

1 Highland Pre-hospital Immediate Care and Trauma (PICT) team – 2022

“I just want to express my utmost gratefulness. Many specialists and professionals have been involved during my treatment, however, I have always seen you two as the most critical. No doubt in my mind, without both of your steady thinking and fantastic work, I would have lost my leg, potentially even my life.”

“I just want to thank you both so much for what you did that day. I know we only had a brief encounter but your names will forever be in my mind as the people who saved my life.”

(Feedback kindly provided and consented for sharing by PICT trauma patient 2021)

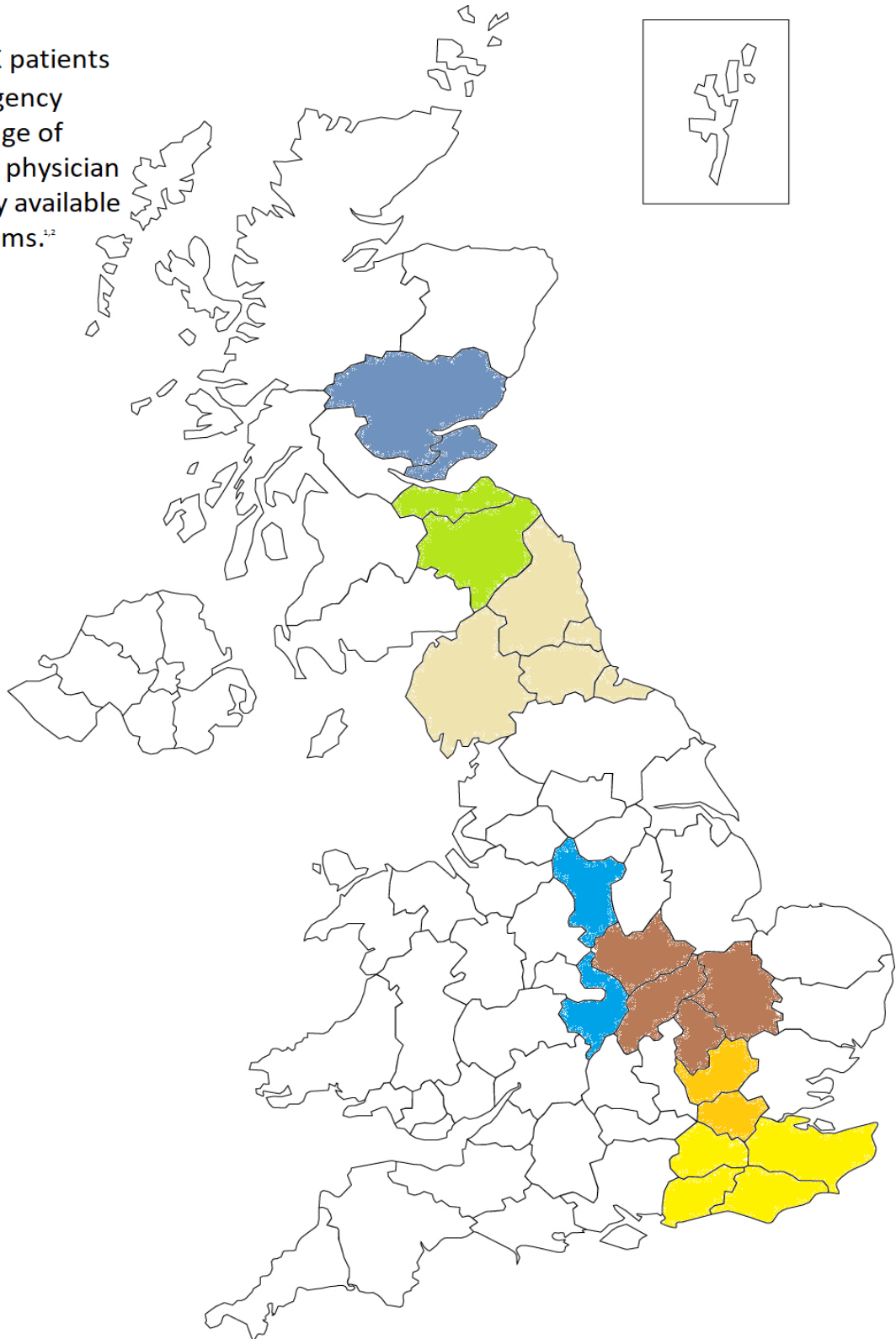
2 Background to the 2022 Stakeholder Report

- With recent discussions around potential reconfiguration of emergency services in the highlands, the PICT team have been asked to report specifically on the contribution that physicians and advanced practitioners make to patients with prehospital emergencies across the highlands, both together and separately, auditing the seven day physician/AP team’s tasking and interventions, and to examine how the team might bring the region closer to equity of access to levels of care that are increasingly a national standard across the rest of the UK.
- Scottish Government has instructed territorial health boards to integrate their major trauma care into both a national and four regional ‘Trauma Networks’. These carry key performance indicators set for the care of major trauma in the prehospital, hospital and rehabilitation phases. Across Scotland, new funding was allocated for the provision of prehospital enhanced care resources such as the retrieval teams based in Glasgow and Aberdeen and ED based teams in Edinburgh and Dundee and for the BASICs clinicians providing voluntary enhanced responses across rural Scotland. Following the choice to site such a team in Aberdeen it was recognised this left the majority of the population of NHS Highland without timely access to enhanced trauma care and agreement was reached between the North of Scotland Trauma Network participating Health Boards and the Scottish Ambulance Service that an enhanced trauma care resource, the PICT team sited in Inverness at Raigmore Hospital, would be developed to better address this equity of access gap.
- Scottish government has instructed territorial health boards to wherever possible conduct care in a patient’s home and to seek care in the community pathways. The PICT team achieves such integration with assessment of emergency patients often in the home, followed by coordination with GP or OOH services, possible only due to the high level of clinical integration and local knowledge of the team.
- For best use of resource, and responsive to the unique challenges of the rural population and health care workforce, the PICT team provides not only immediate response to major trauma cases, but also the site medical team to any local major incident (whether medical or trauma related – note recent bus crashes and regular multi car RTCs), the advanced ‘3RU’ response for cardiac arrests deploying mechanical CPR device when indicated, paediatric medical emergencies and many situations where a 999 call can be dealt with via alternate pathways to ED attendance not otherwise possible if dealt with by regular SAS response, where nationally 80% of encounters result in conveyance to ED.
- For best use of funding and local geography, the team deploys in a rapid response vehicle, based at Raigmore ED. This has resulted in regular effective on scene attendance at Highland emergencies within a 60 mile radius of Inverness, taking in patients who would otherwise be directed to Wick, Fort William or Broadford. The team have also been used as medical escorts to critically unwell patients travelling from an RGH such as Wick to Inverness or from Raigmore to specialist centres in Aberdeen or Edinburgh.

3 Methods

- A review of the literature detailing the establishment, configurations and availability of physician staffed prehospital teams across the UK was conducted and mapped, comparing coverage to the first 12 months tasking of the PICT team to ‘Immediate Life Threatening’ coded traumas and cardiac arrests.
- A review of postcode data for all SAS reported taskings of the PICT team in the 18 months since its progression to offering seven days 1100-2300 physician/AP emergency cover, with specific reporting of attendance at STAG criteria trauma incidents across the region.
- A detailed 6 month review of the most recent six months clinical activity August 2021 to Feb 2022, examining job types, patient parameters, interventions and again using SAS location data to map equity of access of the team’s response model across the region and comparing interventions and patient outcomes between jobs involving the Physician/AP team or a solo AP response.
- A focussed one month case sheet audit presenting free text descriptors, anonymised, of all 133 attendances along with assessment of whether physician input was of benefit allowing insight into the daily clinical caseload of the team.

