

Emergency



The first UK medical documentary series to be stripped over
four consecutive nights from Monday 28th February to
Thursday 3rd March

On Channel 4 at 9pm and available on All 4

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Series Synopsis

Stripped over four nights, this ground-breaking series tells the story of the London Major Trauma System. Set up in the wake of the London bombings of 2005, it's a unique interconnected network of hospitals, air ambulances and paramedics that provide a lifeline for 10 million people in London and the South-East. A system that has improved the chances of survival for major trauma patients by 50%. Filmed during the busiest month of last summer, the series follows the minute-by-minute decisions made by some of the country's top medics, as they treat the most critically injured patients.

Episode 1

London's Air Ambulance is dispatched to 58 year-old Peter who has been crushed under a 400kg crate whilst at work. Dr Chloe's job is to "bring the hospital to the patient" and assess which injuries are the most critical. She rushes him to St George's Hospital - one of the four dedicated Major Trauma Centres in London treating the most severely injured. Here the team discover breaks to his pelvis that will need to be painstakingly repaired if he is to walk properly again.

28 year-old Danilo is brought by HEMS to St Mary's following a serious motorbike crash. Danilo has multiple serious injuries designating him a "polytrauma." Most concerning of all is a rupture to his aorta that could blow at any moment. Vascular Surgeon Colin tells us "90% of these die at the scene" as Danilo is fast-tracked to theatre.

A night of violence in the capital sees hospitals flooded with stabbings - one of whom - Wayland arrives at St Mary's where Trauma and Vascular Surgeon, Morgan is leading the team. "A stab wound can be very catastrophic....if the laceration is big enough you can bleed out in minutes." Wayland is rushed to emergency surgery.

78 year-old Wesley is transferred to St Mary's, following a fall. Scans reveal a spinal emergency - one small move and his skull could detach from the top of spine. Wesley will require urgent, complex surgery, but an underlying condition and his worries about the operation may prove difficult to overcome.

Episode 2

28-year-old Danilo remains in intensive care at St Mary's Major Trauma Centre after life-saving surgery to repair his ruptured aorta – the main blood vessel from his heart – after a serious motorbike crash. Now surgeons must fix his other potentially life changing injuries starting with his shattered pelvis.

Orthopaedic Surgeon Chris leads the team as they try to rebuild his pelvis and acknowledges, "there's a high risk Danilo won't ever fully recover". This is one of many surgeries for Danilo and his partner Giulia is worried about the physical and mental impact, "I'm just scared to death. I don't know what's gonna happen and how he's gonna handle it."

Meanwhile, 12-year-old Lily arrives at St Georges having been hit by a car on a main road whilst on her way home from her local park. She was treated by emergency doctors at the scene and placed in an induced coma. CT scans reveal a skull fracture, broken pelvis and hip and Consultant Melissa has to relay the bad news to Lily's parents, "It must be absolutely horrendous for parents not knowing if their little girl's going to have a brain injury." Lily is taken to intensive care and after a sleepless night for her parents, she now faces major surgery to fix a rare and complicated hip fracture. Orthopedic

Surgeon Emmett explains they need to carefully realign the hip bones in the correct angle and avoid any potential shortening of her leg to give her the best chance of walking normally again.

Also at St George's, it's been 24 hours since 58-year-old Peter had major surgery to repair his pelvis with screws and plates after he was crushed by a crate at work. Today Physiotherapist Stephen will begin the process of getting him back on his feet "he needs to learn to trust the metalwork in his body". It's the big first step that will tell them if he's ready for the long road of intensive physical and mental rehabilitation.

78-year-old, ex-Royal Marine Wesley is also at St Mary's after he fell off a chair watching television and exacerbated an on-going spinal problem that resulted in a seriously unstable neck, "one false move and his head could fall off his neck". Now Wesley's underlying infection has cleared, he is fit enough to undergo the complex operation using screws, metal plates and rods to connect his skull to his neck. Consultant Spinal Neurosurgeon Cheong knows that the good news comes with a layer of anxiety, "if the surgery is not successful he could be paralysed from the neck down".

Episode 3

Every year 2500 people suffer a spinal cord injury. At William Harvey Hospital in Kent – a designated trauma unit in the far south of the network – 17 year-old Frazer has arrived after falling twenty feet down a cliff. Consultant Jonathan is taking him for MRI scans to assess the severity of the damage to his spinal cord. As the scans appear on the screen, the seriousness of the injury is all too apparent, "it's a complete transection...this injury is life changing".

Meanwhile, London's Air Ambulance are dispatched to 51 year-old Philip after his car collided with a bus. As firefighters try to extract him from the car, Dr Chloe gets her first look at Philip, "there's a lot of blood around his head, he needs to come out". Philip is rushed to St George's Major Trauma Centre in South West London. Consultant Harriet assesses his multiple injuries and is concerned about a lack of sensation in his legs. She orders more detailed scans and refers him to neurologists, "the next few days will have huge implications for Philip's quality of life".

28 year-old Danilo had life-saving surgery at St Mary's to repair a rupture to the main blood vessel from his heart – after a serious motorbike crash. He's since had four major surgeries including an operation to fix his damaged bowel resulting in an open wound in his stomach. General Surgeon, Christos will now close the wound using a ground-breaking technique – specially treated pig skin.

