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An Evaluation of early stage development of rotating paramedic model pilot sites

Final Report

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Headline summary

What is this report about?

This report, commissioned by Health Education England, aims to evaluate the development of a rotating paramedic model of care delivery designed to address both the career aspirations of specialist paramedics and the combined workforce issues in ambulance services and primary care so that all, not just some, of the healthcare sectors can benefit. The fundamental principle of this model is that, rather than working within a single environment, a specialist or advanced paramedic can “rotate” through different sectors of the healthcare system whilst remaining employed by one employer.

What are the overall conclusions?

The rotational model represents a substantial change of service provision both in terms of scope and complexity. Rotating suitably qualified and experienced paramedics through a range of healthcare delivery settings is feasible and likely to herald benefits both in relation to recruitment and retention of Paramedics in ambulance services, as well as impacting on patient experience. This approach to integrated healthcare delivery will improve inter professional and multidisciplinary team working as well as facilitating paramedics to fully utilise their extensive skill set, knowledge and expertise without depleting ambulance services’ workforce. This can only be of benefit to patient management, experiences and potentially patient outcomes. However, there is currently insufficient data to estimate the net benefit of this work.

How did the authors reach these conclusions?

Four pilot sites were established and evaluated through a variety of means including:

- **Interviews with 30 participants from a variety of backgrounds.** Participants unanimously agreed that a rotational model should continue but there is a need for flexibility within the model to ensure that local needs are met, whether this be in choice of areas of rotation, length of rotation, or availability of model delivery. The interviews revealed that both paramedics and other healthcare professionals learned a great deal about their colleagues’ individual professional roles and that paramedics easily integrated into multi-disciplinary healthcare teams bringing expertise, knowledge and skills that are extremely relevant and versatile. The biggest concerns highlighted by staff were:
 - That this model may not be adopted across the country, which if this were to be the case was identified as a wasted opportunity
 - The need to consider a new approach to funding healthcare provision to sustain these roles
 - Particular emphasis is needed to developing the EOC component by learning from services where this has been historically well established
 - Whether this type of role should attract a higher pay band than is currently indicated
- **Quantitative analysis of pilot site activity.** Pilot sites provided aggregated early data on activity and associated processes of patient management (e.g. workload, conveyance rates, see and treat rates) as a snapshot of how rotational paramedics are managing the patients they attend. This showed, depending on call type and origin (primary care or ambulance) SPs manage a high proportion of calls in the community (70-93%) and there are early indications that hospital conveyance can be reduced within local populations where rotational paramedics are operating.

An economic evaluation has been reported separately.

Are there other specific findings?

- Freedom to develop creative and flexible rotational models has been central to the rapid implementation of the pilot sites.
- Different funding models seem to determine whether or not the paramedic will respond to Category 1 calls when not on an ambulance placement.
- No consensus as to whether this is a role for experienced paramedics or whether in the future this could be a role for new registrants as well
- Pre-registration education programmes should include placements within these settings to familiarise future workforce with working in alternative settings
- Paramedic prescribing was seen as an additional benefit to the model, although it was recognised that it may not make much difference in reality as with the expansion of the role of community pharmacist many of the issues could be managed through PGDs.
- Detailed planning for clinical governance processes, contracts and financial arrangements is needed to protect organisations and staff. Once set up these can be more easily replicated as schemes expand.
- Clarity of roles, activities and workload is crucial to developing manageable primary care and MDT components.
- Length of rotation in each component is not straightforward. Longer rotations, particularly in primary care support learning and relationship building but shorter rotations increase variety and better support shift rota patterns.

What does the report recommend?

Recommendations include:

- Extended funding to fully evaluate the impact of this new model of healthcare delivery
- Further consideration of the optimal timing and choice of rotational placements
- Further exploration as to whether this model will enhance paramedic retention and recruitment to ambulance services
- Develop some 'exemplar' sites of best practice, where a strong commitment to research and evaluation can help drive the most effective models that positively influence patient care.
- Establish work streams to promote national standards in education but maintain local control to develop relevant infrastructure and tailor the rotational model according to local healthcare need
- Carry out further research to understand the definitive impact on patient outcomes, patient experience and cost effectiveness.
- Collaborate with CCGs, STPs and other stakeholders to ensure the rotational paramedic model is integrated with strategic health plans.