2009 - UK patients within emergency response range of permanently physician staffed, 7 day available response teams.^{1,2}

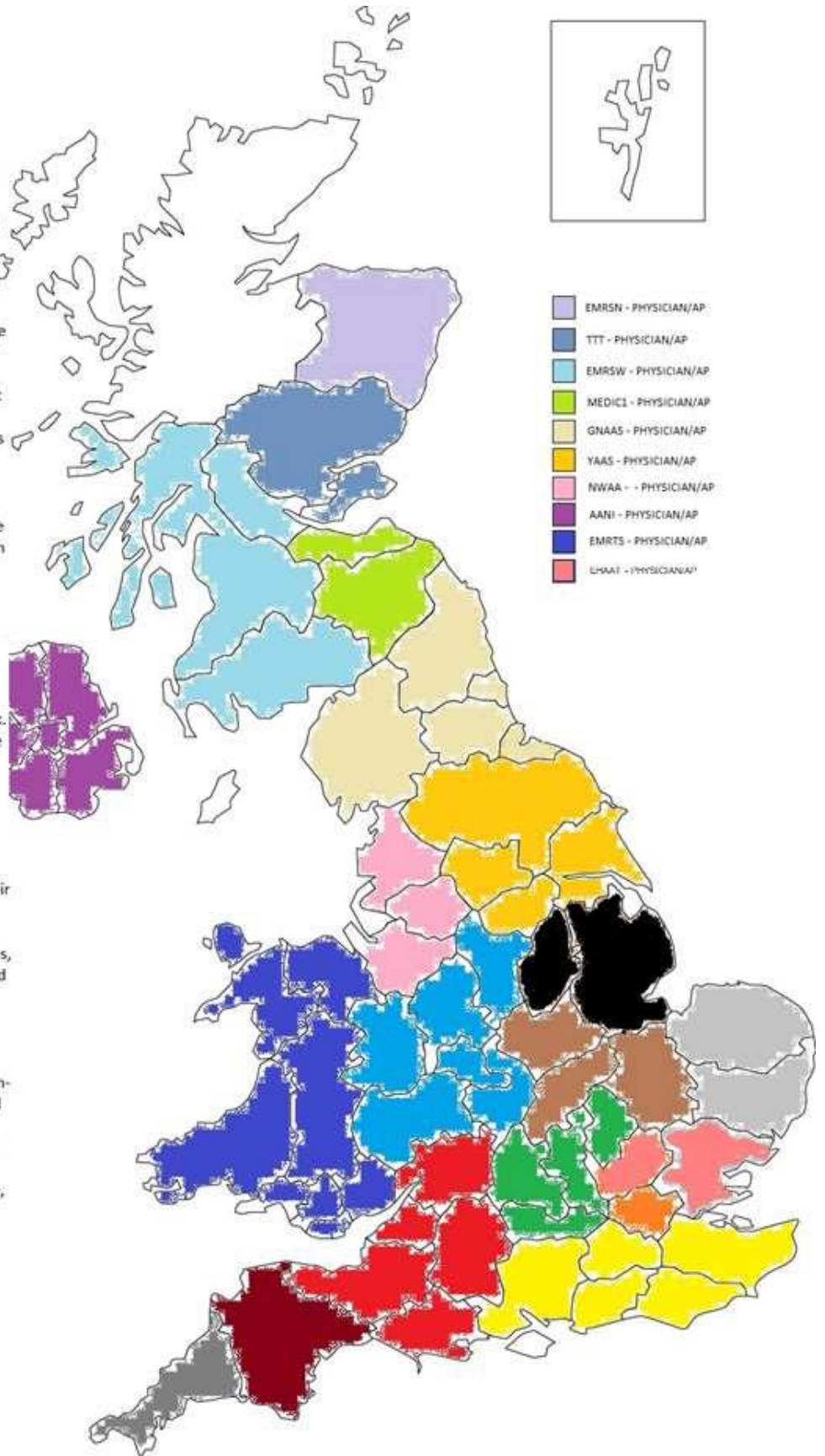


1. Hyde P, Mackenzie R, Ng G, *et al.* Availability and utilisation of physician-based pre-hospital critical care support to the NHS ambulance service in England, Wales and Northern Ireland. *Emergency Medicine Journal* 2012;**29**:177-181.
2. Maddock A, Donald M. Caseload of a land-based trauma team. *Scottish Medical Journal*. 2014;**59**(1):45-49.

2022 - UK patients within emergency response range of permanently physician staffed, 7 day available response teams.

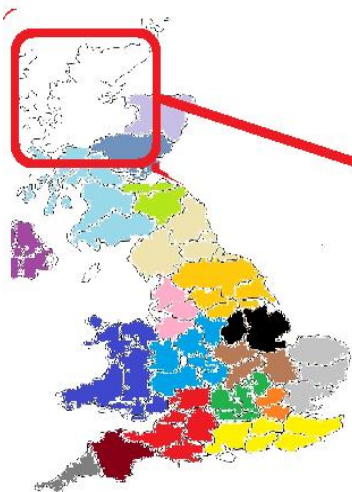
The only shared national standard of care and single direction of travel for the rest of the UK has been to progressively build Physician/AP teams that are available 7 days a week, maximally so at peak periods of emergency incidents, and based close enough to their patients to provide a response at scene within a time frame capable of saving lives, typically within 15-30mins of dispatch. Some have grown out of secondary care based transfer teams gradually taking on prehospital work, some out of charity funded air ambulances gradually taking on physicians, some from A&E flying squads moving to take on ambulance staff, and others from primary care physician responders taking on new procedural skills and working to regular rotas rather than ad hoc volunteer work. The PICT team in Highland combines the strengths of many of these historic approaches to serve a mainland population even more distant to other teams than anywhere else in the country. Whilst the physician staffed response teams across the UK differ widely in their funding models, the specialty backgrounds of their clinicians (GPs, cardiologists, intensivists, neurosurgeons, paediatricians) and some may be staffed with doctors still in training and others fully qualified, the commonalities are that they all provide skills and interventions and decision-making in emergency care that is additional to non-physicians but at the same time they all operate in teams joined with Advanced Practitioners or paramedics as it is now the national standard that such physician/AP models bring the best care, rather than models choosing one over the other.

- LNAA - PHYSICIAN/Para
- MAGPAS - PHYSICIAN/AP
- WNDLR - PHYSICIAN/AP
- EAAA - PHYSICIAN/AP
- TVAA - PHYSICIAN/AP
- KSSS - PHYSICIAN/AP
- LAA - PHYSICIAN/Para
- GWAAS - PHYSICIAN/AP
- DAA - PHYSICIAN/AP
- CAA - PHYSICIAN/AP



September 2020 to August 2021

7 day service of PICT response team with Physician/AP model available 1100-2300



All 248 SAS taskings of the PICT team to 'ILT' or Immediate Life Threatening coded car crashes, stabbings, drownings, burns, explosions and cardiac arrests.

