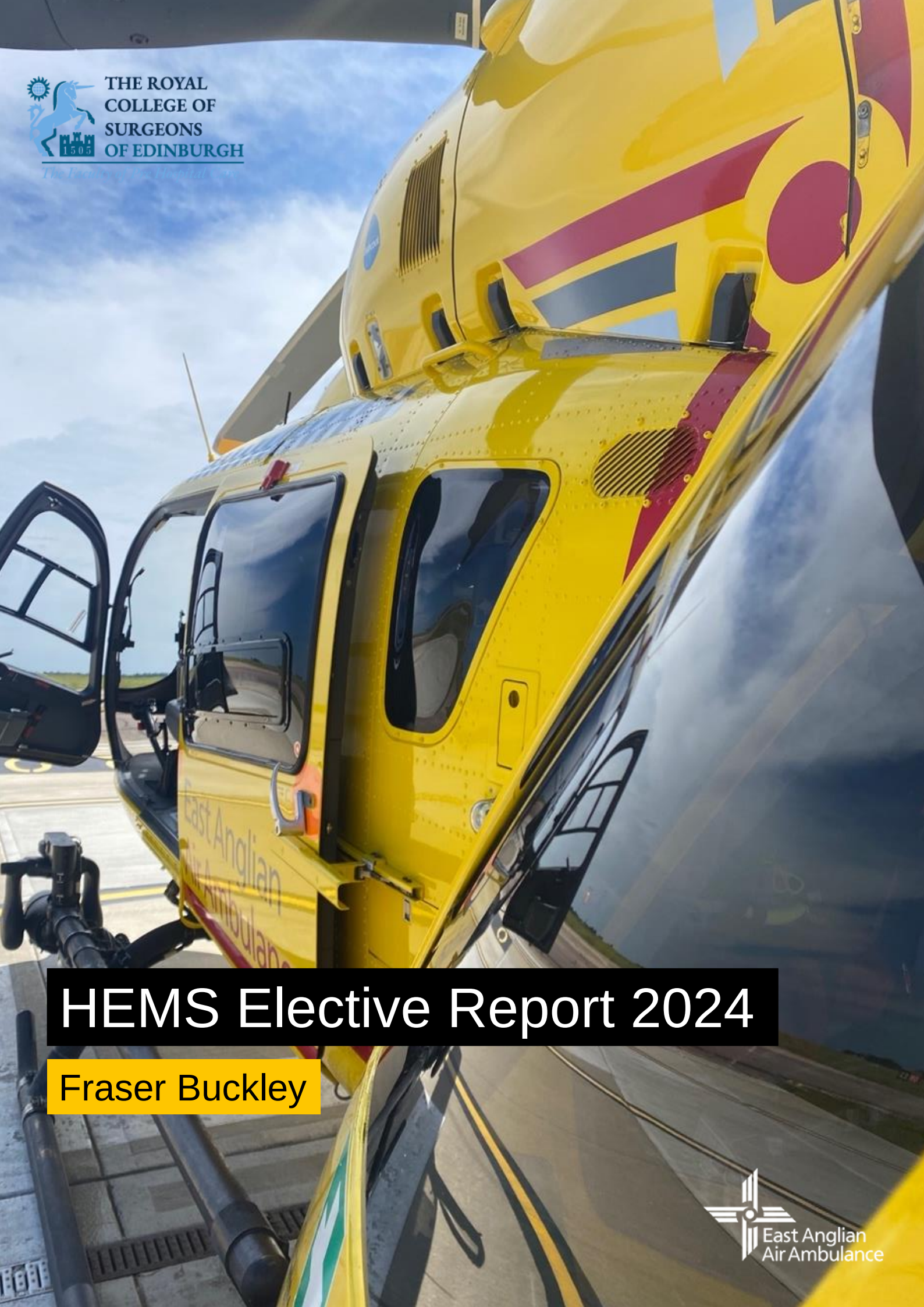


HEMS Elective Report 2024

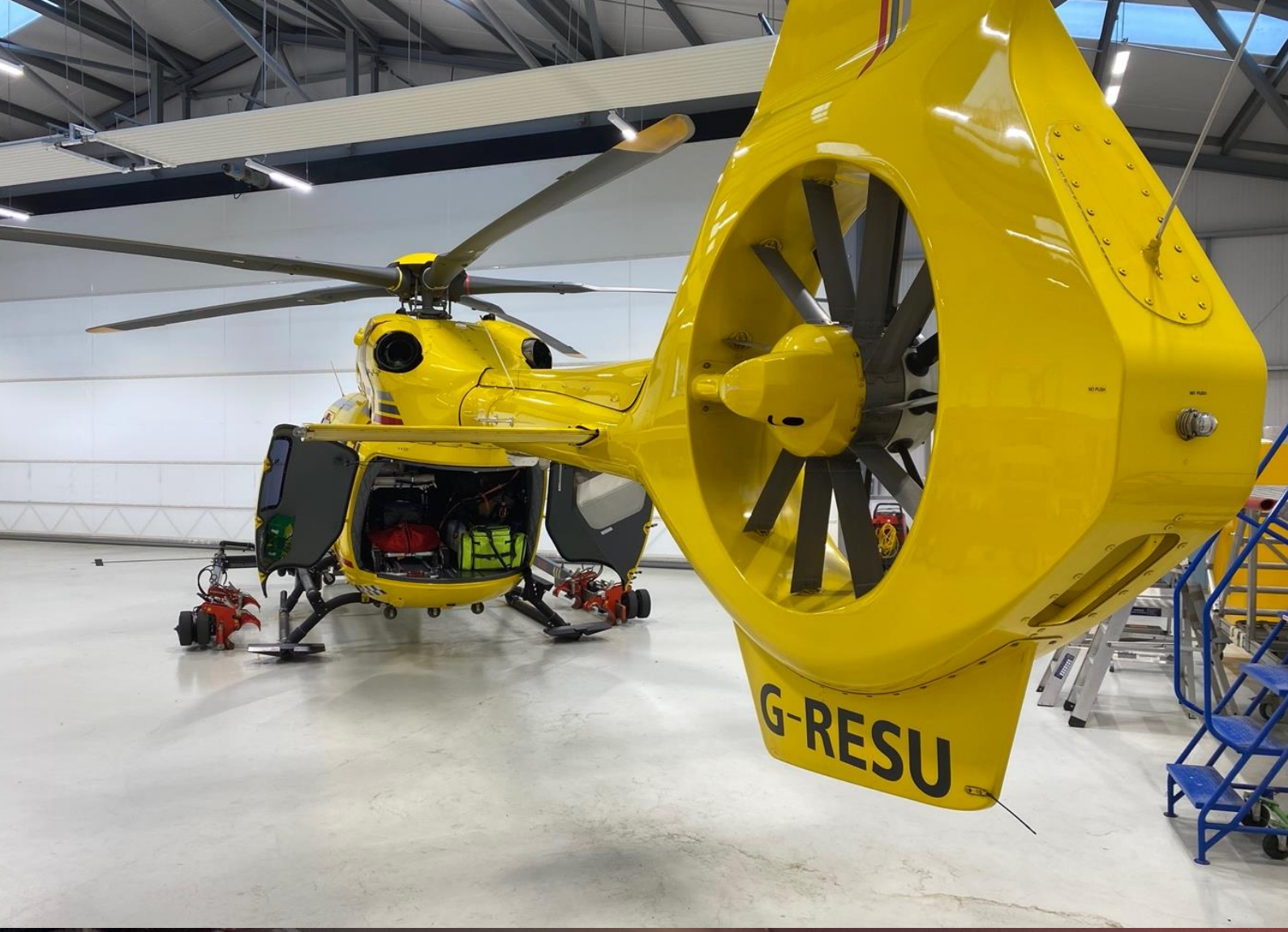
Fraser Buckley

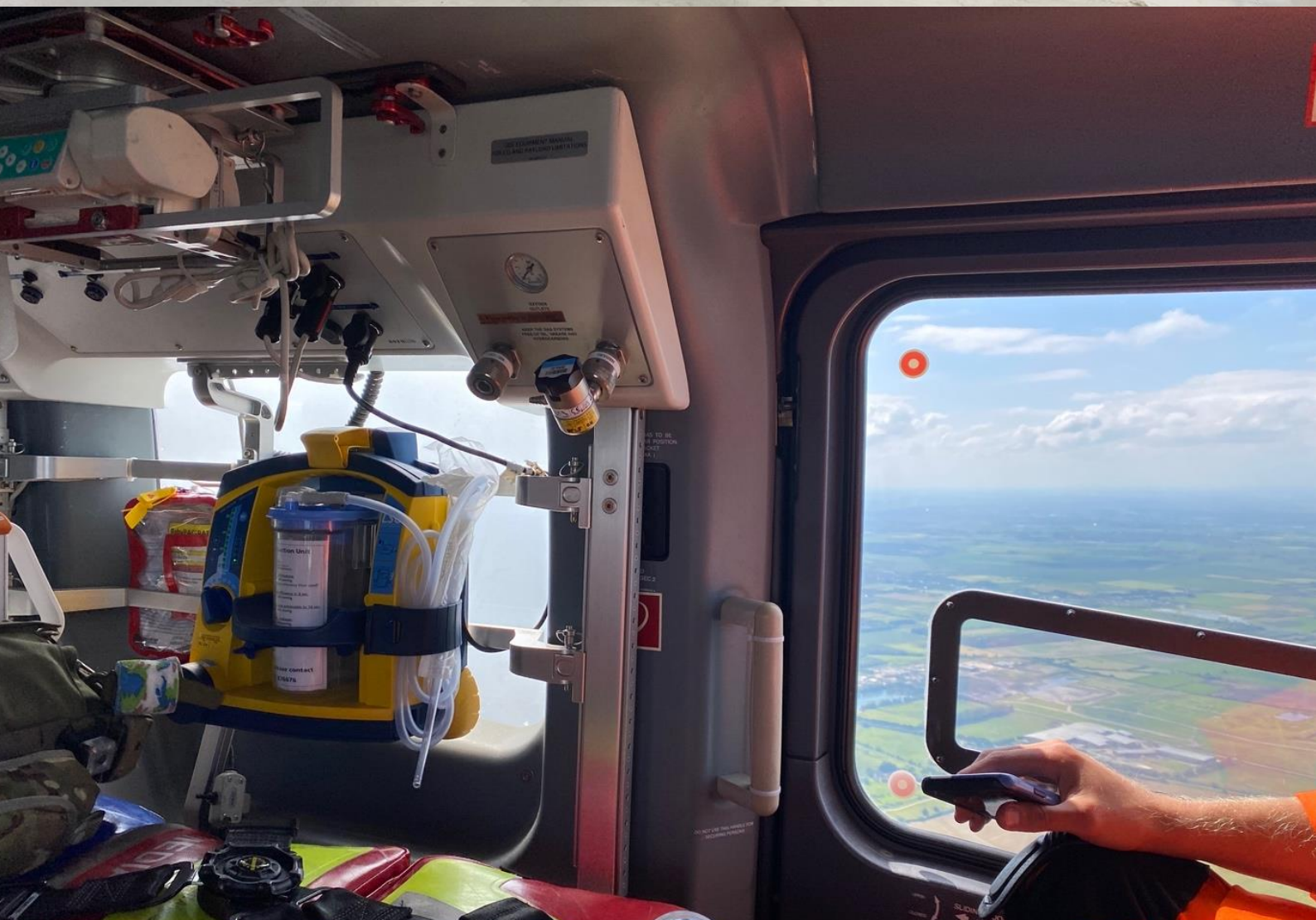
I was extremely fortunate to spend a month with East Anglian Air Ambulance (EAAA) as part of the Faculty of Pre-Hospital Care's HEMS student elective programme. The time I had with EAAA was a highlight of my medical career so far, affording me the opportunity to meet some truly incredible people, as well as gain an invaluable insight into Pre-Hospital Emergency Medicine (PHEM) and the inner workings of an air ambulance service.