12 year-old Lily is in intensive care at St George's after being hit by a car. Doctors are concerned about a potential brain injury and today she faces surgery to repair her badly broken hip. Consultant Orthopaedic Surgeon Omar needs to fix her hip in the correct angle using screws and a plate, "when you're operating on a child...it has implications on that child for the rest of their life". But as the operation continues, Omar has to revert to plan B to complete the surgery.

At Royal London, 17-month-old Mika'eel suffered short seizures after a television fell on his head. Emergency Medicine Registrar Akshay makes the decision to scan his head for a potential brain injury. Mum Sarah describes what happened, "it's every mothers' worst nightmare".

Back at St George's, Lily has been woken from her induced coma. Initial signs show she has no obvious brain injury and her parents have been by her side almost the entire time. Today Physiotherapists will see if she can stand for the first time since the surgery to fix her broken hip.

At William Harvey, Trauma Director Tasha has to deliver the bad news to Frazer and his mum, “he’s undoubtedly paralysed to some extent for the rest of his life”. She tries to get Frazer to think positively about his future, “although your life is going to be different....your ability to rehab is going to be fab... you will do that” and reminds him he’s not alone, “you’ve fallen but the whole system is going to catch you”. Events take another turn for the worse when Frazer’s spine becomes very unstable, and he needs to be transferred to King’s College Major Trauma Centre in London for an urgent operation by the highly specialized Neurosurgeons.

Episode 4

The final episode follows an 18-year-old motorcyclist as surgeons try to rebuild his leg and concludes the journeys of the patients filmed across the series and reveal their extraordinary recoveries.

18-year-old Leyton is brought by air ambulance to William Harvey Hospital in Kent – a trauma unit in the far south of the network - after he crashed his moped. He has multiple injuries including an open leg fracture. Trauma Director Tasha unwraps the bandages to reveal his bone sticking out of his leg, “that is proper broken” and CT scans reveal, “a multiple- fragments fracture...that will need 3 or 4 operations.” Tasha explains, “He’s at the border of what we would keep” and calls the orthopaedic team at King’s Major Trauma Centre who agree to admit him for emergency surgery.

Frazer is currently at King’s undergoing surgery to support his unstable spine to give him the best chances of rehabilitation. His mum and dad are waiting at the hospital and mum says, “I’ve been trying to be strong around Frazer not crying...we don’t definitely know if he’s going to be paralysed until the results of the operation.” It’s a tense wait for Frazer’s parents and whilst the operation to stabilise the bones is a success, Consultant Neurosurgeon Irfan confirms that the damage to the spinal cord is “very bad....and we can’t bring that back....it’s very sad to break this news”.

Over at St George’s, 51-year-old Philip who has suffered paralysis from the waist down after his car collided with a bus is now under the care of the neuro team. Today his wife Kirsty has come to visit. She feels “lucky to have him alive” and vows “they will get through this.” Neurosurgical Registrar, Adrian tells Kirsty that he will now be referred to a specialist unit for rehabilitation.

In East London, London’s Air Ambulance are rushing a 60-year-old man who crashed his moped into a wall to The Royal London. Emergency Medicine Registrar Katie is leading the trauma team, “stepping up to take the lead in a trauma can be quite daunting...you need to focus.” She is concerned about Peter’s head injury and CT scans reveal a bleed on the brain that is potentially life threatening, “we need to be aggressive in treating the bleed...time is brain.”

Overnight Leyton has made the sixty mile journey from William Harvey in Kent to King’s in South East London. Consultant Surgeon Toby reviews his scans “it’s a nasty injury and will take some fixing”. He explains to Leyton that he will need multiple operations and it’s a 6 to 12 month project. Leyton is visibly shocked, “I did not expect that.” As Toby begins the first operation to rebuild Leyton’s leg, he explains “it’s never me who heals the patient, it’s the team and the patient themselves...it always takes longer than you want it to.”

The Royal National Orthopaedic Hospital in Stanmore is one the hospitals in the London Major Trauma System specializing in rehabilitation. This is where Philip will begin the long road of rehabilitation. Consultant Alex discusses the lack of improvement in Philip’s mobility and how they will teach him to look after himself without carers. Philip says he’s determined to walk him again leading Alex to tell him “We love to be proved wrong”.

After his treatment at King's, Frazer is now at Kent and Canterbury Hospital under the care of the specialist rehabilitation team. Now Frazer can shower and dress himself, he's enjoying his independence. As doctors assess the sensation in his feet, there are small signs of improvement giving Frazer and his dad encouragement, "I want him to keep going...and get himself independent as that's what he wants".

Finally, we catch up with the patients filmed across the series and reveal their near miraculous recoveries made possible by the teams across the London Major Trauma System. As we see Danilo at home after his life saving surgeries, he pays tribute to "the heroes" who saved him.