The team were intelligently tasked to 1410 other lower coded calls where the added capabilities of a physician/AP team brought to a victim of a fall or industrial accident in severe pain or distressed paediatric emergency or multi-casualty RTC could benefit from that level of care and decision making immediately at scene when they need it most.

18 months of a seven day service: all taskings

SAS tasking data reported 2552 identifiable taskings of PICT response team between commencement of 7 day physician/AP service in August 2020 and end of the focussed six month audit period February 2021.

The geographical distribution of taskings was mapped using SAS postcode data and is shown in Figure 1.

The inset frame comes from a report published in 2019 showing 18 months of prehospital taskings for the Glasgow based EMRS, using the same method of SAS recorded postcode data¹.

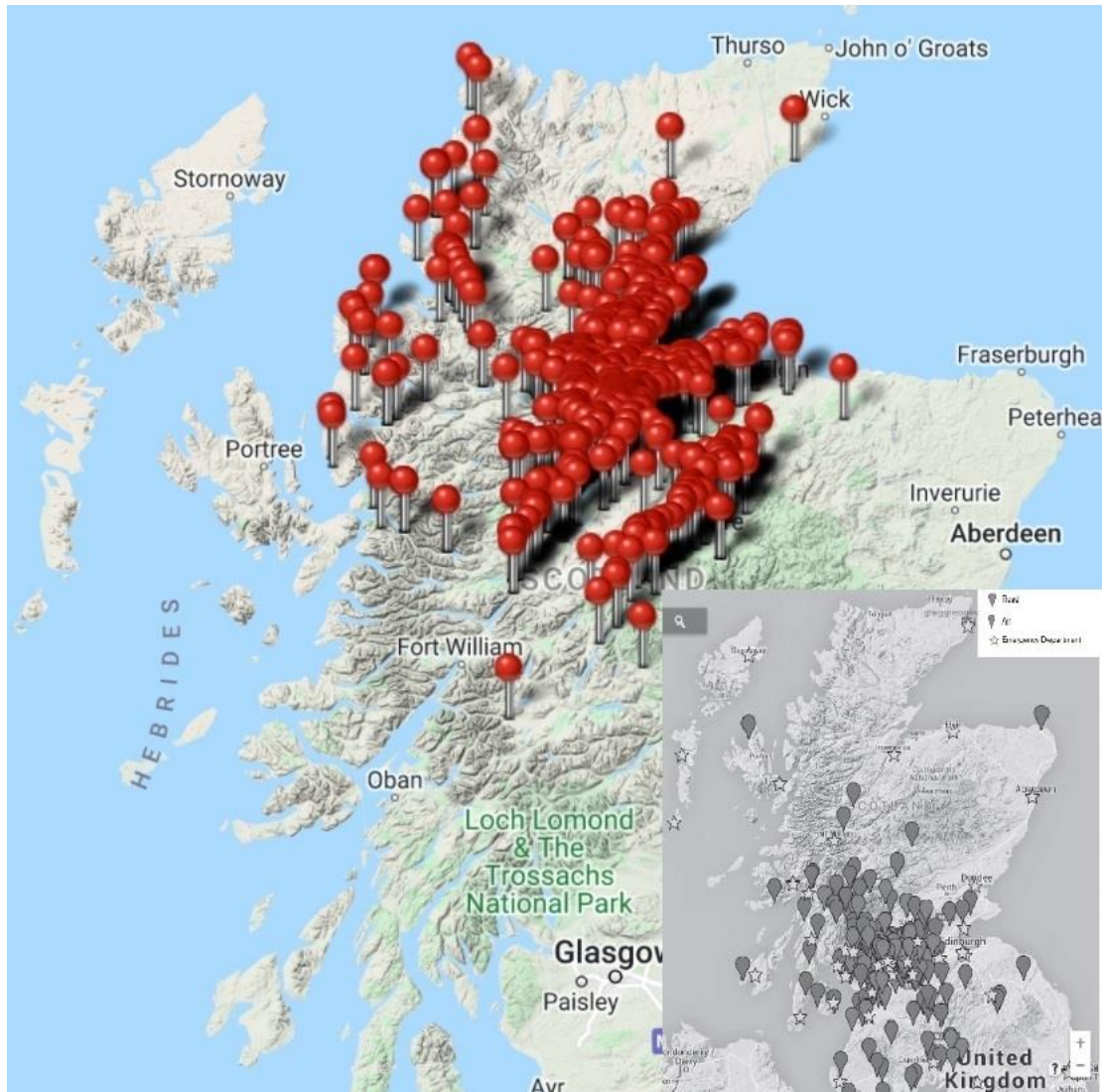


Fig 1

A specific subset of patients within the PICT caseload are those retrospectively qualifying for entry in the national Scottish major trauma registry the Scottish Trauma Audit Group register or STAG.

STAG registered trauma patients attended by PICT over the 18 months since the commencement of the seven day physician/AP response team until the end of December 2021 are shown in Figure 2 and can be seen to be distributed across the entire region where other taskings have taken place.

Of the 91 STAG patients identified with postcode information available to calculate distance, a mean average distance from Raigmore ED of incident was calculated at 23 miles (median 18 miles, range 1-90 miles) and mapped on Figure 2. Of those with Injury severity scores identifiable a mean score of 14.3 (median 10, range 4-43) was calculated.