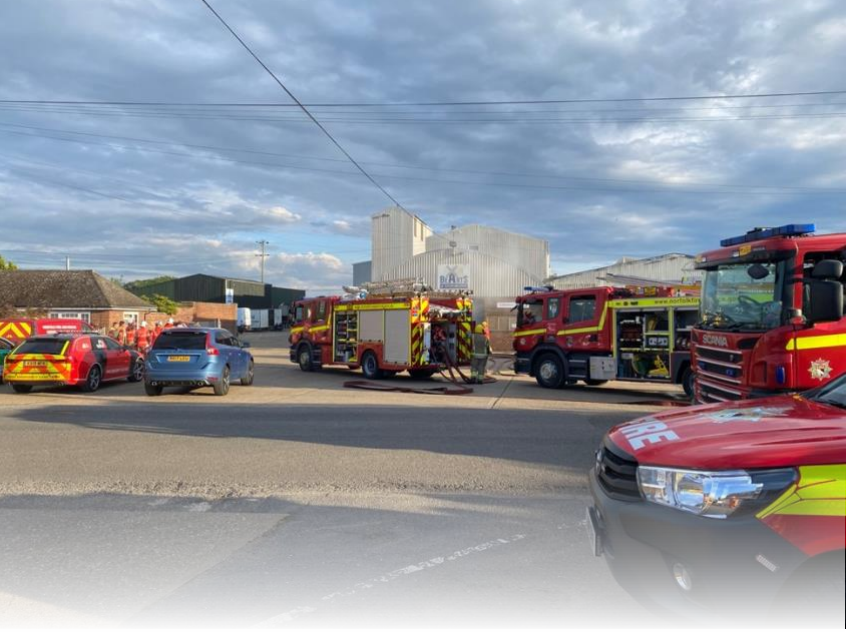
EAAA operates two helicopters and two Rapid Response Vehicles (RRVs), responding from a Norwich base (Helimed House) and Cambridge base to cover the roughly 20,000km^2 patch of East Anglia. As an air ambulance charity, they provide advanced critical care in an out-of-hospital setting and support the local ambulance service – East of England Ambulance Service Trust (EEAST).

A large proportion of my time was spent with the Research, Audit, Innovation and Development (RAID) team. This team is a driving force for the advancement of pre-hospital practice, placing EAAA at the forefront of research in this area. With the RAID team, I undertook a project looking at patterns of secondary transfers of HEMS patients, which I am grateful to be presenting at a conference in September. I found working on a project within an air ambulance service to be an extremely valuable experience, developing my research-writing technique, and exposing me to the realities of initiating new research. I also had the opportunity to help process data for a project involving NIRS (Near Infra-Red Spectroscopy) in cardiac arrest and observe first-hand their exciting work with the ERICA Arrest study. Working within the charity's main office at Helimed House was a great experience. Although the office environment is a little different to the clinical environments I've experienced, it highlighted to me the wide variety of roles and huge team effort it takes to keep the clinical capabilities and helicopters functional.

Although ongoing trials at EAAA made organising observer shifts slightly more complex, throughout the month I had 9 shifts, which included 12 jobs, and 8 stand-downs - most of these were cardiac arrests and road traffic collisions (RTCs). I found the EAAA crews to be hugely knowledgeable, experienced and welcoming, integrating me into the team as I helped with kit checks, restocking the helicopter and RRV and assisting them on scene.