Facts about the London Major Trauma System

- Trauma is one of the major challenges of modern society. It kills 6 million people a year worldwide and 16,000 in the UK – and this number is rising.
- Trauma is the leading cause of death in those under the age of 44.
- For every trauma fatality, between three and four patients survive with a serious or permanent disability
- The London Major Trauma System is a unique network of 39 hospitals made up of 4 major trauma centres and 35 trauma units, ambulance services and air ambulance services.
- It was set up in 2010, celebrating its 10-year anniversary in 2020
- The four major trauma centres are all based in London and sit at the heart of a regional network.
 - The Royal London Hospital - North East London and Essex
 - St George's Hospital - South West London and Surrey
 - King's College Hospital - South East London, Kent and Medway
 - St Mary's Hospital - North West London
- The 35 trauma centres are hospitals in Greater London and the home counties.
- The London Major Trauma System as whole treats over 12,000 people each year, including the smaller trauma centres and rehab.
- Survival rates increased by 50% over 5 years, saving an estimated 610 lives – more than a 747 plane full of passengers.

This series was filmed during the busiest two weeks of July 2021, filming 24/7 across the four major trauma centres and a trauma unit – William Harvey in Kent and with London's Air Ambulance. It follows patients throughout the trauma pathway. From roadside critical interventions, through resus to ICU, from surgery to rehabilitation to reflect the variety of specialist treatment that goes into saving patient's lives and putting them back together again.

Patient Biographies

Danilo



28-year-old Danilo lives in northwest London with his partner Giulia. Originally from Italy, he works in hospitality as a business manager.

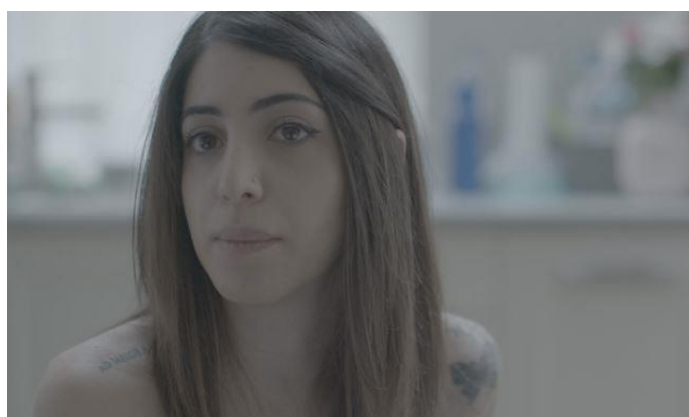
He was on his way home from work when his motorbike collided with a car. He was rushed to St Mary's by London's Air Ambulance emergency doctors and paramedics with life threatening injuries.

Danilo is described as a polytrauma, having sustained multiple serious injuries including a ruptured aorta, broken pelvis and degloving of his right leg. Realising the patient is bleeding internally, doctors must work fast to save his life. Vascular surgeon Colin warns, "90% of people with a ruptured aorta die". Danilo is rushed to theatre where surgeons fit a stent in an attempt to fix his aorta and stop the bleeding. The next 24 hours are critical.

Now that his aorta injury has been treated, orthopaedic and plastic surgeons must operate on his broken pelvis, broken wrist and degloved leg. Danilo's condition stabilises but the medical team admit he has a long road ahead and he remains sedated in ICU. His partner Giulia is waiting at home.

After 3 weeks in ICU, Danilo is moved to the Major Trauma Ward and Giulia can finally see him. He starts working with the physiotherapy team at St. Mary's, the most challenging part of his recovery. Occupational Therapist Niamh and Senior Physiotherapist Tom help Danilo stand for the first time since his accident and move from his bed to a wheelchair allowing him to travel outside for some respite.

Danilo is finally discharged home and is continuing his recovery with the help of Giulia.



Frazer



17-year-old Frazer lives in Kent with his parents and siblings, he is the youngest of four children. Prior to the accident Frazer was studying and training at Whitstable Football Academy.

He was airlifted to William Harvey Hospital after falling 30 feet off a cliff in Ramsgate. His MRI results reveal his back is broken and his spinal cord is severely damaged. Doctors inform Frazer and his family that he is paralysed from the waist down. Trauma Director Tasha discusses with Frazer his prognosis and what the future might look like trying to keep him positive.

As surgeons assess Fraser's injuries, it transpires that his back is so unstable, he is at risk of further damage and transported to King's College Hospital in the early hours of the morning. There he is under the care of the neurosurgery team. Trauma Director Tasha explains how the network works, "there is a flow in both directions" between the hospitals to provide patients with the specialist care they need.

At King's, Frazer is prepped for spinal realignment surgery. First, they need to expose the spine and then insert a number of screws. By aligning it as close to the original position as possible the surgeons believe this will minimise any further damage, cause less pain and enable him to embark on a long journey of physiotherapy and rehabilitation. Frazer's parents Lynn and Andy wait outside unsure of what the future might hold for their son.

He goes on to receive physio and support at Kent and Canterbury Hospital and is now back home with his family, continuing his rehabilitation.



Leyton



18-year-old Leyton lives in Ramsgate with his foster parents and works as a builder. Leyton was travelling home on his moped when he crashed, resulting in an open tib-fib fracture and broken wrist. He is taken by air ambulance to William Harvey Hospital in Ashford, Kent – which forms part of the London Major Trauma System as a designated Trauma Unit.