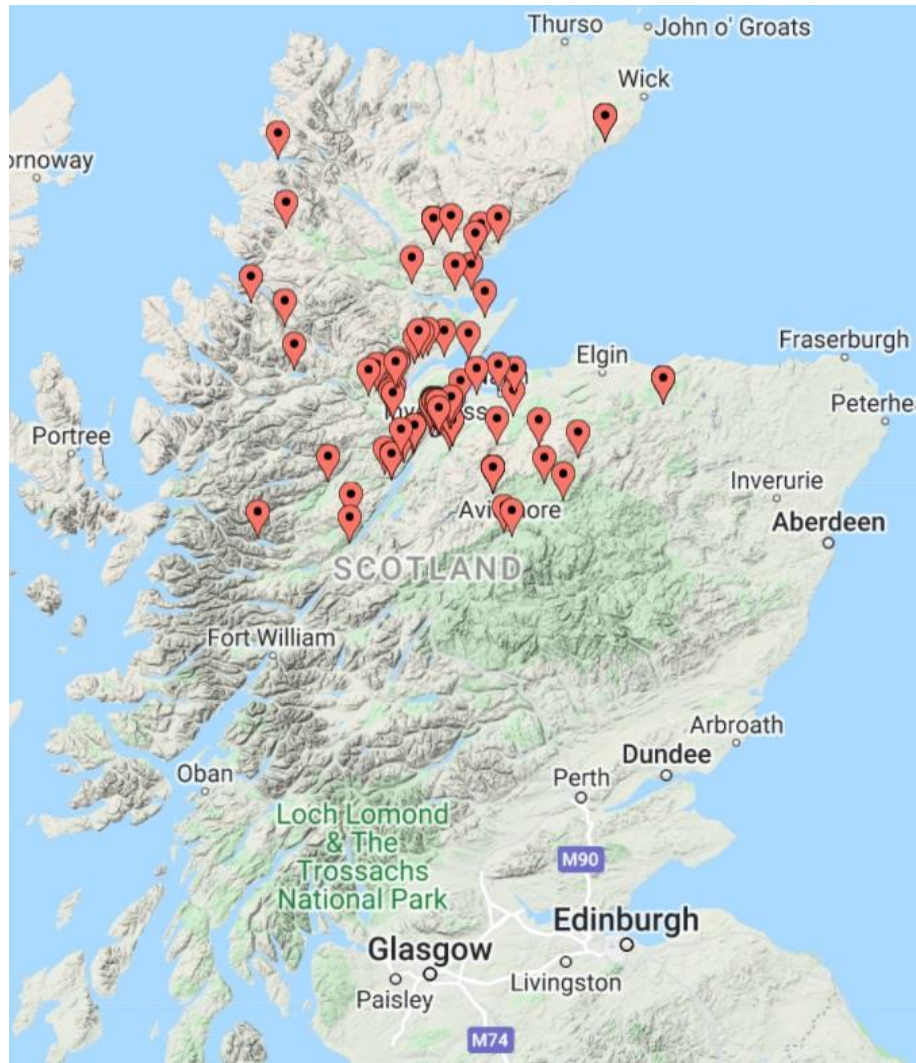


Fig 2

The focussed audit was undertaken using a convenience sample for the six months 18/8/2021 to 18/02/2022, wherein ACC recorded 964 taskings of PICT. 786/964 (82%) taskings were identified with specific diagnostic medical or trauma codings and are shown in Figure 3 and Figure 4

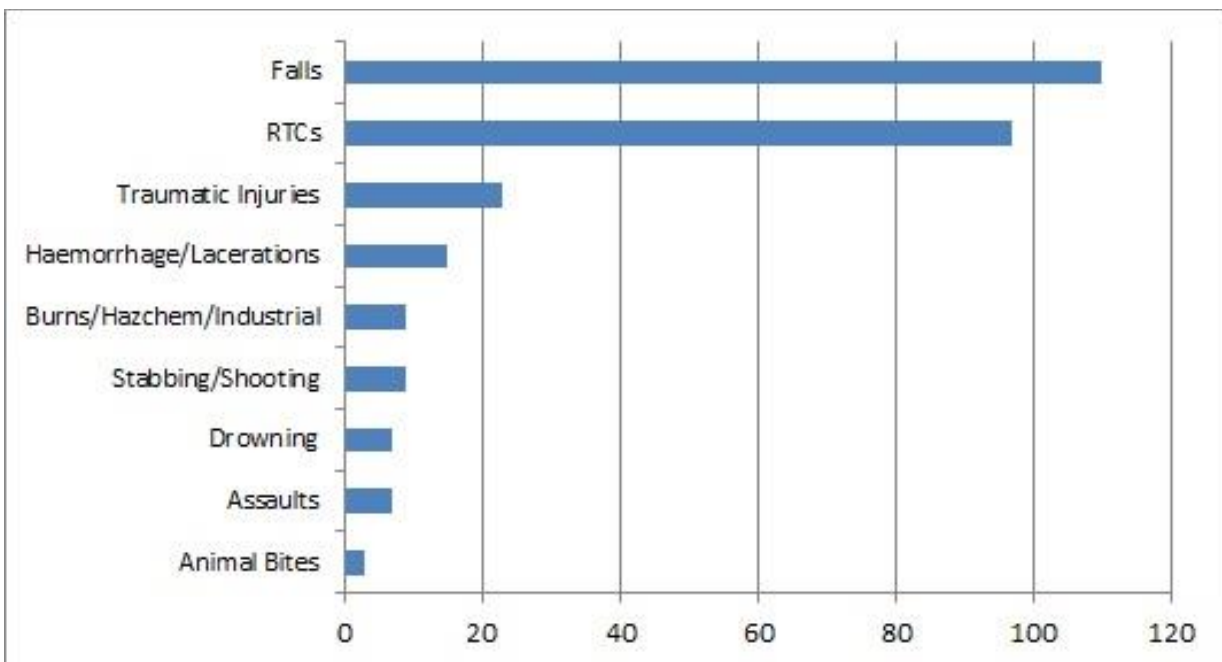


Fig 3

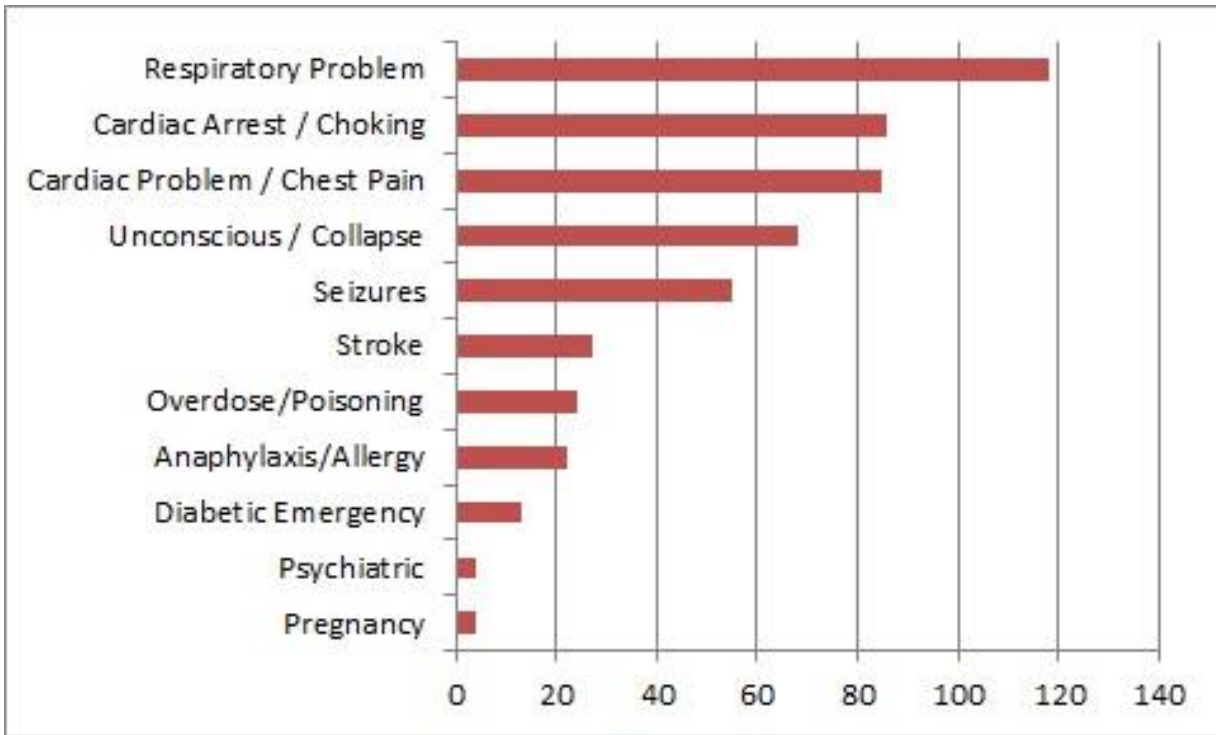


Fig4

Of note, the PICT team is selectively targeted by ambulance control towards more severe trauma and medical emergencies in order to maximise patient clinical benefit from their enhanced skill set and senior decision-making.

Even with this higher average acuity of patient, it is notable that a PICT attendance at scene achieves a large reduction in conveyance rate and avoids admissions which would otherwise have progressed to both the ED and hospital inpatient stay. Figure 5 shows the Scottish Ambulance Service average spread of acuity for general response to 999 calls from green through yellow, amber, red to purple for cardiac arrest.