G-RESU

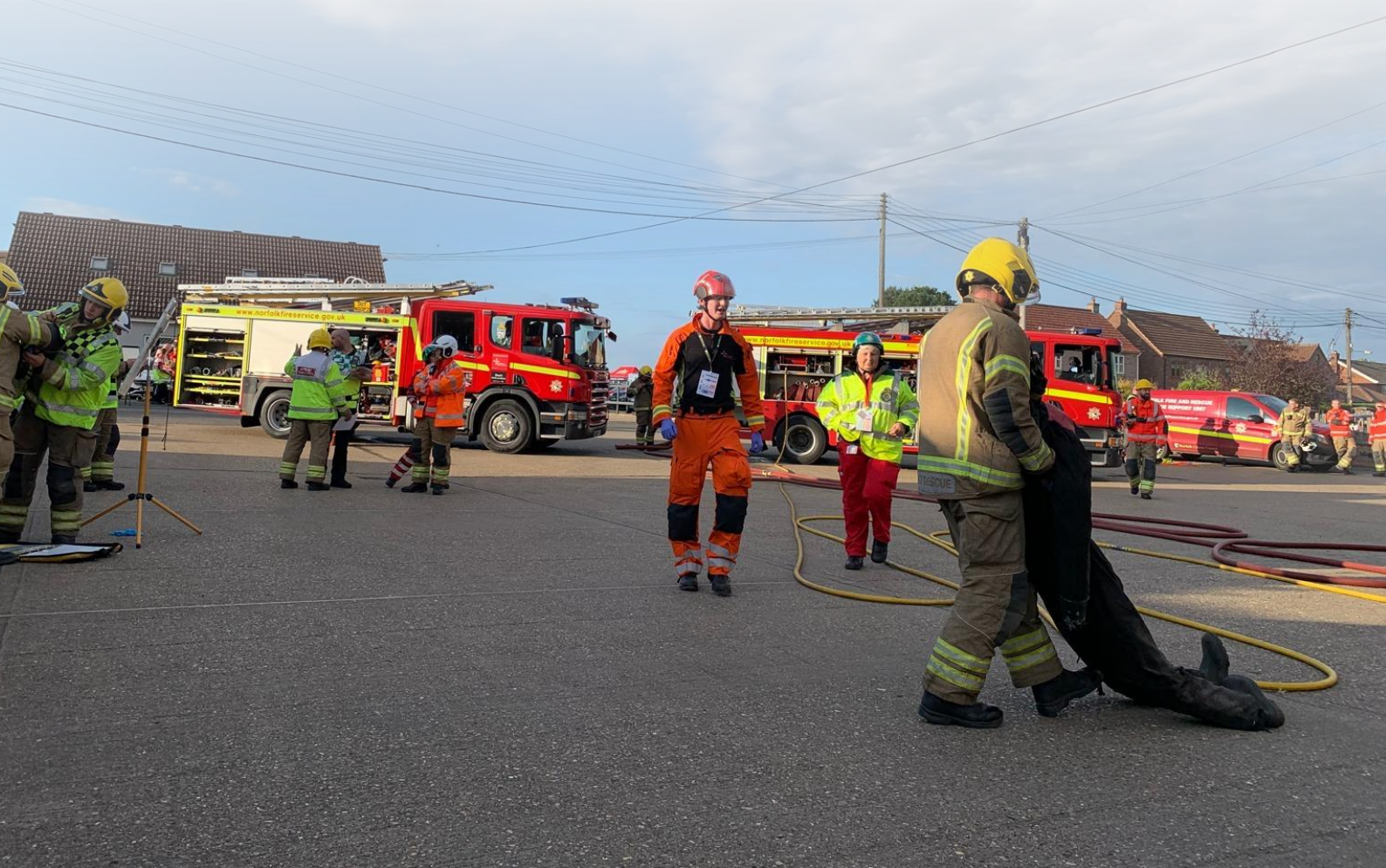


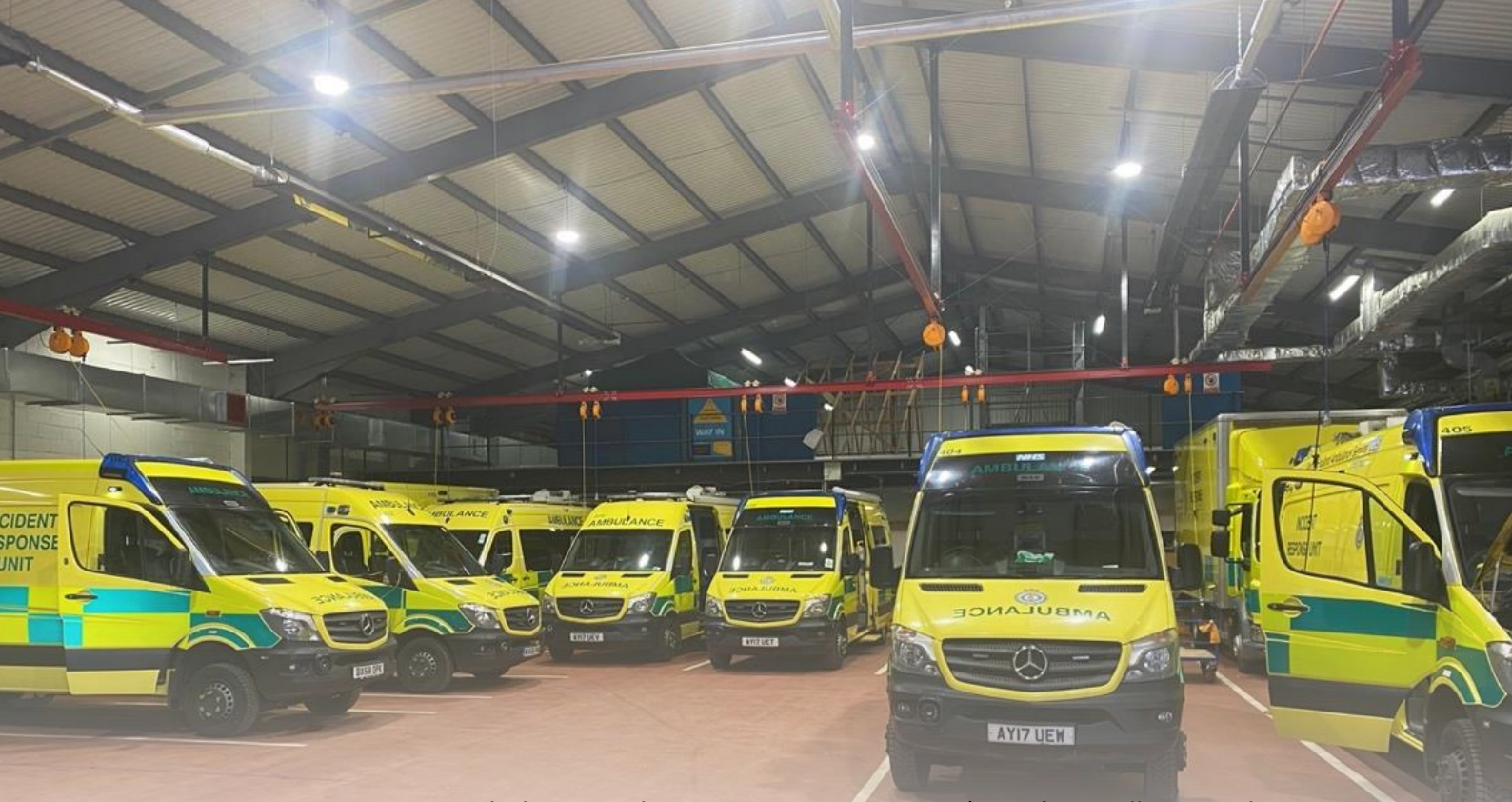


NARS
Norfolk Accident Rescue Service

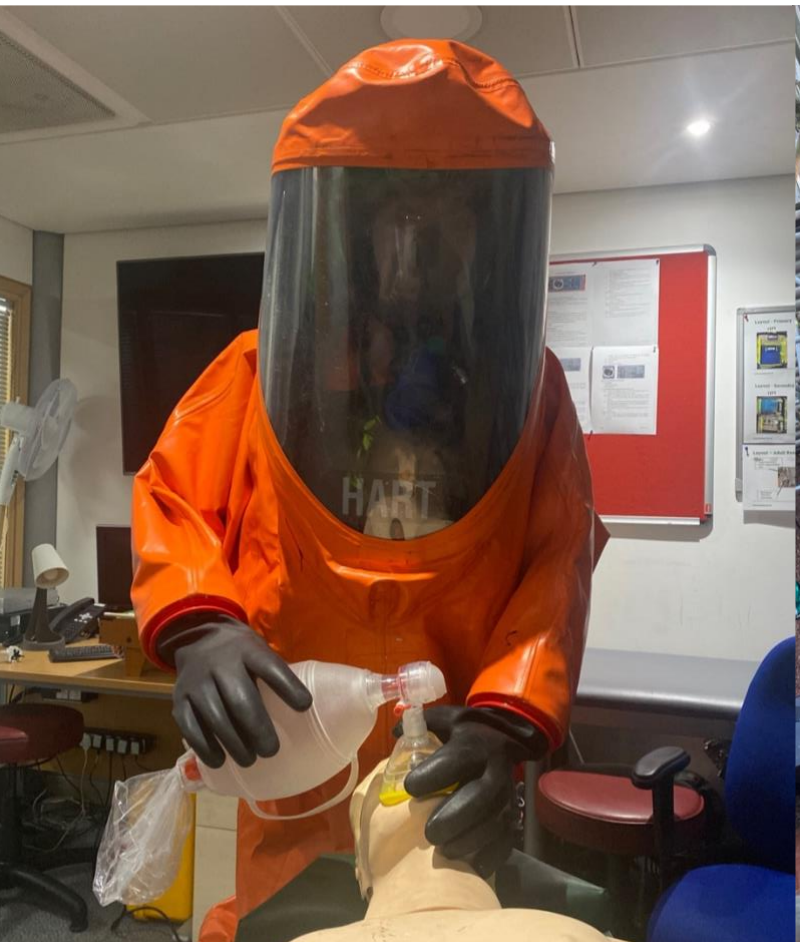
I also had a shift with Norfolk Accident Rescue Service (NARS) – a charity within the region providing pre-hospital critical care – with an amazing Critical Care Paramedic, Carl. We had an extremely busy day of 5 jobs and 3 stand-downs in and around King's Lynn. These included a paediatric cardiac arrest and a fall off of a balcony.