Leyton arrives in resus talking on his mobile phone and is a lively, cheeky character although he worries, he might not walk again. While the team assess his injuries, they discover he has lost quite a lot of blood and it's a gruesome injury. He is rushed to CT where it's revealed that his leg fracture is so severe that he needs to be sent by ambulance to King's College Hospital in London for specialist orthopaedic assessment and treatment.

At King's, Orthopaedic Surgeon Toby comes to see Leyton and reveals that he will need multiple surgeries and he needs to view his injury as a long-term project. He worries that he will miss his first "lad's holiday" abroad.

Leyton has surgery on his open fracture where an external fixation is fitted, realigning the broken bone. The plastics team must also look at the open wound to assess the appropriate course of action.

Seven weeks after his accident, Leyton comes back to Kings to meet with Trauma Lead Ash, who has been overseeing his care. Leyton is delighted to hear his leg is recovering well and he can now weight bear and start to walk 'normally' again.

Lily

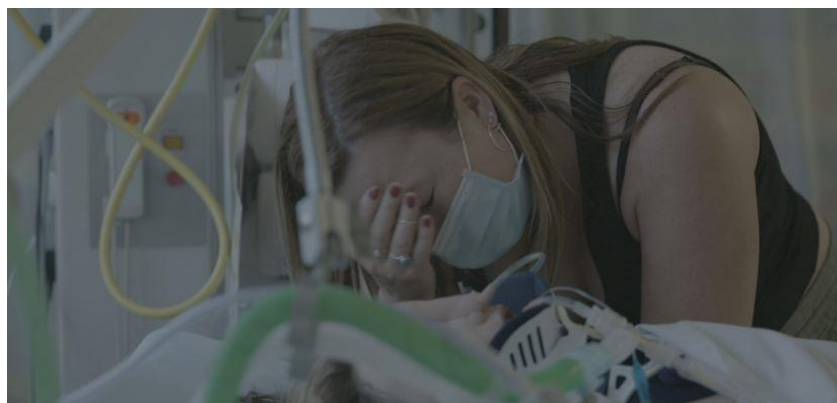


12-year-old Lily lives with her mum Kate and her stepfather. She was crossing a busy road on the way home from a local park when she was hit by a car travelling at 50mph. Lily was rushed to St George's with life threatening injuries.

Lily arrived by Kent Surrey and Sussex Air Ambulance and was intubated on arrival after suffering two seizures at the scene of the incident. She presents with right lateral tenderness to her cheek, pelvic bruising and lacerations and a skull fracture. Consultant Melissa rushes Lily to CT which confirms she has a break in her pelvis and severely broken hip. Melissa informs Lily's parents Clark and Kate who are extremely worried. She is taken to ICU while Orthopaedic Surgeons led by Consultant Surgeon Omar work out a plan to treat her hip fracture by fixing screws to a plate to bring the bones together. It's a complicated operation due to her small bones and Omar has to revert to plan B using screws alone. After surgery, Lily is moved to Paediatric Intensive Care Unit (PICU) and then de-escalated to Paediatric Step-Down Unit (PSDU) a day later.

One week after the accident, Lily had her first physio session. She was discharged home from hospital two weeks after the incident. At home, she moved around in a wheelchair and was given the all-clear at the beginning of October.

Lily is back home with her family, out of her wheelchair and recovering well.



Mika'eel



17-month-old Mika'eel was brought to the Royal London after a TV set fell onto his head.

His grandmother was looking after him when the accident occurred. She left the room briefly to get him milk before hearing a crash. She found Mika'eel laying on the ground with the TV next to him. Mika'eel was seen by LAS paramedics suffering a seizure. London's Air Ambulance doctors also attended the scene and accompanied him to the Royal, with mum Sarah.

Doctors are worried that because he is drowsy and his eyes are rolling backward, that he may have a bleed on the brain. Mum Sarah says she's never seen him do this before.

Doctors try to avoid giving young children a CT scan because of the high dose of radiation involved, however with Mika'eel's reaction to the head trauma they need to quickly rule out whether there is any bleeding on his brain.

His scans are clear but Resus doctors are keen to keep Mika'eel in hospital for observations, as it is suspected he has a severe concussion causing the seizures and drowsiness.

Mika'eel is now back home with mum Sarah and doing well.



Peter



Peter is 58 years old and lives in Surrey with his wife Lisa, her 21-year old son and their 14-year-old daughter. He works in sales at an air conditioning company.

He was at work when a 400 kilogram crate containing an air conditioning unit fell on his chest. He is treated at the scene by emergency doctors from London's Air Ambulance who are concerned about a pelvic fracture and potential internal bleeding that could be potentially life threatening or life changing. After stabilising him, the Air Ambulance team rush Peter to A&E at St George's Hospital in Tooting.

In A&E the doctors and nurses give Peter blood and rush him to CT to assess the damage to his internal organs and pelvis. This reveals a severely broken pelvis. His wife Lisa arrives in Resus and is visibly shocked at his condition. He is then rushed to a Trauma Ward ahead of emergency surgery.