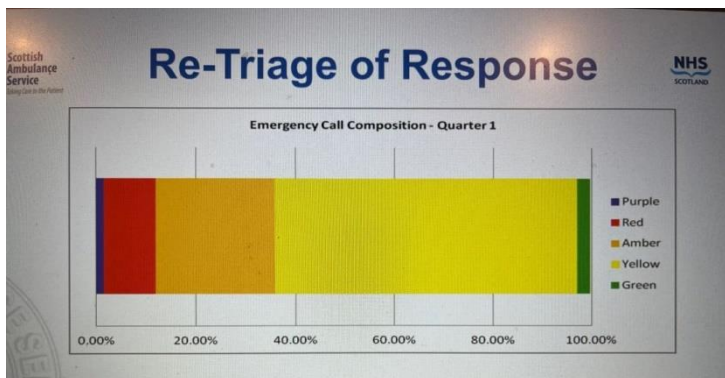


Fig 5

This ratio of this general SAS workload is compared to the PICT ratio of coding acuity in Figure 6

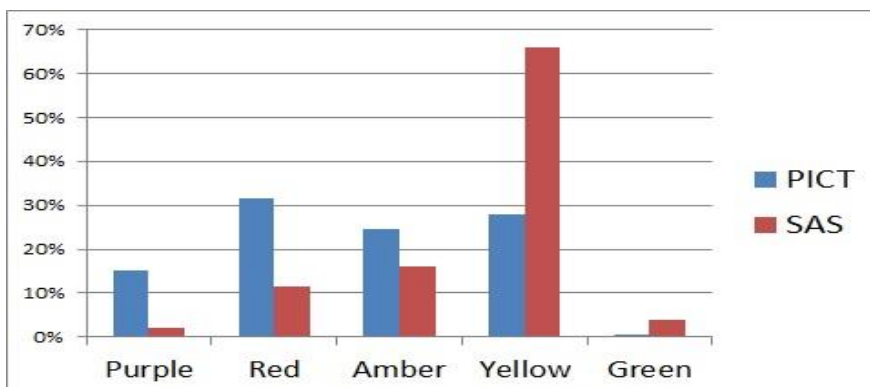


Fig 6

Also worthy of note, the acuity coding for the 18 months of STAG trauma patients attended by PICT and mapped in Figure 2 was in the 'Yellow' or 'Amber' categories for 31% of the cases identified.

This fact highlights that particularly in rural and remote trauma incidents, there may only be a single informant at scene, or very difficult to clarify information for the majority of the emergency response phase, necessitating early and intelligent tasking of road based responses like the PICT team.

The occasional stand down en route is a much better outcome for most patients than routinely delayed or missed interventions.

This contrasts starkly with the tasking necessities of many other physician/AP response teams, particularly those utilising aeromedical platforms that bring multiple pressures to avoid both stand downs or deployment to anything other than the very highest acuity incidents.

Data for each PICT tasking are captured prospectively during or soon after each tasking, and entered into a digital patient report form which is then uploaded to both the NHS Highland and BASICS Scotland's secured servers along with all PRFs from BASICS Scotland / SAS prehospital physicians tasked across the country each day.

Data from these PRFs are then extracted and categorised into the PICT (MS Excel) spreadsheet 24 hours or more following the tasking. This record is also maintained on the NHS Highland secure server.

As the PICT team are based in Raigmore Trauma Unit Emergency Department and are NHS Highland employees, part of any given shift often involves providing clinical care or senior support into the ED, along with manning a dedicated decision support telephone line for any SAS crew planning conveyance of a patient to Raigmore Emergency Department and seeking clinical advice.

The inclusion criteria for the focussed 6 month audit was any PICT prehospital tasking recorded by SAS that matched with a registered PRF from August 18 2021 until February 18 2022.

Criteria that ruled out a tasking from being included were:

- (1) PICT advice call to ambulance crew at scene.
- (2) PICT physician or AP seeing emergency patient within the Emergency department
- (3) Prehospital tasking without identifiable matching PRF

In order to assess the appropriateness of tasking, cases were analysed for any instances of either 'Medical Interventions at scene' or clear identifiers of a severely ill or injured patient.

'Medical Interventions at scene' comprise any of the following interventions performed by PICT clinicians which are not available to a routine SAS response:

- Medical procedures such as sedations, conscious cardioversions, or a physician required for tracheal intubation following unsuccessful paramedic attempt
- Analgesia and emergency medicines not available to SAS formulary,
- Surgical procedures such as paediatric thoracostomies, joint reductions and regional anaesthetic procedures such as wrist and femoral blocks,
- Access to alternative pathways of care such as direct admission to specialist inpatient teams or discharge at scene of infants and other 999 patients who would otherwise be conveyed to the ED.

'Identifiers of a severely ill or injured patient' highly suggestive of appropriate tasking of the PICT team included:

- Patients in cardiac arrest,
- Those later meeting retrospective criteria for inclusion to STAG trauma registry,
- Severely altered physiology in adult patients including one of:
 - o GCS<9,
 - o RR>30/min,
 - o sO₂<90%,
 - o systolic BP <90mmHg,
- Any patient requiring escort by the PICT physician in to resus Raigmore ED or to another major trauma receiving facility.

826/964 (86%) of the taskings identified for audit from 18/8/2021 to 18/2/2022 could be manually matched via specific SAS incident numbers to written patient report forms (PRF) and were examined for patient and scene demographics, physiological parameters, and any associated clinical interventions and outcomes.

68 PRFs were identified as taskings of a PICT Advanced Practitioner as a solo response without physician attending and are reported separately for comparison below.

Of the 826 cases included, 84 were identified as stand-downs prior to attendance, giving a stand-down rate of approximately 10% which compares favourably to utilisation rates in other rapid response prehospital teams.

113/826 (14%) of emergency taskings were to ill or injured paediatric patients.

Again despite the much higher average acuity of the patients seen by PICT compared to the routine 999 population, the provision of a senior medical decision-maker at scene allowed not only a large number of patients including many sick children to be directly referred in to the specialist inpatient team appropriate for their care, avoiding the ED, but almost double the rate of patients were discharged at scene compared to SAS national performance figures. The totals and ratios are shown in Table 1.

Attended	742
Conveyed ED	340
Admit Direct to Ward	77
Died	53
Discharged At Scene	272
Stood Down	84
Total	826
Stand Down Rate	10%
Convey ED Rate	46%
Avoid ED Rate	54%
SAS routine response convey ED rate	80%
SAS routine response avoid ED rate	20%

Table 1

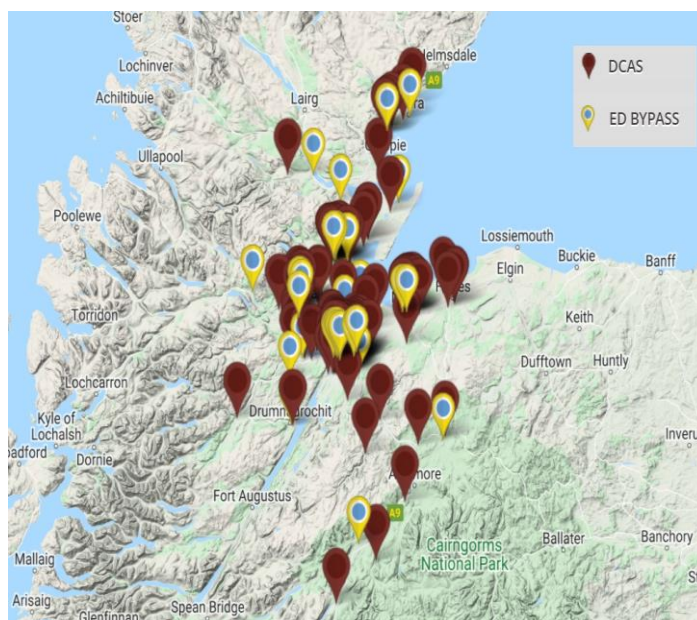


Fig7 – Discharge at scene and ED bypass

Again to highlight the increased impact of distance and senior decision-making at scene in our remote and rural geography, postcode plottings for both paediatric cases and patients discharged from ambulance service conveyance at scene or bypassing ED are displayed in Figures 7 and 8 .

