introduced to ensure future development of EAS clinical operations remains patient focused and promotes a culture of continuous quality improvement.

At the heart of the EAS is an aspiration for clinical and operational excellence, uniformity of clinical practice and sound underpinning governance. The Clinical Governance Framework aims to provide a structure through which the EAS can deliver a high and consistent standard of clinical care and deliver a world class service for patients. The lessons learned in relation to communication skills, debriefing calls and using clinical governance meetings to share knowledge and improve standards can be replicated in ambulance bases throughout the country and in the wider health service.

CREW RESOURCE MANAGEMENT (CRM).

Crew Resource Management (CRM) encompass expertise, experience and research from the aviation industry to improve the safety and efficiency of organizations involved in risky work. The introduction and application of CRM significantly changed the way in which National Ambulance Service staff who work on the EAS have approached day to day practice.

CRM teaches us about human limitations and involves participants in assessments of their own behaviour and the behaviour of peers, it encompasses a wide range of knowledge, skills and attitudes including communications, situational awareness (SA), dynamic problem solving, decision-making, and overall teamwork. Additionally, participants in CRM training learn to understand how cognitive errors occur and are how external stressors such as fatigue, crisis management and work overload can contribute to human error.

Internationally these principles of managing the "Human Factors" have been successfully transferred into health services particularly in emergency care, surgery and anaesthetics CRM is now an essential part of air ambulance operations all over the world.

Below are just a few examples of how the principles of CRM and strong clinical governance can be incorporated into the wider arena of prehospital care.

COMMUNICATION SKILLS

Clear communication can be something we take for granted during our day to day work at the side of the road at an RTC or working a cardiac arrest in a patients home but if you imagine running those calls in a noisy environment using a headset and radio suddenly you realize the importance of clear concise communication with your team the patient and family members. The restrictions placed on the helicopter crews by operating in this environment on a day to day basis makes you appreciate how simple clear communications can assuage a patients fear of the unknown, it can reduce stress on your team and it can alleviate errors. Our ability to communicate clearly while managing an emergency is a skill in its own right and should not be underestimated and is a skill that should be developed at every opportunity.

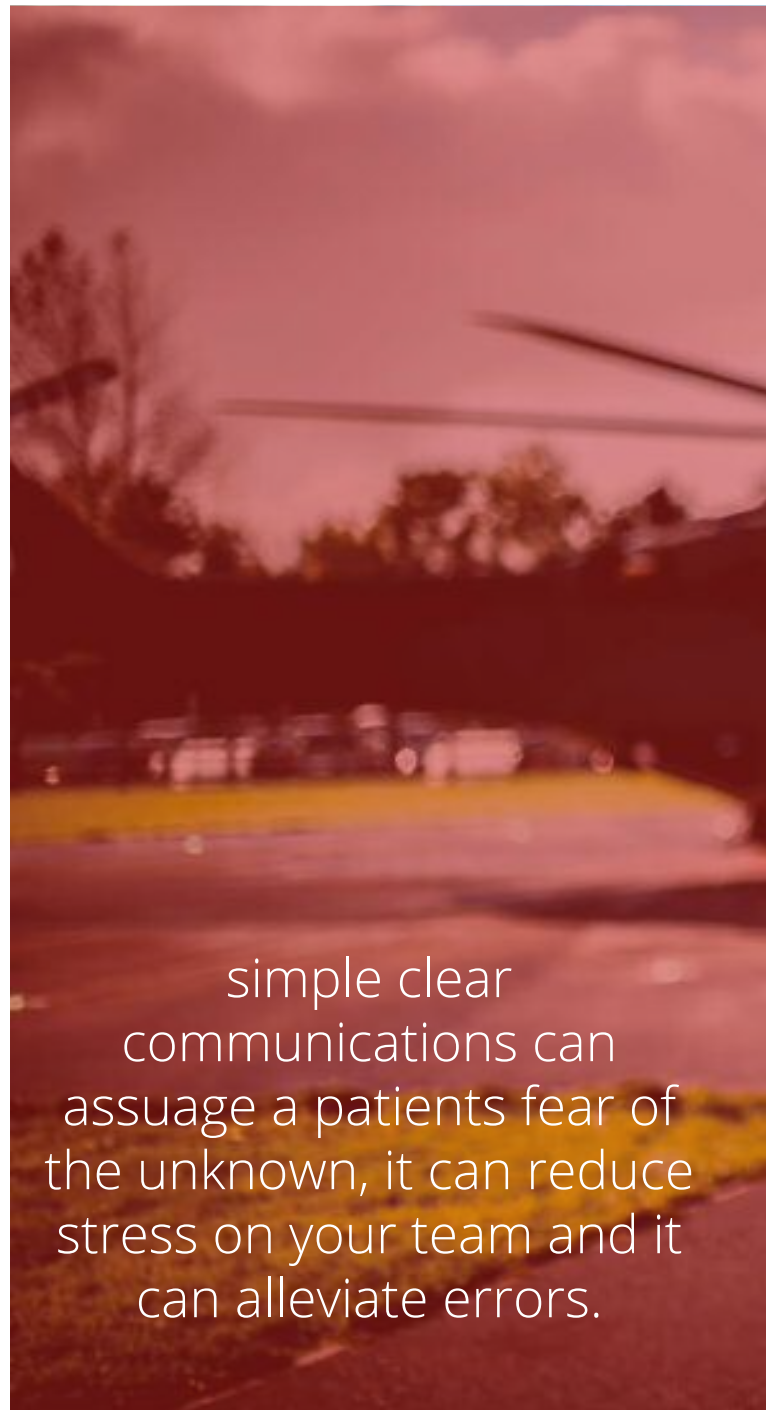
SITUATIONAL AWARENESS.