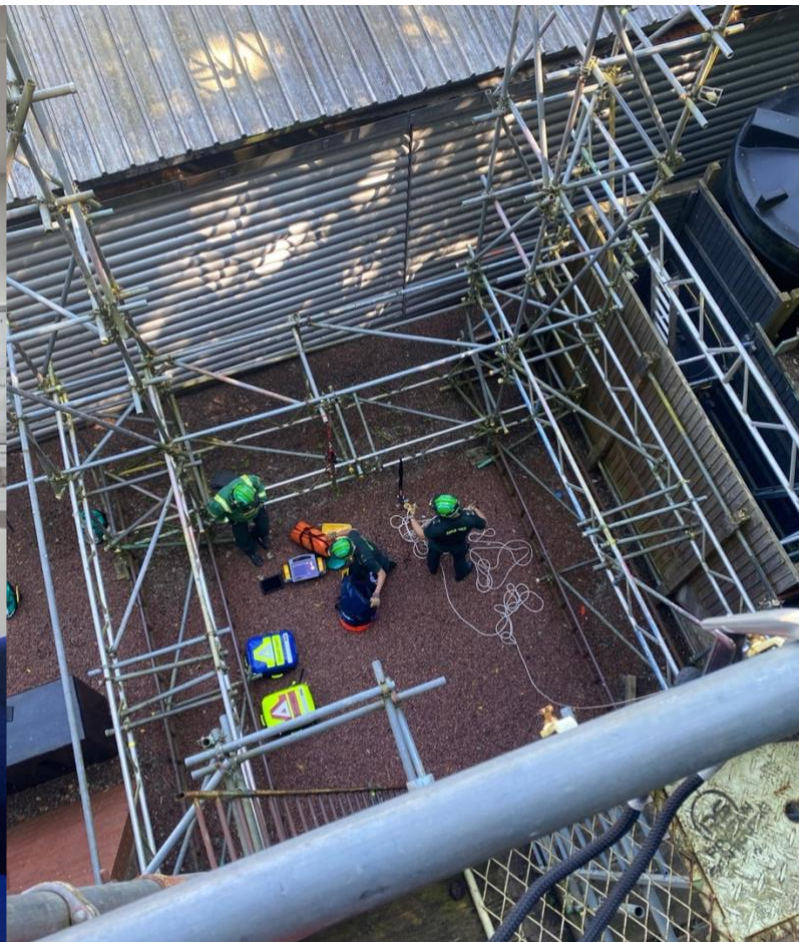
Carl also does some work for the Fire Service and I asked if there were any exercises planned that I could observe. As it happened, there was a large 'Ten Second Triage' (TST) exercise scheduled for the next day which he kindly offered me. This was an opportunity for emergency services to simulate their management of a major incident – a fire at an animal feed factory – and practice the newly rolled-out TST tool. It was great to observe the interoperability and specific roles of each service and I also had the chance to triage some patients too.