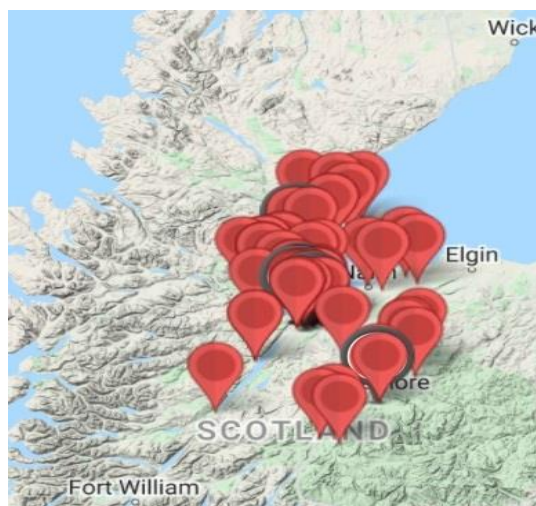


Fig 8 – Paediatric emergencies

The identifiers of a severely ill or injured patient were found in 197 individual cases, with all examples of duplication removed to give the final total.

The various categories and totals are displayed in Figure 9 and their geographical distribution across the region shown in Figure 10.

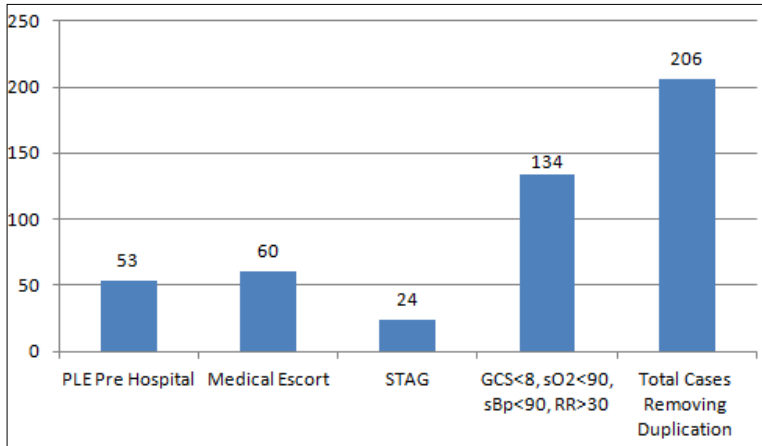


Fig 9

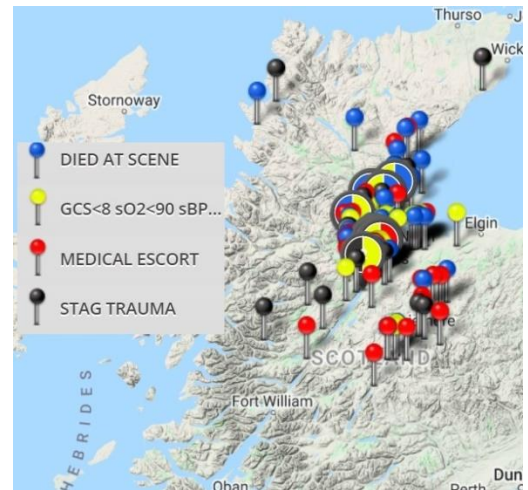


Fig 10

As evidenced by the high numbers of arrested, peri-arrest, major trauma and patients requiring medical escort inbound to hospital, the case load is one where a single clinician can be regularly exposed to paediatric morbidity, visually traumatic injuries and young patients in cardiac arrest across several shifts, with understandable psychological impacts on the clinicians involved.

The clinical team have a natural defence to the strain of such chronic exposure to trauma in the two person configuration of their team to the vast majority of cases, with immediate debrief and comfort being the norm, in contrast to the higher risk of psychological isolation and silence when facing similar caseloads in solo practice.

Medical procedures, deployment of specialist resuscitation equipment such as mechanical CPR and administration of emergency medicines either outwith routine SAS practice or unavailable to formulary are displayed in Figures 11, 12 and 13. Of note, the PICT team remains one which does not deploy prehospital RSI or blood administration, although the latter intervention is one already in development for local deployment should the case load and literature of clinical benefit recommend its progression.