1. Background

Health Education England (HEE) has embarked on a programme of work to develop a clinically effective and sustainable model to maximise the contribution of paramedics within primary care. This work fits within a broader context of both the GP2020 workforce programme and the Ambulance Improvement Programme. The impetus has come from a set of distinct but inter-related factors that have resulted in serious strain on the delivery of emergency and urgent care to the population. The main challenges are;

- Persistent annual rises in demand for emergency and urgent care services across all sectors. For ambulance services in particular this equates to a 5% increase each year.
- Congested hospitals that cause crowding in Emergency Departments an effect of which is delays in the timely handover of patients by ambulance crews which in turn reduces capacity to respond to 999 calls.
- Constrained financial resources – the 2017 National Audit Office report on ambulance services reported that over the 4 year period 2011/12 – 2015/16 financial resources had increased by 16% but activity by 30%.¹
- Substantial workforce gaps across many NHS sectors but which is particularly acute in emergency medicine (including nursing), primary care and ambulance services.

These are of course complex problems that will require multiple solutions in order to resolve them but there is one specific problem that is the focus of this work and that is the competition that has arisen for the group of specialist and advanced paramedic practitioners with expertise in the management of urgent care problems.

The year on year rises in demand for emergency ambulance services has also meant a substantial change in the case-mix of calls and as the proportion of patients calling for urgent problems has increased, those for genuinely life-threatening emergencies has decreased. As a consequence ambulance services have had to adapt. One change has been the development of specialist and advanced paramedic roles that have increased the clinical skills of a cohort of staff so that, where appropriate, they can safely assess, treat, refer or discharge patients with urgent problems without the need to take them to an emergency department. This role is not new, it has developed over the last 15 years although progress has been piecemeal, but there is a substantial body of evidence showing that specialist or advanced paramedic practitioners can provide a safe, clinically and cost effective service that is well received by patients.² This role has become all the more important as emergency and urgent care and broader national health policy has shifted towards a model of providing more care closer to home.^{3,4} It also means there is now a career pathway for paramedics that allows them to develop their clinical role and expertise whilst remaining clinically operational. However, it has also created a group of health care professionals whose skills are valued outside ambulance services and in particular by primary care where it has been recognised they can be a substantial asset to managing the primary care workload in an environment of substantial shortages of GPs. This has meant that in recent years ambulance services have seen significant attrition of their specialist workforce to other parts of the health sector including primary care, but also to other services such as disability assessment where they are offered better working conditions (no shifts) and often a higher pay band. For ambulance services this not only depletes their paramedic

workforce but also they lose their most experienced staff in whom they have made a significant financial investment to support their development. For specialist and advanced paramedics a move away from the ambulance service allows them to better use their skills (which is not always achieved when they are part of a response plan to all types of call) and a better work life balance. Yet whilst this may be the best move for some, not all specialist paramedics who have left the ambulance service have abandoned it entirely. Many retain bank contracts so that they can still do some ambulance service shifts to maintain their emergency call skills and indeed continue to do what they joined the ambulance service for in the first place but in a more controlled way. Others return after a period working in another sector. This is a gain for ambulance services but a loss for a primary care service that has also made an investment.

The picture is complex but, the attrition rates for specialist paramedics is highly suggestive of a workforce group whose career and work aspirations, in some cases, are not being met solely within an ambulance service setting. For primary care, in some instances the recruitment of specialist paramedics works to their advantage but only if they stay. More broadly, a depleted ambulance service workforce will mean that, when patients do need an emergency response, they are less likely to get this in a timely way. In essence, there is a group of health care professionals where different healthcare sectors are competing with each other for the same staff – they are all “fishing in the same pond” with an end result that, from a system perspective, there will always be a loss and a gain.

The HEE initiative to help resolve this problem is to support the development of a rotating paramedic model of care delivery. The aim is to better address both the career aspirations of specialist paramedics and the combined workforce issues in ambulance services and primary care so that all, not just some, sectors can benefit. The fundamental principle of this model is that, rather than working within a single environment, a specialist or advanced paramedic can “rotate” through different sectors of the health care system although employed by only one.