Peter undergoes surgery on his pelvis the following day, where they carry out a complex procedure to insert screws into his pelvis. Occupational Therapist Chloe and Physiotherapist Stephen visit Peter on the ward for the first-time post-surgery. They check the feeling in his legs and feet. With the assistance of Chloe and Stephen he manages to stand up, take a few steps and sit in a chair. Peter is amazed that it's only the day after surgery and his wife is there to support him.

After discharge, Peter returns to St Georges for regular physio sessions and also psychological support. This is a relatively new approach being introduced at St Georges for patients who have suffered a major trauma.

Philip



Philip is 51 years old and lives in Beddington with his wife Kirsty, their two children, Amy and Ryan and Amy's five-year-old daughter Ava.

Philip had dropped his son off at work when he drove into a lamppost and bus on his way home. He was extracted from the car by firefighters and is treated at the scene by the London's Air Ambulance team. The accident leaves him with broken ribs, head injury and unable to feel or move his legs. He doesn't remember the accident.

Philip is rushed to St George's where the team in Resus are ready to receive him. On arrival they rush him to CT and MRI for scans and become increasingly concerned about the lack of sensation in his lower limbs but it's a mystery as to why. He remains at St George's under the care of the neuro team.

Philip's wife Kirsty visits him and for the first time Philip is allowed outside in his wheelchair wearing his neck brace. One of the neuro consultants explains to Philip that he has a long road to recovery, which is a blow for Kirsty who is worried how they will cope.

Almost four months after the accident Philip is transferred to a specialist spinal injuries rehabilitation where he continues his slow recovery.



Wayland



53-year-old Wayland was blue-lighted to St Mary's Hospital by ambulance and brought to their busy Resus department late on a Saturday evening. He suffered a huge knife wound to the abdomen and was bleeding heavily. Consultant Morgan leads Trauma Team and quickly decides Wayland's treatment path, rushing him straight to emergency surgery.

In theatre, Surgeon Visesh works fast to stop the bleeding with the wider team left wondering if Wayland was attacked with a knife or a sword. The laceration is wide, but not deep, and all of Wayland's internal organs are intact – an instant relief to the surgeons who know just how dangerous knives can be. Trauma Lead Morgan oversees the surgery.

All too often in Major Trauma Centres, the NHS Staff know a knife wound can have life-altering consequences. For Wayland, the surgeons could not be more pleased with the outcome. He is stapled up and sent to recovery. Wayland leaves St Mary's the following day and returns home.



Staff Biographies and Q&As

Mr Morgan McMonagle is a Trauma and Vascular Surgeon, the Director of Trauma Training for Royal College of Surgeons and has published three books on trauma. He splits his time between several hospital Trusts, and we meet him at St Mary's Hospital where he oversees Wayland's admission to resus and emergency surgery.

- **Describe your role – what's involved in a typical day, if such a thing exists?**

I rarely have a 'typical' day as I divide my time between the UK and Ireland, between trauma care and vascular surgery and between clinical responsibility and academic pursuits (I am co-director of the Trauma Masters program (MSc) at Imperial College London and Co-director of trauma training at RCEng). I am essentially agnostic of location and time!

When covering trauma, everyday has its surprises. We typically start at 8am with trauma rounds, seeing all trauma patients that have been admitted acutely overnight and those with on-going care. We begin on in the intensive care unit, where the sickest trauma patients are cared for and make critical decisions in conjunction with the intensive care team of doctors and nurses and the neurosurgeons, and often other allied specialties who are also caring for or have input to the patients recovery.

We also have a separate 'Code Red' Rota which is populated by appropriately trained surgeons (typically general and vascular surgery) and I do a number of these shifts also. The Code Red surgeon responds to the very sickest patients, the polytraumas who are critically unwell, typically from bleeding. The Code Red surgeon manages all the acute life-threatening bleeding patients, or those who are at risk of exsanguination (ie: losing their entire blood volume within minutes). We must be able to respond rapidly to and open any body cavity where there may be major bleeding; chest, abdomen, pelvis, neck, limbs.

The code red service is probably the most exciting, exhilarating and most rewarding part of the job, because you see the sickest trauma patients come back from near death and see them 'turn around' with emergency surgery and eventually get better!

- **What motivated you to get into this side of medicine and what are the things you love most about your job?**

I knew I wanted to do something in acute medicine or surgery from early on. This started with a 6 month job in emergency medicine, when I saw my first major polytrauma in a 4 year old boy who subsequently died. After that, I was motivated towards trauma, but had further stints in emergency medicine and critical care. As the ancient Chinese proverb states: "go to the heart of danger, for there you will find safety".



- **What are the biggest challenges in your job?**

The biggest challenges are juggling professional time with personal / family time. It's the 'glass ball - rubber ball' juggling analogy. Some things are very important, like juggling glass balls, that you cannot drop!! Others are rubber balls, where it doesn't matter if they fall, as they'll bounce back! The difficulty is knowing sometimes which is which and doctors are renowned for sacrificing personal life for professional life. Sometimes work is more important and sometimes personal/family life is more important. But we don't always get that right! If anyone has cracked that code in surgery, please let me know!