This can be described as an individual's awareness of the environment at the moment of an event and the analysis of this to understand how an individual's actions may impact on future events. Having good Situational Awareness (SA) is a vital skill for helicopter pilots, and aircrews.

Advanced Paramedics assigned to EAS have developed a newly found appreciation for SA, not just in relation to aviation safety and destination choice but also how situational awareness becomes particularly important when many events are happening simultaneously, e.g. at a cardiac arrest. High information input with poor situational awareness may lead to poor decision making and serious consequences. At a cardiac arrest for example, all those participating will have varying degrees of situational awareness. In a well-functioning team, all members will have a common understanding of current events and the impact that each intervention may lead to.

CHALLENGE RESPONSE CHECKLISTS

In any emergency, there is a lot of multitasking going on, both by individuals and teams of responders. Understanding the limitations of the human brain in these stressful environments has led to the development of Challenge & Response Checklists. Originally a concept unique to aviation, they are used to ensure simple cognitive errors do not



simple clear communications can assuage a patients fear of the unknown, it can reduce stress on your team and it can alleviate errors.

occur during pre- and post-flight checks and in the high stress environment of emergency situations. Pre-hospital emergency care has seen the development of similar checklists for use during the management of Cardiac Arrest, Return of Spontaneous Circulation (ROSC), Post Intubation Care, and the management of major haemorrhage.

DEBRIEFING

After each call or at the end of the shift all the crew gather together to debrief the call. This process only takes on average 5 or 10 minutes but has repeatedly proven to be highly beneficial. During the debrief we take each aspect of the call from initial tasking to mission to handover at the receiving facility. This frank open discussion of each call with people taking ownership of both the positive elements and any errors that may have occurred, also highlighting how each aspect can be improved continual drives the service and each individual forward. We share our learning points in a simple feedback form which is left in the base for other crew members to learn from, we also close the loop



of communication back to the National Aero-medical Co-ordination Centre (NACC) to ensure they also share in the learning/feedback process.

CLINICAL GOVERNANCE MEETINGS

Each month we hold a clinical governance meeting, these meetings are attended by the on-call duty crew and at times other crew members will attend. The purpose of these is to exchange and share knowledge, highlight and address any operational or clinical issues, and promote future education and research. All with a view towards improving the quality of service to the wider NAS and the general public.