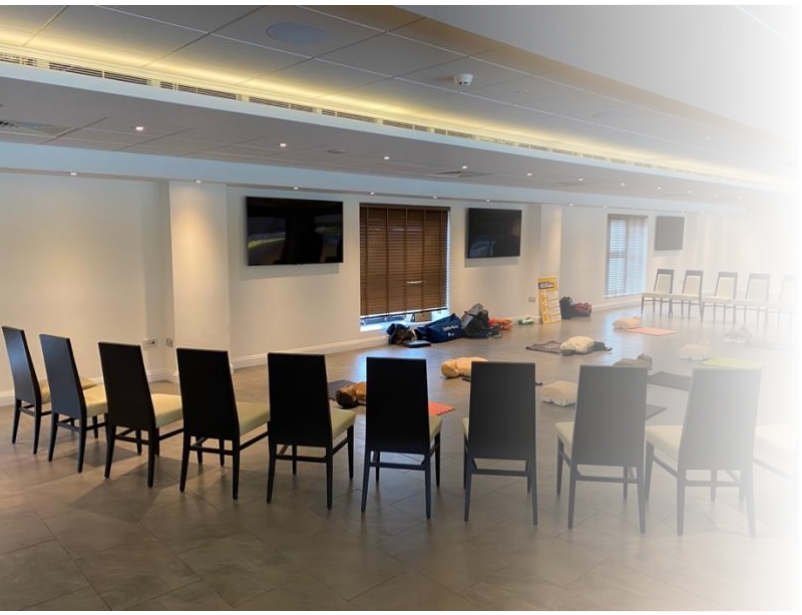




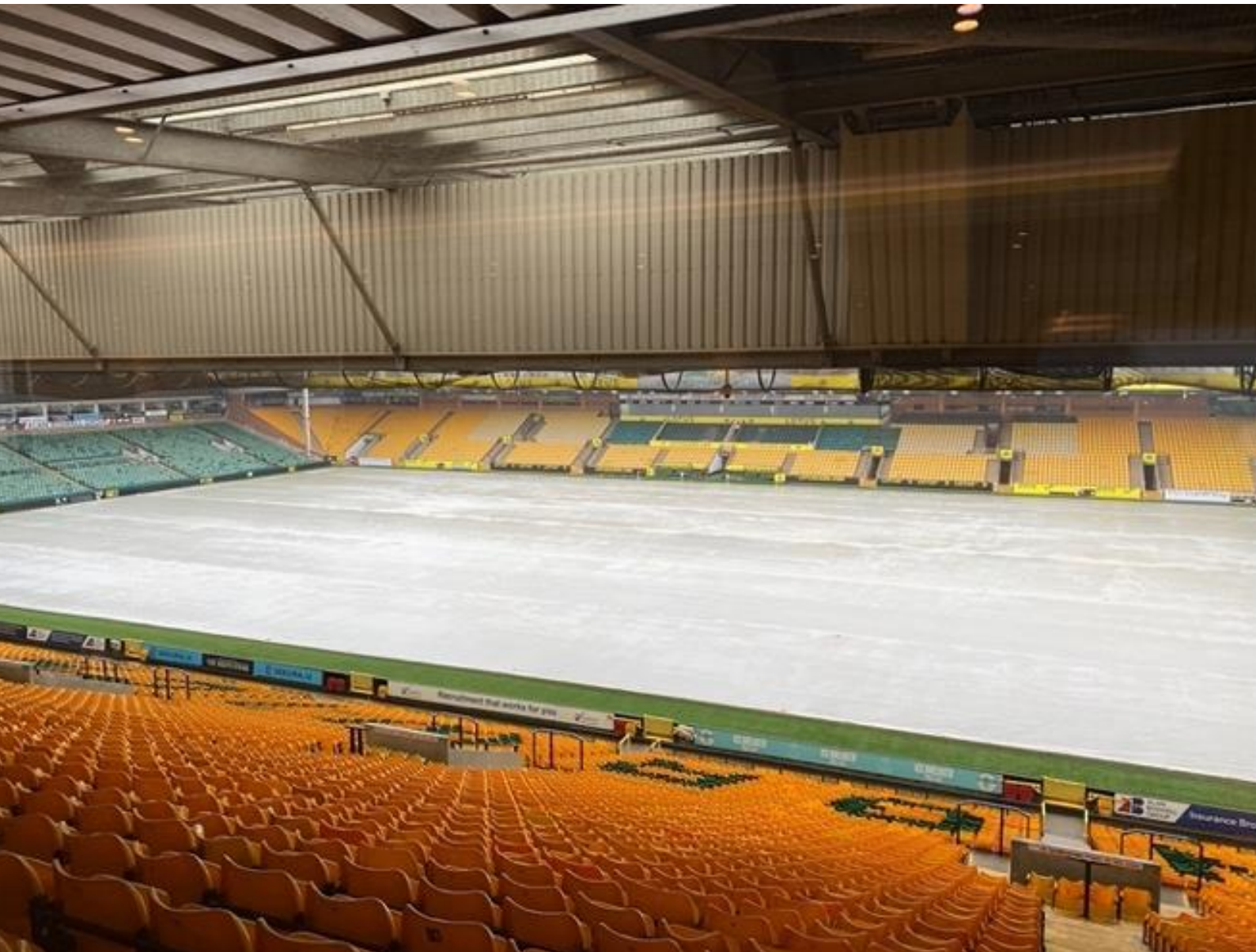
I was put in contact with the Hazardous Area Response Team (HART) in Melbourn, where I spent the day on shift and training with Team 1. Whilst we had 3 stand-downs and 1 job, the rest of the day was spent with different members of their team, each with their own specialty – ranging from Safe Working At Height (SWAH), to CBRN and hazardous materials. I was struck instantly by the comradery of the team and the wide range of specialist skills HART can provide to stabilise and extricate poorly accessible and complex patients. I am very lucky to have been invited back to attend a Counter Terrorism Exercise with them in August!







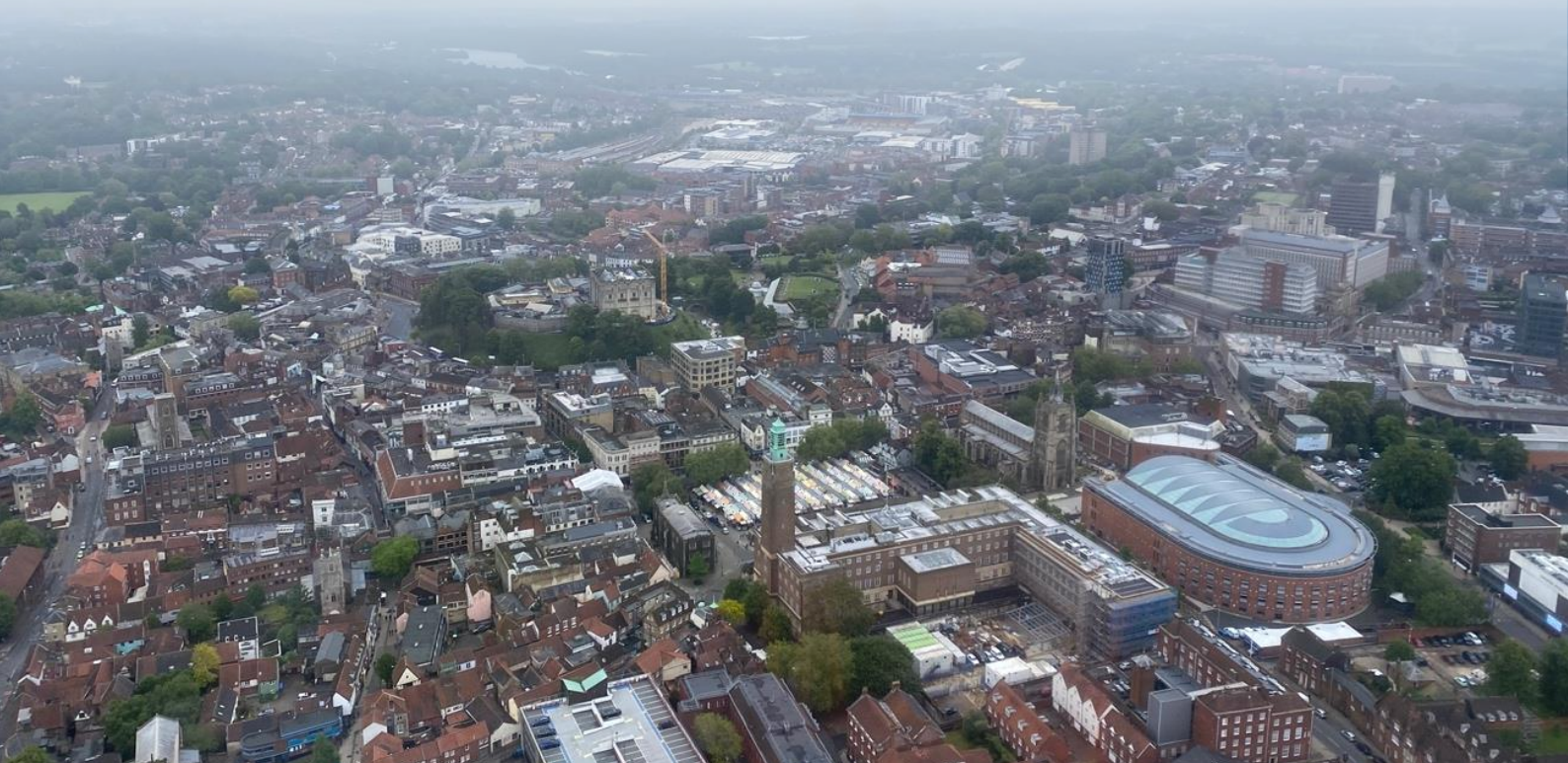
Other activities I undertook included attending CCR meetings where pertinent jobs were debriefed with the whole clinical team, a clinical governance day (which I only partly experienced as I was on a shift that day) and teaching CPR to members of the public at Norwich City's Carrow Road. I also made sure to make the most of the gym EAAA has on base!