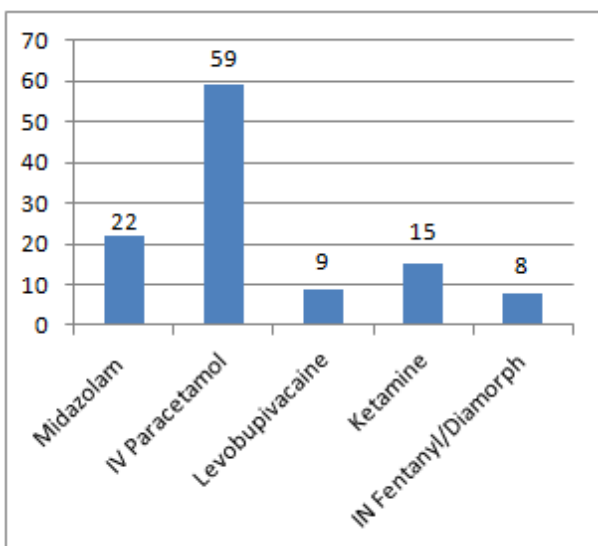


Fig11

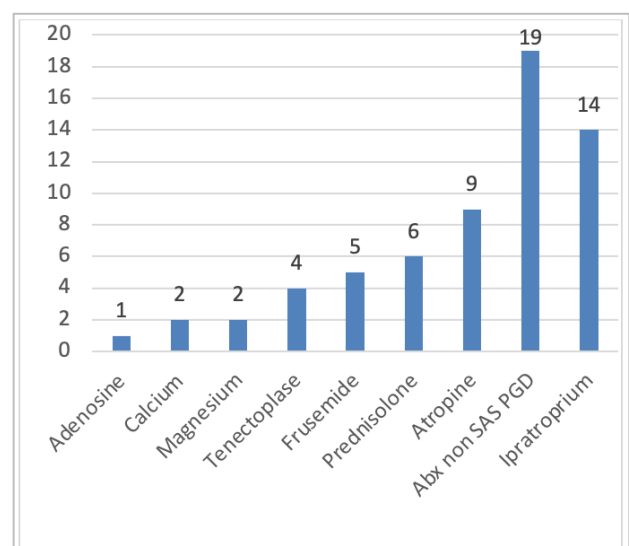


Fig12

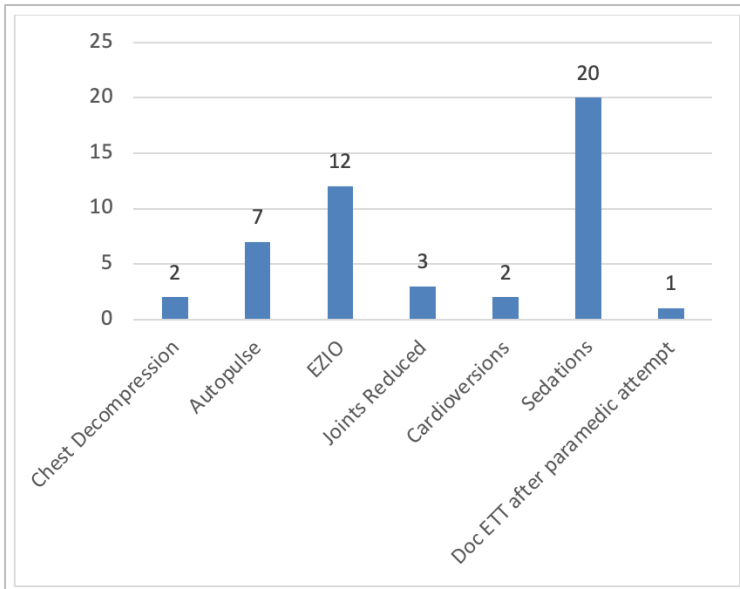


Fig 13

Of note the same 2019 report regarding the EMRS critical care team based in Glasgow reported an RSI deployment rate of 67/493 over 18 months, so with such a rarely deployed intervention as reported in a much larger population pool, the relative rarity or likelihood of benefit to the Highland prehospital emergency population of prehospital general anaesthesia is not to be viewed in isolation

In total 450 cases were identified of the 742 cases attended, where non standard SAS emergency medicines, enhanced analgesia, clinical procedures and alternate care pathways were actioned by the PICT team. Specific medicines and procedures are outlined in Figures 11, 12 and 13 and the totals for those gaining ED bypass or discharge at scene in Table 1. When combined with the already identified critically unwell cohort, and duplicates from this removed, a final total of 519/826 (63%) 'appropriate' taskings were identified. These are mapped in Figure 14.

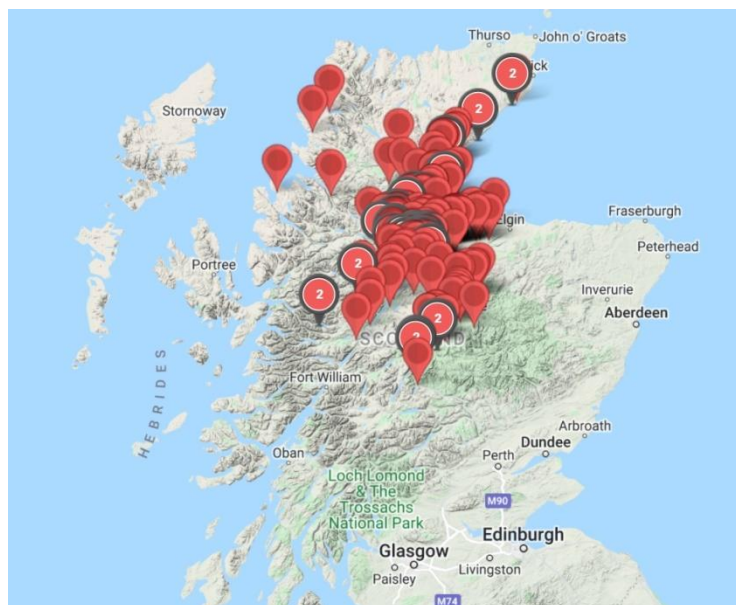


Fig 14

68 PRFs were available for analysis across the six month audit period where it was identifiable that an AP only solo response had been tasked, as opposed to the Physician/AP joint response team. The AP autonomous shifts have been introduced over that period to provide some level of added emergency cover outwith the 1100-2300 hours of the Physician/AP team.

Table 2 and 3, total and compare the relative amounts achieved for discharges at scene, ED bypass and advanced medical and surgical interventions.

Whilst important to caveat that the earlier and later hours of operations, couple with a differing tasking model may explain somewhat the differing outcomes, it should not be otherwise surprising that a Physician/AP team achieve significantly more interventions both at scene and in altered patient pathways than an AP operating in solo fashion.

Noted exception in this cohort of the only surgical airway performed by a team member in the history of the service being an AP deployed as a solo response

AP Autonomous		RATE	MEDIC/AP team		RATE
Attended	66		Attended	742	
Conveyed ED	41	62%	Conveyed ED	340	46%
Admit direct to ward	5	8%	Admit direct to ward	77	10%
Died	12		Died	53	
Discharged at Scene	8	12%	Discharged at Scene	272	37%
Stood Down	2		Stood Down	84	
Total	68		Total	826	

Table 2

Interventions Aug 21 to Feb 22	AP Autonomous	MEDIC/AP Team
Midazolam	0	22
Regional Anaesthesia	0	9
Ketamine	0	15
IN Fentanyl/Diamorph	0	8
Chest Decompression	0	2
Cardioversions	0	2
Surgical Airway	1	0
Joints Reduced	0	3
Total Interventions	1	61

Table 3

The results again give credence as to why the standard of care across the UK is the provision of a joint Physician/AP response, even in areas where APs are tasked as solo practitioners, as it allows the goal of delivering the maximum amount of advanced care available to that population to be reached.

Greater granular detail of physician contribution was sought by both APs and Physicians jointly performing a one month case sheet review of every attendance done during a single calendar month of the six month audit cycle (specific month not referenced here to provide added anonymity safeguard to the already highly anonymised free text below). The result was agreed identification of 99 cases of 133 (74%) reviewed where physician interventions at scene were described as significant to plan or outcome.

The follow up review of these cases identified 3 attendances to the ED within 7 days of discharge at scene. 1 patient was discharged from the ED and 2 admitted to specialties. There were no additional admissions to ED within 30 days from discharge at scene. There were no admissions direct to specialty within 7 days from DCAS. There was one admission direct to specialty within 30 days from discharge at scene but for a different reason from the original PICT attendance. There were no deaths within 7 days from discharge at scene and one death reported within 30 days from discharge at scene.

Table 4 free text descriptors, anonymised, of all 133 attendances along with assessment of whether physician input was of benefit allowing insight into the daily clinical caseload of the team.