Breaking sad and bad news to relative is always difficult, because every situation is unique and every family dynamic and individual response to a crisis is also unique. Despite being taught strategies and a 'how to' approach, it is still very individualised, and nothing ever prepares the individual for the news. There is no one ideal way, as the news remains tragic no matter what. However, we do our best every day in the NHS. Having a great, experienced and affable nursing colleague with you always helps both sides. But it's never easy.

- **How do you cope with the demands of your job – mentally, physically and emotionally?**

Having great colleagues is the best part of working in the NHS. It is true commitment and teamwork in that everyone is working for the same common good. When a crisis hits in work, be it a major trauma, a stabbing or a mass casualty situation, you really get to see the well-oiled machine performing at its best and also at its highest energy yield! This was highlighted with the hospital's response to the Westminster Bridge attack, London Bridge attack and Grenfell fire tragedy in 2017. That shared and common experience is what keeps it moving forwards. Like soldiers in the trenches. Comrades in Arms!

Outside of work, music is elemental in my life. Although I no longer have time for a band, I try to get around to playing one of my 12 guitar collection! I'm kind of a dinosaur, in that it's mostly classic rock, but you'll also find me regularly attending the Royal Albert Hall for classical music events.

I used to do a lot of martial arts and am a black belt in judo, but a cruciate ligament tear and subsequent repair put a stop to that. In my spare time I swim-run-cycle, ski in the winter and scuba dive in the summer months. I've recently started flying lessons too!

- **What do you hope viewers will learn about trauma care and what do you hope they will take away from watching Emergency?**

I would like viewers and the public at large to appreciate the knife crime epidemic in London and it feels like it is getting worse! It is no one individual's fault and therefore, the answer does not lie with any one individual or body. Breaking the culture of crime and in particular knife crime is a much bigger monster beyond any one organisation and thus it must be done collectively.

I hope the viewers really get to appreciate what we do and what the NHS does. It's easy (and possibly lazy) to highlight deficiencies, but the British public should be very proud of their NHS. All through Covid, despite the challenges and the mask wearing and the stress and strain, the NHS kept going! And why? Because it is populated by great people: doctors, nurses, physiotherapy, occupational therapy, managers, cleaners, security, caterers and of course the patients themselves. It is not only one of the largest employers in the world, but it is possibly the most multicultural

employer of all nationalities and backgrounds. The melting pot of culture behind the NHS is what makes it so unique and special!

When you see us come together in a major trauma situation or a mass casualty, that's when you see us at our best. I call it "Trauma Justice League".

- **If you weren't in medicine, what do you think you'd be doing?**

I've always wanted to do medicine since childhood and have always been drawn to the areas that required rapid and bold decisions.

But - if I didn't do medicine, I would possibly be an author, as I have already written two textbooks with a third on the way. I always fancied being a pilot too - I've never met an unhappy or unsatisfied pilot! I'm currently working towards my private pilot's license.

However, one area that has never left me is music! I think the ultimate job, if I wasn't a trauma-vascular surgeon I would be lead guitarist in a rock band! It's still a great source of enjoyment and spending time playing one of my 12 guitars create indescribable fulfilment.

Dr Chloe Baker works as an Emergency Medicine Registrar with London's Air Ambulance service. In 2007 Chloe's life was saved after a serious bicycle accident, thanks to the team she now works with. She treats Philip at the scene of his devastating car crash and also treats Peter, when a 400kg air conditioning unit falls on him at work.

- **Describe your role – what's involved in a typical day, if such a thing exists?**

My role with London's Air Ambulance was as a registrar. We examine the patient, gather information, and in discussion with our paramedic colleagues decide on a plan, which we then communicate to the team. When immediate interventions are necessary to help the patient, we perform them. This can be sedation, anaesthesia, intubation (placing a breathing tube), or performing minor surgery on the chest to help ventilation if the lungs are damaged.



- **What motivated you to get into this side of medicine and what are the things you love most about your job?**

I am an intensive care and anaesthetic trainee and find the most reward from working with the sickest patients in hospital. Working for London's Air Ambulance is even more focused on attending the most unwell people in London and bringing them to hospital for definitive treatment in the best state possible. For me there is no work that's more rewarding.

I might also be slightly influenced by the sense of relief and gratitude I felt to the men in orange who attended me, when I was run over by a lorry whilst cycling, aged 21. Visually I only really remember their orange ankles, high vis stripes, and heavy black boots, but I feel like I still remember today the calmness and reassurance of their voices, and instructions to the wider team. I wasn't the only one there terrified I might die, it was quite clear all the bystanders, police and paramedics had the same thought. As a medical student I understood that I had time critical injuries and needed to get to hospital urgently, but the scene seemed paralysed by this concern until London's Air Ambulance turned up and took control. I can still remember the relief I felt when they said they'd put me to sleep and take me to hospital.

The aspect I love most about pre-hospital work is the intimacy of the team work with our paramedic colleagues, and the need to rapidly form effective teams with the wider emergency services on arrival at a job. It's really satisfying to work with the HEMS paramedic, who we train so intensively with, to help get all members of the team performing at their best, to do the best possible job for the patient.

- **What are the biggest challenges in your job?**

The biggest challenge is probably the hours – in a busy week I will leave before my daughter is awake and come home long after she's gone to bed. But that's just working in healthcare in general - not great for family life.