Each clinical governance meeting includes at least two of the following:

- » Clinical cases review / presentation.
- » Data Audit / Journal Review.
- » Review of policies, procedures and guidelines.
- » Training specific to EAS operations.
- » Discussion of adverse events and critical incidents.

TEAMWORK AND FEEDBACK

Success of any aero-medical service depends on every member of the team, from strong medical and operational leadership to the National Aero-medical Co-ordination Centre (NACC), the pilots, Advanced Paramedics and crewmen, the technical crews maintaining the aircraft and most importantly the frontline staff of the National Ambulance Service who have been using the service to benefit their patients.

To date we have been able to measure and improve the teamwork and service to the NACC by closing the loop of communication and seeking feedback on cases attended.

In an effort to continually improve the service and share the lessons learned the EAS will host a regular column in the NAS Clinical Connections Magazine, some of which will focus on the tasking breakdown of the missions and geographical distribution and others will focus on specific lessons learned from clinical cases attended.

You can follow this link to get a better insight into the role of the EAS; <http://youtu.be/b-MPILHHvkw>



National Ambulance **SERVICE** **RESEARCH**

Prehospital Research in Ireland is on a dramatic upward slope. Research is no longer perceived to be the realm of dusty old library's and academic purists.

We are now in the era of tech savvy, research hungry, evidence based prehospital practitioners who's appetite for home grown high quality research is gaining momentum year after year. These practitioners are comfortable treating patients in a rollover RTC at 3am and still showing up for Journal Club Meetings at 7am before they knock off their night shift. This combination of clinical ability and academic respect is leading us to a bright future in prehospital care in Ireland.

This year the NAS is delighted to announce the launch of a dedicated Research Committee, this article by Dr Conor Deasy outlines the role of the NAS Research Committee and its aims to support new research involving NAS Patients and Staff. In future editions Conor will be helping us analyse and understand how new national and international published literature can help us gain a greater understanding of our role and clinical interventions and how it shapes the future of prehospital care.



Research

DR CONOR DEASY

Research is the creation of new knowledge. To date there has been a limited amount of research done in the pre-hospital area worldwide. We often find ourselves applying devices, treatments and interventions that have proven effect in other areas like in hospitals but may not be quite as successful when applied in the pre-hospital field. High quality research results in better care for patients and therefore there is an obligation on all professionals to engage in this process.

The National Ambulance Service (NAS) has set-up a research committee to ensure that research projects supported by the NAS, be it through providing data, co-operation or man-hours is appropriate and that necessary research governance procedures are adhered to in performing these research projects. NAS also wants to ensure that research outputs are optimised and lead to the betterment of patient care.

The NAS research committee undertakes to assess all proposed research projects involving NAS data or NAS personnel to ensure that the proposals can be delivered, are worth the time, energy and cost and that the results are translated into meaningful outcomes for patients and staff at NAS.

NAS encourages collaborative research projects with other organizations, universities and researchers. It is expected that at least one approved NAS employee is included as a co-investigator for projects requiring significant use of NAS

data or NAS staff. For those of you interested in becoming involved in research and have a research project in mind it is highly recommended that prior to formulating and submitting a research project proposal that you contact a member of the research committee to describe and discuss what it is you are trying to achieve. The research committee member will advise on how feasible the project is and suggest key individuals to liaise with in advance of formally applying for research committee approval. The following are the key criteria which the NAS research committee will assess projects on.

1. The benefits and knowledge arising from the research.
2. The research fits with NAS strategic direction.
3. Operational impacts to NAS.
4. Existence of funding/potential funding for the research.
5. Credentials or technical competence of the researchers.
6. Risk to NAS in relation to conducting the research.
7. Opportunities to NAS in relation to conducting the research.
8. Ethics committee approval (if applicable).

For further information please see the National Ambulance Service Research Committee Terms of Reference published January 2015 or email NAS.Research@hse.ie.