Some reflections...

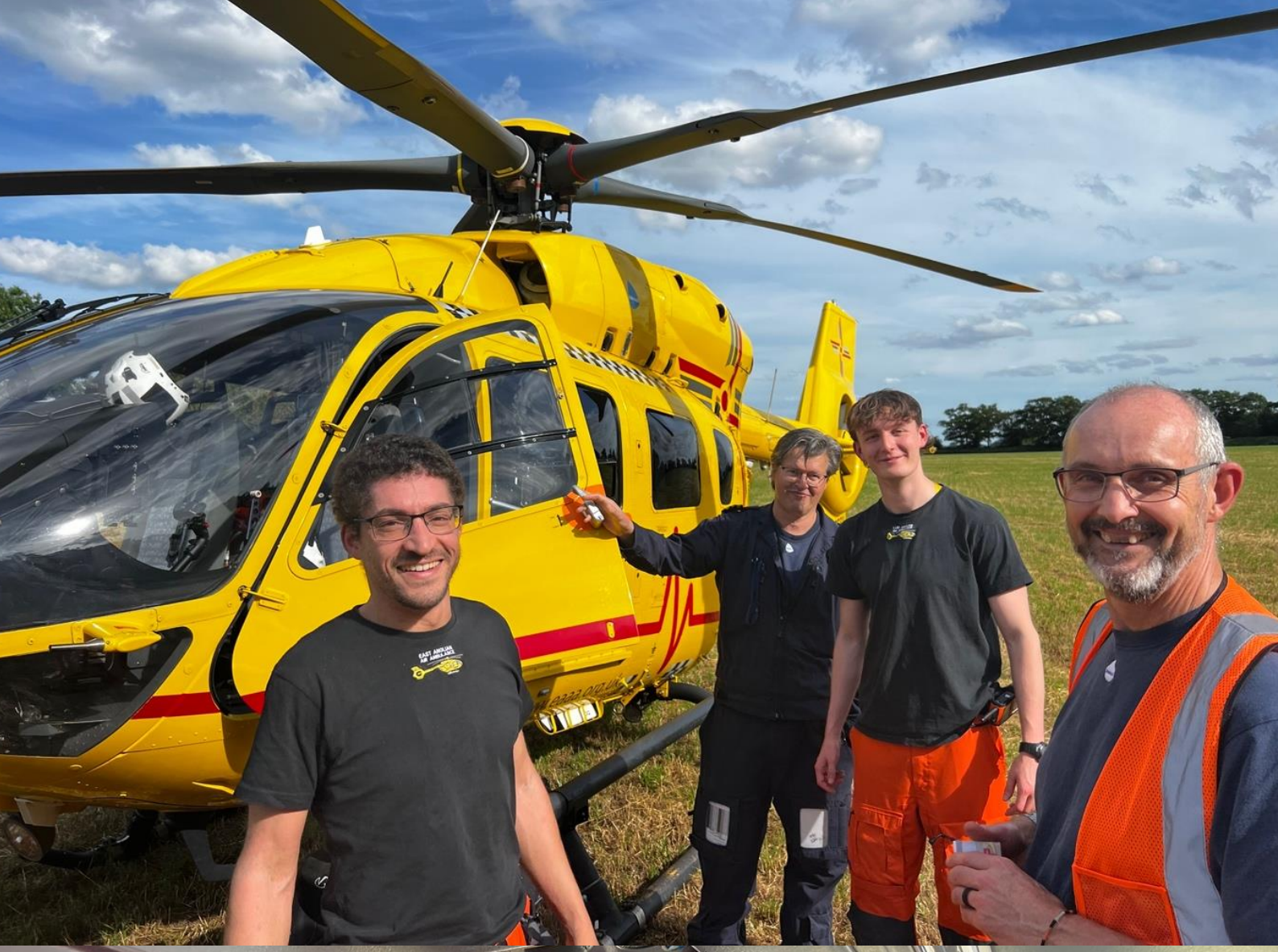
The first job of my first shift was a blunt traumatic cardiac arrest post-car vs lorry RTC. On our arrival, all three emergency services were present, with the fire service working to extinguish the flaming car as torrential rain poured down onto the scene. EEAST were attempting to resuscitate the patient at the roadside, as the EAAA crew performed bilateral thoracostomies and intubated the patient, also noting a likely pelvic fracture and open radial fracture. Unfortunately, after some time, the patient was declared dead on-scene. This was sombre but extremely valuable introduction to HEMS, and a clear demonstration of the additional challenges of pre-hospital practice.