- **How do you cope with the demands of your job – mentally, physically and emotionally?**

The wider team at London's Air Ambulance is paramount for coping mentally and emotionally with the job. There is a lot of informal support on base, but we also have a formal review meeting twice a week where everyone meets to review jobs from the last few weeks. All jobs that might have been distressing for the teams involved are brought to this meeting, and it is vital to help intellectually and emotionally digest the challenges we can face.

Personally I really enjoy the physical demands of the job – the intimate relationship we have with all the kit we carry (literally) to the job, the physical challenge of running to the helicopter, accessing the patient when we arrive on scene, and extricating them to the ambulance – to me they're some of the best bits of the job. I guess you have to find time to stay fit to make the most of this side of the job!

- **What do you hope viewers will learn about trauma care and what do you hope they will take away from watching Emergency?**

I hope viewers will take inspiration from two aspects of the show. Firstly, nearly every job we attend involves patients experiencing the worst day of their lives, and often surrounded by strangers. It never fails to fill me with wonder, the acts of kindness almost invariably performed by strangers when terrible things happen to people out and about. Nearly every patient we attend will have bystanders helping them, often selflessly covered in blood, cradling them in the road, or sacrificing pieces of their clothing or other personal effects to comfort or reassure the patient. It's truly amazing, and never fails to make me feel grateful and humbled. I hope that this programme will show the public what ordinary people, when faced with awful challenges, can rise to achieve.

- **If you weren't in medicine, what do you think you'd be doing?**

I've always been a bit surprised I ended up in medicine – I much prefer literature and politics to science. Either way, a passionate source of motivation for me is social justice, so I think I'd probably be a journalist or a campaigner if I wasn't a doctor.

Dr Tasha Newton is a consultant anaesthetist and the Trauma Unit Director at William Harvey Hospital. She is also the Deputy Clinical Director for South East London Kent and Medway. She explains to Frazer that even though he has fallen and damaged his spine, there is a whole network of specialists who have caught him and will work to help him recover. Dr Tasha Newton cares for patients Frazer and Leyton at William Harvey Hospital, two young men who have sustained traumatic injuries in separate accidents.

- **Describe your role – what's involved in a typical day, if such a thing exists?**

As Trauma Director I oversee the care of seriously injured patients at East Kent Hospitals. This involves making decisions around what equipment, training and patient journeys are needed. It also means I'm never off call, as the calls come in almost 24/7 if there is a complex patient or a question. I also treat these patients face-to-face about once a week when they come into our emergency department at William Harvey Hospital, Ashford. The rest of the week, I'm a Consultant Anaesthetist, working in the operating theatres or emergency department. One day a week I work as a retrieval doctor transferring critically unwell patients between hospitals.



- **What motivated you to get into this side of medicine and what are the things you love most about your job?**

I first got interested in trauma and helicopter medicine when I was training as a doctor in London. Then, when I was still quite junior, I was made team leader for the London bombings in 2005, treating patients from the Edgware Road bomb. That convinced me I wanted to be a trauma specialist and that has been the focus of my career since. I choose to work in a hospital outside London because it means I treat patients from babies to grandparents with a huge range of diseases and I find it really challenging, interesting and rewarding.

- **What are the biggest challenges in your job?**

Childcare! As a doctor I'm very highly trained, so these days there is little I can't approach clinically. But before anything else I'm Mummy to two young boys, so if my kids aren't looked after, I can't even begin to help other people's children. As a doctor, the biggest challenge I find since having kids myself, is the empathy I feel for parents whose children I treat. It can be quite debilitating. I need to be really focused and almost mechanical in what I do but my heart goes out to them.

- **How do you cope with the demands of your job – mentally, physically and emotionally?**

I've always been able to rationalise the fact that there is a "silliness" to what I do. I encounter patients who are touch and go and if left to nature would die in minutes or hours. It falls to me, and our excellent team, to push back against the full force of nature and reverse whatever process is

killing the patient. I study hard and stay as up to date so I can be confident that I am applying the very best management that medicine can offer. Some of the patients will not survive and can't be saved, but I can look their family in the eye and mean it when I say "we did all we could". If I do have a case I find particularly upsetting, my amazing husband is a great support. As an ex-Commando now Police Inspector, there is not a lot that he has not had to deal with. He understands that though we try never to get emotionally involved, sometimes we come home with heavy shoulders because we feel so sad for a family.

- **What do you hope viewers will learn about trauma care and what do you hope they will take away from watching Emergency?**

Firstly to see what a positive impact our team at William Harvey Hospital makes for our patients. Secondly, to appreciate the enormous team of skilled professionals – doctors, nurses, therapists, radiographers, clerical staff and many more – working across a vast network of hospitals to help people survive traumatic injuries.

- **If you weren't in medicine, what do you think you'd be doing?**

A wedding planner! I absolutely love weddings and loved planning my own in London 10 years ago and I must have seen every episode of 4 Weddings and Don't Tell the Bride!