EMS Gathering 2016



Come and join us on the 9th and 10th of June for the EMS Gathering 2016, where you will be treated to an inspiring few days with colleagues and friends in the beautiful surroundings of Killarney, Co.Kerry.

The two day programme will be have something for all those interested in pre-hospital emergency care irrespective of qualification or experience. Top class national and in-ternational experts will deliver education in a style and location which will leave a lasting impression.

Key aspects of EMS Gathering are;

- » Short discussion on topical EMS subjects
- » Learning with Leisure sessions
- » Indoor Workshops
- » Farm Injuries Workshop
- » HEMS Q&A Panel
- » Social Programme

Follow us on twitter [@emsgathering](https://twitter.com/emsgathering) for updates or Facebook

Contact us on emsgathering@gmail.com

MEDICO CORK Tales From the Telemedical Support Unit



Over the forthcoming editions we will be sharing Tales from Telemedical Support, which aims to discuss the lessons learned from the cases and the potential changes to practice for frontline practitioners.

MEDICO CORK – IRELAND'S NATIONAL 24HOUR TELEMEDICAL SUPPORT UNIT - DR JASON VAN DE VELDE

Cork University Hospital Emergency Department manages the HSE National 24 hour Emergency Telemedical Support Unit. MEDICO Cork guarantees direct access to advice from an Emergency Medicine Registrar or Consultant through various Service Level Agreements (SLAs) with a range of end-users including the National Ambulance Service, Dublin Fire Brigade, Irish Coast Guard, Defence Forces, Mountain Rescue Ireland (via IRCG) and an Garda Síochána (NAS and DFB account for 97.2% of all calls to service)

Since April 2011, HSE Standard Operations Procedures (SOPs) exist to facilitate Advanced Paramedic Telemedical Support for both the National Ambulance Service and Dublin Fire Brigade. Telemedical Support for the Emergency Services is included in the "National Emergency Medicine Programme" (June 2012).

INFRASTRUCTURE

Calls are received either directly from users or through the

various agencies control rooms, via a dedicated telephone exchange or increasingly through The National Digital Radio Service (NDRS); a secure digital mobile radio network available exclusively for the use of public safety sectors in Ireland. A quiet telemedicine-room, free from distraction, has the ability to forward calls, conference call, access email, and access both intranet and internet based electronic resources. For research purposes, the room has live video feed capability and enhanced data-transmission through the University College Cork (UCC) Network.

CLINICAL GOVERNANCE

Dr. Jason van der Velde is employed full time as the Clinical Lead for the service. Prof. Stephen Cusack and the wider Consultant team at Cork University Hospital Emergency Department provide Consultant Emergency Medicine support. Individual Services' Medical Directorates feed into this Clinical Governance Structure. Lessons learnt from Audit and research is fed back to the Prehospital Emergency Care Council (PHECC) to guide and inform debate surrounding Prehospital Clinical Practice Guideline development in Ireland.

All calls are recorded electronically and stored in a database on the HSE Network, becoming part of standard secure HSE patient records. Access to these recordings is strictly governed. Records are anonymised and routinely thematically audited to improve service delivery.

CLINICAL ACTIVITY

Year to 28 th April	Number of Calls	Number of Calls per day	Yearly Activity Increase
2015	816	2.24	75%
2014	464	1.27	52%
2013	306	0.84	54%
2012	198	0.54	-





Education & Competency Assurance **Team Update**

Out of the Ashes of the Phoenix (Park)
by Macartan Hughes

This year saw the unveiling of the Rivers Building in Tallaght which is the new NAS HQ and the site of the impressive New National Ambulance service College. This article by Head of Education & Competency Assurance Macartan Hughes gives us a great insight into the evolution of education within the NAS. In future editions of NAS Clinical Connections we will be hearing from the Education & Competency Assurance Team on important professional development issues, ongoing training and key learning points.