RTC patient with injuries discharged at scene, avoiding unnecessary paramedic transfer to ED
Attempted hanging. Doc physical exam and psychiatric assessment plus parental liaison and managed at home.
2 yo assessed and discharged at scene, avoiding paramedic transfer ED
Prolonged seizure in complex medical patient, safety netted and plan made to discharge at scene
Intoxicated, ongoing agitation, long distance from hospital, discharged at scene by physician into care of friends
Paediatric patient discharged at scene
Non SAS formulary meds and wound closure at scene
Fragile heart failure patient, careful physician plan avoiding admission
Non SAS formulary meds
Senior review and refer to GP OOH
Child D/C at scene
Child D/C at scene
Child D/C at scene
Physician discussion with paed and referred to OOH GP
Child D/C by physician at scene
Discharged into care of prison staff, non SAS formulary meds given
Injured RTC patient but safe discharge at scene post physician examination, SAS conveyance avoided
Injured RTC patient but safe discharge at scene post physician exam, SAS conveyance avoided
Multimorbid GIH, physician coordinated AEC surgical pathway for next day, avoiding ED conveyance
Covid positive patient, physician safety netted and discharge at scene and stood down approaching ambulance
Covid positive, discharged by physician at scene
Moribund patient, diagnosed likely aspiration, IV antibiotics at scene and medical escort to resus
Doc referred directly to inpatient team, bypassing ED
Head sutured by physician at scene
Septic patient referred by physician to ward, bypassing ED
Direct referral to paed ward
Child D/C at scene.
D/C at scene despite acute delerium, following medical assessment and complex clininal safeguarding
Non SAS formulary meds (FIB nerve block)
Non SAS formulary meds (IV Mg2+)
Non SAS formulary meds, direct ITU standby resus
Physician direct referral to ward
Physician direct referral to ward
Non SAS formulary meds
IV Adrenaline, Resus standby, USS for cardiac movement.
Anticoagulated fall down large height, confusion, physician primary survey and neuro assessment with tailored prealert negated need for late night trauma call
UnwellCVA patient but physician assessment of non-thrombolysable negated need for stroke call
OD, repeated naloxone and airway manuevres, anaphylaxis, airway swelling, medical escort and resus prealert
Joint reduction procedure at scene
Open femur, sedated and reduced at scene
ROSC in OHCA however senior medical decision to palliate rather than convey, EOL care managed with family
Fall of great height. Extensive non paramedic multiagent sedation and analgesia and physician escort to resus
Toxicology induced seizures. Medical safety netting and discharge at scene avoiding paramedic transfer ED
Complex patient with APH and PROM. IV access post paramedic fail for analgesia and medical escort to labour suite with direct prealert of obstetric team
Doc referred directly to inpatient team, bypassing ED
Major polytrauma, helicopter stood down by physician to speed transfer and med escort to resus

IV access gained where paramedics unsuccessful, IVAB for open #, decision for divert to more distant MTC
Young cardiac arrest, ROSC and direct doc liasing with CCU/ED consultants with CT arranged and med escort to resus
Paramedics unable to move patient from scene due to pain. Elderly multimorbid woman, doc provided sedation and joint reduction at scene. Med escort to ED
Ankle injury with paramedics using large dose morphine, physician added non SAS ofrmulary analgesia
Physician referred directly to inpatient team, bypassing ED and gave IVABx for sepsis/delerium not available to SAS PGD due to distance restriction.
Complex paediatric patient with multiple comorbidities and requiring airway interventions and resus. Doctor escort and direct handover to paedts team.
Motorbike RTC with concerns at spinal injuries at scene, physician assessment stood down waiting helicopter and expedited medical escort to resus
Joint relocated at scene and ambulance stood down
GCS 3, airway manoeuvres at scene, multi-dosing of naloxone above allowed SAS protocols, physician facilitated RSI immediately arrival ED
Non SAS formulary analgesia for severe pain given by physician, long distance to hospital
Non SAS formulary meds
Non SAS formulary meds
Physician direct referral to ward
Physician direct referral to ward
Non SAS formulary meds
PLE at scene for very young cardiac arrest, supported crews and family with decision-making
Orthopaedic splintage at scene, non SAS formulary meds
Non SAS formulary meds
Severe anaphylaxis, non SAS formulary meds and med escort
Non sas formulary meds
IV Naloxone greater then SAS Max dose, non SAS formulary meds
Non SAS formulary meds
Non SAS formulary meds
Direct referral to paedts ward
Senior decision to PLE
Non SAS formulary meds
Non SAS analgesia
Paeds referral
ROSC, direct discussion regarding cath lab activation and med escort in
Non SAS analgesia
Life threatening asthma, physician escort and non SAS formulary meds
Physician direct referral to ward
Non SAS formulary meds
IV Adrenaline, ITU standby arranged by physician directly
Non SAS formulary
Child D/C by physician at scene
Child D/C by physician at scene
Ketamine, Non SAS analgesia
Non SAS analgesia
Non SAS analgesia
Non SAS analgesia
Traumatic Cardiac Arrest. PICT physician PLEd
MB crash in isolated locus. Polytrauma but physician primary survey allowed pragmatic extrication and escort to trauma call
Unwell neonate with resp distress, direct referal to paedts ward bypassing ED
Nearest available ambulance 30 miles away, physician discharged at scene and stood down said ambulance
Lorry v car, injured but physician primary survey allowed discharge at scene, avoiding SAS conveyance to ED
High speed RTC with no ambulance available, physician survey allowed pragmatic transfer in non A&E vehicle with medical escort

OD with nil response naloxone and no ambulance, physician assessment allowed pragmatic employment of police for complex extrication from premises allowing prompt conveyance
#NOF, non SAS analgesia (FIB nerve block)
Compromised OD, medical escort and prearranged ITU reception resus
Young cardiac arrest in remote location, physician PLE and dealt with family
Gravid patient in high speed rtc, physician survey allowed downgrading of ED trauma response
RTC, Non SAS formulary meds
<i>Fall, reported hypotensive, normotensive on arrival pict, left with SAS</i>
<i>Fall from standing, thoracic injury, left with SAS</i>
<i>Med escort to resus post naloxone</i>
<i>Abdo pain, morphine and thence ED</i>
<i>Stroke patient, nil added physician input</i>
<i>OD, nil added physician input</i>
<i>?NOF, nil physician added input</i>
<i>Physician decision making around need for CT head</i>
<i>Intoxicated, nil physicaian input added</i>
<i>Suicide attempt and intoxicated, nil physician added input</i>
<i>Epistaxis, nil added interventions at scene</i>
<i>OD, naloxone, airway manuevres, nil addit physician input</i>
<i>OD, naloxone, nil addit physician input</i>
<i>Person vs livestock, IV opioid and primary survey at scene, nil physician added input</i>
<i>Hypotensive abdo pain, nil added physician input other than fluid resus</i>
<i>Intoxicated, nil physicaian input added</i>
<i>Chest pain patient, nil added physician input</i>
<i>New pneumothorax, nil physician added input</i>
<i>Facial injuries, nil physician added input</i>
<i>Intoxicated collapse, nil added medical input</i>
<i>Minor head injury</i>
<i>Chest trauma, PICT all care but nil above paramedic level</i>
<i>RTC discharged at scene</i>
<i>Intoxicated, handed over to police, nil added physician input</i>
<i>Elderly patient in RTC cleared by physician and discharged at scene</i>
<i>Standard care, attended ED</i>
<i>URTI, paramedics needing no help</i>
<i>Chest pain, nil physician added</i>
<i>AF/CP/heart failure pt, nil added physician input</i>
<i>? Neutropenic sepsis, nil phyician input added</i>
<i>behavioural disturbance</i>
<i>multimorbid pt in rtc, nil physician added input</i>
<i>seizures, nil added physician input</i>
<i>Made own way to ED after wound dressing</i>

Table 4

1. Neagle G, Curatolo L, Ferris J, Donald M, Hearn S, Corfield AR. Epidemiology and location of primary retrieval missions in a Scottish aeromedical service. Eur J Emerg Med. 2019 Apr;26(2):123-127.