Mr Colin Bicknell is a Consultant Vascular Surgeon and is Head of the Specialty for Vascular Surgery at St Mary's Hospital. His academic research has led to the first trials of vascular robotics in humans, and his work in trauma and emergency as a leading surgeon has saved many lives. Colin performs life-saving surgery in a time critical moment for Danilo, stating 90% of people with a ruptured aorta will die.

Mr Chris Jordan is an Orthopaedic Consultant at St Mary's Hospital where he specialises in pelvic surgery. His specialist knowledge and skill set is crucial to Danilo's case when his pelvis shatters after the force of a motorcycle accident causes multiple life-threatening injuries. The Trauma Network didn't exist when Chris was a Junior Doctor, and he has witnessed the incredible improvement in patient outcomes since the Network came into being.

Mr Christos Tsironis is the lead for acute surgery at St. Mary's. He is a Consultant General, upper gastrointestinal and bariatric Surgeon. His expertise is called upon when a patient's abdomen is injured in trauma. He is brought on to operate on the bowel injury Danilo sustained in the crash. Originally from Greece, he believes there is nothing comparable to the UK Trauma Network. He describes the pigskin mesh technique used in Danilo's surgery as "game-changing".

Tom Flint is a Senior Specialist Physiotherapist in Trauma, Orthopaedics and Plastics at St. Mary's Hospital. Tom oversees Danilo's therapy towards the end of his stay in hospital. He helps Danilo stand for the first time since his accident and prepares him for leaving hospital and returning home.

Dr George Peck is a Consultant Geriatrician at St Mary's Hospital, providing embedded medical care for trauma in older patients. George has been at the helm of understanding and managing the complexities of older patients in trauma system. While Mr Lee manages Wesley's spinal injuries, it's George who monitors his blood clots and infection markers ahead of surgery, understanding his co-morbidities and other underlying conditions.

Mr Cheong Hung Lee is a Consultant Neurosurgeon at St Mary's Hospital, working with the Trauma Network's neurological patients. His training has led to using an orthopaedic and neurosurgical approach to complex spinal conditions. Mr Lee's experience was vital in the critical spinal operation for trauma patient Wesley, who needed an operation at the highly unstable location in his spine at the junction between his brain and the rest of his body.

Mr Ross Coomber is a Consultant Orthopaedic Surgeon at St George's Hospital. He has trained internationally in trauma and pelvic reconstruction. Ross is the surgeon whose expertise is relied on to reconstruct Peter's pelvis after the air conditioning unit fell on him.

Mr Omar Sabri is a consultant in Trauma and Orthopaedics at St George's Hospital, and the acting Secretary to the Orthopaedic Trauma Society of the UK & Ireland. He specialises in trauma, pelvic surgery and hip reconstruction. We meet Omar at St George's Hospital where he performs surgery on 12-year-old Lily to fix her hip fractures after she was hit by a car.

Dr Jonathan Leung is an Emergency Medicine Consultant who works at William Harvey Hospital in Ashford, Kent. When 17 year old Frazer comes in after a fall, his initial scans immediately show that this is a life-changing injury, and Jonathan and his team work quickly and skilfully to stabilise him before he can be transferred for more specialist care at Kings College Hospital.

Dr Harriet Tucker is a Consultant in Emergency Medicine, as well as a HEMS doctor, and works in the St George's Hospital resus team, managing trauma patients when they first come to hospital.

When Philip is brought to St George's following a head on collision in his car with a bus, Dr Harriet Tucker is the Trauma Leader and Consultant in charge of his initial assessment.

Dr Akshay Hindocha is an Emergency Medicine Registrar working at the Royal London when 17-month-old baby Mika'eel is brought in as a paediatric trauma. Mika'eel experienced a seizure following a head injury and Dr Akshay Hindocha, as the Trauma Team Lead, has to make critical decisions and measure the risks in sending Mika'eel for a CT scan.

Mr Toby Colegate-Stone is a Consultant Orthopaedic and Major Trauma Surgeon, and a specialist shoulder and elbow surgeon, based at King's College Hospital. When Leyton is transferred from William Harvey with an open fracture after a moped accident, Toby surgically fixes his broken bones; realigning them "like lego bricks".

Mr Ash Vasireddy is a Consultant Orthopaedic Trauma Surgeon at King's College Hospital. He specialises in the management of complex fractures and works closely with the Plastic Surgeons in the management of all open fractures, similar to the injury sustained by patient Leyton. Ash is the only Orthopaedic Surgeon in the UK who works as a Pre-hospital Care Doctor with the Essex & Herts Air Ambulance.

Dr Katie Kearney is a Doctor in Emergency Medicine working as the Trauma Team Lead at the Royal London Hospital when Peter is brought in after colliding with a wall, while on his moped travelling to work. Under Consultant Matthew Mak's watchful eye, Katie leads a team of specialty doctors through a primary assessment of Peter's injuries and treat a suspected brain injury after the patient's helmet came off in the collision.

Dr Matthew Mak is a Consultant in Emergency Medicine at the Royal London Hospital and a HEMS doctor with London Air Ambulance. He has previously worked for Air Ambulance Kent Surrey and Sussex full time. Matthew is the consultant overseeing Dr Katie's training as a Trauma Team Lead in the emergency department when Peter is admitted, following a collision with a wall while on his moped travelling to work.