In 1967 the Department of Health agreed a syllabus for ambulance training, broadly similar to UK standards of the time. Ambulance Aid training courses were initially of five weeks duration comprising of four week instruction and one week of clinical placements. A further week was added in the early 1970's and courses were delivered in various locations such as Kilbarrick Fire Station, the Civil Defence School in the Phoenix Park and Cherry Orchard Hospital. In 1986 a permanent home was found in the grounds of St Mary's Hospital and the National Ambulance Training School (NATS) was borne. NATS was essentially the joint property of the eight Health Boards in existence at that time.

Students of the NATS included personnel from the 8 Health Board Ambulance Services, Dublin Fire Brigade and the Defence Forces. In the late 1980's defibrillation courses were added to the activities of the NATS with Pre Hospital Trauma Life Support training added in the early 1990s. A two week refresher course for personnel who had earlier completed the Ambulance Aid course was also introduced. In 1996 NATS introduced Emergency Medical Technician courses, leading to staff receiving a Diploma in Emergency Medical technology from UCD. Additionally the NATS began to deliver Critical Incident Stress Management training and coordination of such services for the Ambulance Services.

In 2004 NASC formalised its relationship with UCD under a Memorandum of Understanding, ahead of the introduction of both the paramedic and advanced paramedic (AP) programmes, with academic awards of Diploma in Emergency Medical Technology and Higher Diploma in Emergency Medical Technology respectively. Such formalisation is a key criterion of course and institutional accreditation by the statutory regulator the Pre Hospital Emergency Care Council.

In 2005 the institute changed names to reflect both the formation of the National Ambulance Service and the additional educational responsibilities undertaken following the introduction of paramedic and advanced paramedic programmes and became the National Ambulance Service College (NASC). Additionally a new facility was opened in Ballinalsoe to work in tandem with the Phoenix Park

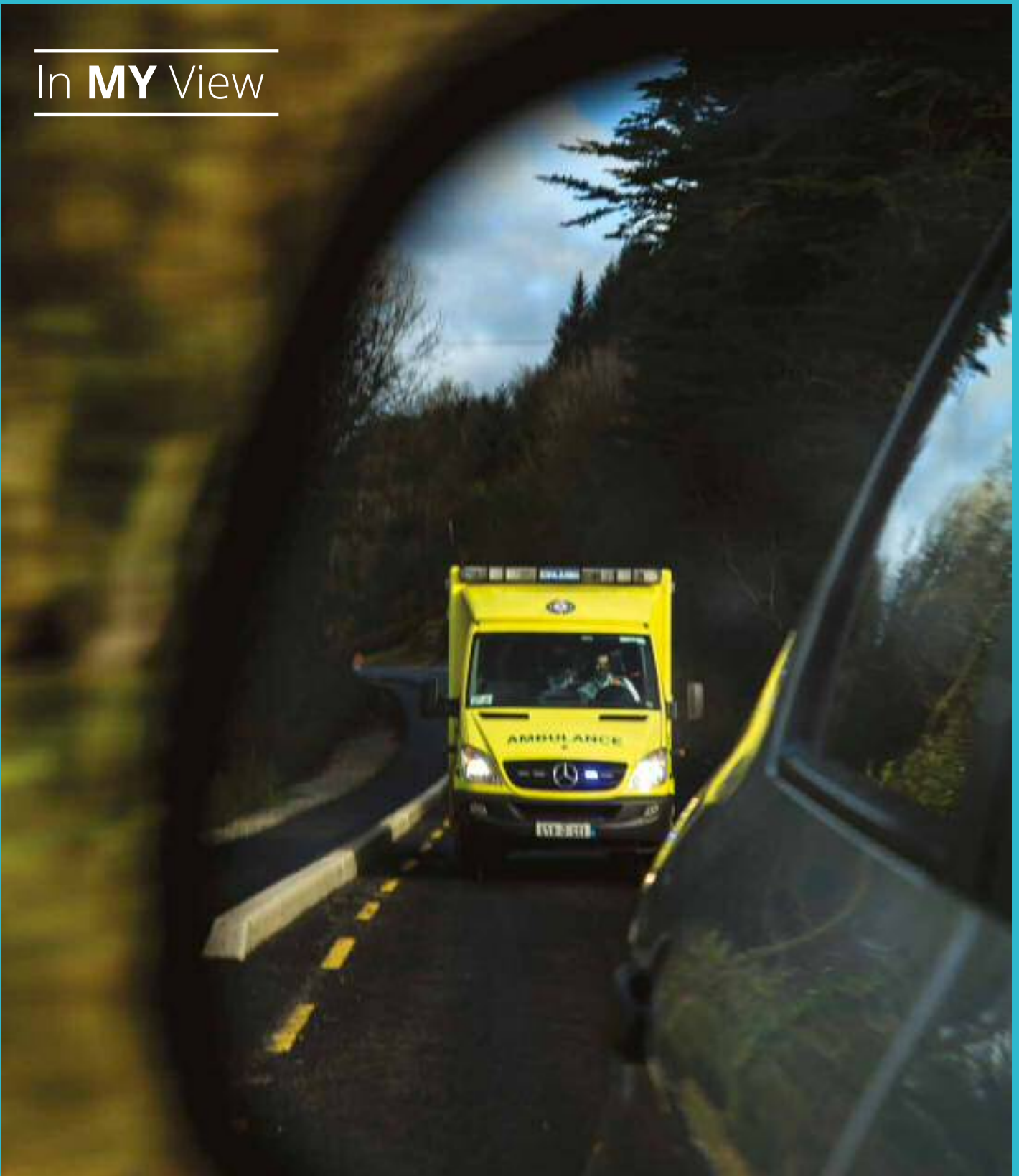
campus. A number of additional programmes were added to the NASC activity such as Cardiac First Responder, Emergency First Responder, a new format of Emergency Medical Technician course, various instructions courses, Non emergency and emergency driver training was also added to the courses delivered at NASC. Emergency call taker and dispatcher courses were added to the prospectus in 2011.