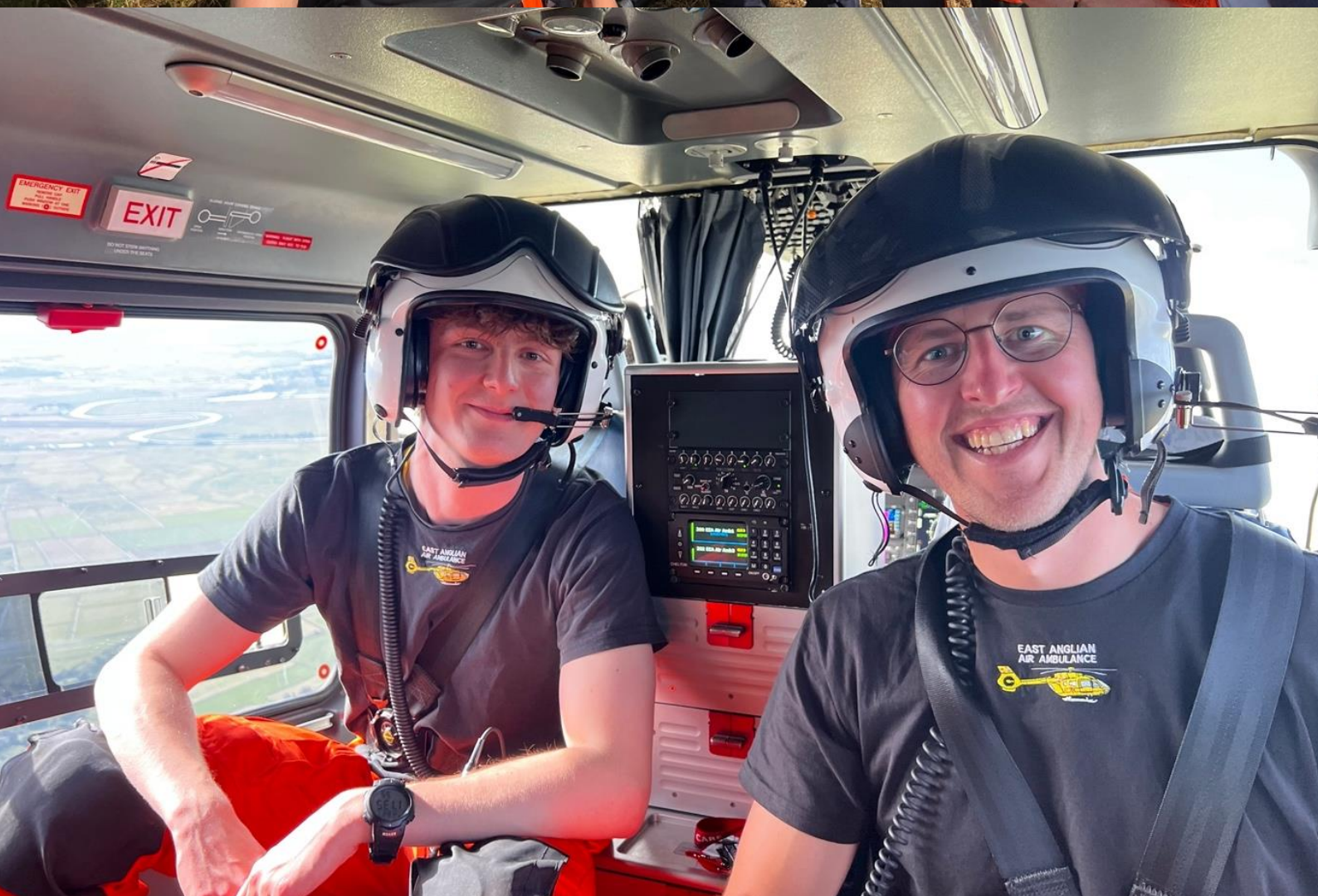
Almost immediately on our return to base, the red phone rang again, reporting 'facial swelling' after some self-administered cosmetic injections. On arrival, we were met at the door by a tearful but well patient, who after a history and set of observations was handed over to EEAST. Somewhat naively, I was surprised EAAA had been dispatched to this job, especially given where we had been within the last hour. Having been a CFR and Co-Responder for the last 4 years, I felt I was used to the reality of some jobs being different to the initial call but intrigued that this pattern also extended to HEMS. Moreover, there could be a lot of down-time between jobs, or shifts with no jobs at all, highlighting the complexity and potential shortcomings of the critical-care resource dispatch system. Nonetheless, when no jobs were coming through there was always the opportunity to run through simulations in the dedicated sim-room, work on my project, or chat to the crew/pilots about particular topics, jobs or their experiences.



One of the best shifts I had was out of the Cambridge base with an amazing crew, where we attended a cardiac arrest in Cambridge shopping centre and a multi-casualty RTC on request of Lincs and Notts Air Ambulance – a friendly sight for both myself and the doctor as we both went to the University of Nottingham!

Throughout all of my shifts, I was struck by what EAAA added to scene. They brought advanced equipment such as i-STAT blood gas machines, 'Butterfly' point-of-care ultrasound (POCUS) scanners and advanced surgical, airway and anaesthetic capabilities. During a motorbike vs car traumatic cardiac arrest, the doctor sited a subclavian line whilst in a ditch at the side of the road, with ongoing compressions and the chaos of the surrounding scene – testament to the crews' skill and professionalism. However, not all patients and scenes called for these types of interventions, and I found myself to be very impressed by the HEMS clinicians who would arrive, assess the state of the scene, be satisfied with the current patient management and decide they would be best placed in an 'overseeing' role. As they didn't become task-focused, they had the bandwidth to plan ahead, perceive future challenges or issues, and address them early to streamline patient management and extrication – a huge part of this being the choice of hospital disposition and mode of transport. Therefore, as well as those extra skills and equipment, arguably more importantly they bring experience, oversight, decision-making and even a sense of calm to the most chaotic scenes.




EMERGENCY EXIT
EXIT
EAST ANGLIAN
AIR AMBULANCE

My final job with EAAA was a medical cardiac arrest in Norwich city centre. The patient had a witnessed arrest, with early CPR and defibrillation, and was showing promising neurological signs with the brain perfusion achieved by CPR. Whilst return of spontaneous circulation (ROSC) was achieved, the patient re-arrested multiple times which constantly changed the clinicians' management priorities. This was combined with the EAAA crew having to become task-focused due to the arrests' complexity, leaving no oversight of the whole scene and inviting the risk of communication breakdown, missed interventions and increased scene disorder. This was also in addition to all the added pre-hospital pressures such as weather, family attendance and presence of members of the public. Sadly, the patient died on-scene, resulting in the doctor having to break this news to the family. This was the first time I had been present for this kind of conversation outside of a patient's house or hospital and noticed how difficult it can be to provide that crucially neutral and calm setting to deliver that news. On our return to base, we debriefed the job extensively, noting frustrations regarding dispatch times, the promising early signs versus the outcome, and the sense of disorder on scene. We also discussed what could have been done differently to try and manage some of the issues encountered during the job. I noticed how easy it can be to be self-critical after these jobs, but also observed how key debrief and reflection is. I found it particularly poignant that regardless of their high level of expertise, there will always be jobs that don't go perfectly, so these clinicians continue to reflect on their practice and strive for improvement.

I am extremely grateful for my time at EAAA. It is an experience I will never forget and has undoubtedly furthered my passion for PHEM. I would like to express my gratitude to all the people at EAAA, NARS and HART who were so welcoming and made my time with them so informative, insightful and friendly. These people have spent years in critical care or the ambulance service and therefore have a wealth of experience, advice and stories to share that I am very lucky to have had access to. I would also like to thank the Faculty of Prehospital Care for awarding me this elective – I highly recommend it to anyone with an interest in Pre-Hospital Emergency Medicine!