Shortly after the formation of the National Ambulance Service the diversity of approaches to managing control room functions was noted and a decision made to explore the development of a more centralised approach, across two sites. Potential venues for a national control centre were examined, with a view to including a modern education facility and a national headquarters. In 2015 the River's Building in Tallaght opened and included the National Emergency Operations Centre (formerly referred to as Control Centre), the National Ambulance Service College and the NAS Headquarters.

The NAS College facility in Tallaght was developed to meet the increasing complexity of prehospital emergency care education and training. Additional lecture rooms, meeting rooms, training rooms are now available in addition to control room training facilities. The facility offers the NAS an extended learning environment that reflects the growing place of simulation in healthcare education. While the use of various levels of simulation has been part of NASC activity for many years the new facility offers improvements such as simulated domestic environments, an ambulance simulator, a vehicle that can be disassembled in a manner similar to how Fire and Rescue Services would gain access to road collision victims and later this year a simulated building site will be available in the outdoor training area.

The new facility can now accommodate, and has already done so, simultaneous delivery of call-taker, paramedic and advanced paramedics development. The River's Building, in tandem with the Ballinalsoe facility will ensure that the National Ambulance Service College can address the demands of the NAS for well-prepared personnel whether they are to work in the National Emergency Operations Centre or in the prehospital environment.

In **MY** View



We are looking for stunning images of YOUR service,
YOUR region and YOUR workmates.

This magazine and National Ambulance Service communications need these lasting images of Prehospital care in Ireland, From Gweedore to Hook Head, From Carlingford Lough to Castletownbere and from Belmullet to Dublin City.

We are asking all of you with a keen photographic eye to seek out those shots and forward them to:
medicaldirector.nas@hse.ie

Please use the title "Clinical Connections in My View Photo" and supply your name and contact details.

We ask that all images are sent at the highest resolution and print ready. All images will be credited to the photographer.

It is important that staff do not take any images of Patients or at the scenes of an incident. All images of your peers should be appropriately consented.