The perceived benefits are that for the specialist paramedics it provides the opportunity to further develop their urgent care skills and put them to use in areas where they are of most value so these skills are utilised across both ambulance service and primary care sectors. For ambulance services the expectation is that a rotational model will improve retention of specialist paramedic staff and better utilise their skills to respond to the right type of calls where they have most benefit. For primary care it has the potential to provide a more consistent and resilient service if they can utilise a larger cohort of staff with planned support on a continuous basis. For the health care system, at scale and in the longer term, the model should contribute to

- Increasing the number of patients who are safely and appropriately managed outside an acute hospital setting.
- Reducing the number of GP 999 calls, unnecessary ED attendances and unplanned hospital admissions.
- Improve ambulance service response to emergency calls by making more resources available through fewer hospital transfers and reducing handover delays.

For patients and their carers, there should be an increase in safe, appropriate and seamless care closer to home and improved satisfaction and experience.

In summary, the aspirations of the rotating paramedic model are to better utilise the specialist skills of advanced paramedic practitioners; deliver more care closer to home where this is clinically appropriate for patients and provide an alternative career pathway for ambulance clinicians that supports their development and provides opportunities to work across different settings rather than within a single provider organisation. To this end HEE have provided funds to a small number of pilot sites to help them develop a rotational paramedic model. As part of this process they have also commissioned an independent evaluation of these pilot sites. This report describes the early evaluation of these pilot models.

2. Aims and objectives

A long term evaluation objective would be to assess whether the rotational paramedic models achieved the intended benefits. Before impact can be measured, there are important questions that need to be addressed around the feasibility of designing, setting up and implementing the rotational paramedic model. A detailed analysis of these processes can provide valuable insights in to the practical issues which need to be considered for a successful new care model to be operationalised. This information is of value to both existing schemes where shared learning can be used to overcome problems and to the wider NHS where it can inform planning where new schemes are being developed or considered.

The pilot sites were selected and funds allocated in December 2017 with an end date of March 2018. Therefore for this first evaluation period the pilot sites have been operational for only a short period which necessitated focussing our investigation on the key issues concerned with setting up and implementing a rotational paramedic model in the HEE selected pilot sites. The overall aim is to assess if establishing a rotational model is feasible. The objectives are to explore the broad components that contribute to operational delivery of a rotational model including:

- Identifying the critical factors that contribute to the implementation of an operational rotational model in practice
- Reviewing the experiences and perceptions of specialist paramedics and related professional groups
- Exploring the scope and potential for further development and potential impact on the broader emergency and urgent care system

This is therefore primarily a descriptive study designed to identify and characterise the early experiences of the rotational paramedic pilot sites.

Terminology used in this report

The terms “specialist” and “advanced” paramedic tend to be used interchangeably to describe a paramedic with enhanced clinical skills that are additional to those gained during pre-registration training. These encompass a complex range of specialist skills and educational levels. For consistency and brevity we have used the term “specialist paramedic” to describe all enhanced practitioners except where the interpretation of data requires a distinction to be made between the different types of practitioner.

3. Methods

The pilot sites were selected in December 2017 and began operating between December 2017 and February 2018 and data has been collected for the period January to April 2018. The rotating paramedic pilot sites included have therefore been operating for a short period of time (14 weeks or less) and at small scale. We have taken a pragmatic approach to data collection and analysis in order to maximise the value of information available within this timeframe. The focus is assessing the feasibility of designing and implementing a rotational model and so we have taken a primarily qualitative approach that allows us to explore in detail the range of factors that have contributed to the successful implementation of a rotational model using the experiences of those with first-hand experience of making this happen. Conventionally, qualitative research generates large volumes of rich data that is complex and time consuming to analyse. For this project we managed analysis in a way that allows us to make sense of these experiences and identify common themes that will be of value as models progress using rapid analysis. The aim has been to generate broad headlines that need to be considered and which can be compared across the individual pilot sites to identify similarities and differences. To support this we have used a stepped approach.

Stage 1 – Development of a study framework

We developed an overarching framework to provide a structured and systematic approach to data collection and analysis. This was done in 3 ways:

- We used the rotating paramedic model describe in the HEE document “The rotating paramedic – a how to guide”⁵ as the basic conceptual framework to set out some of the key themes likely to be important. From this document we identified the suggested 3 component model of rotation through Ambulance Emergency Operations Centre, Primary care and Multidisciplinary Team (MDT) community services. We also identified broad themes set out that would need to be considered which included scope of practice within each rotation; clinical governance; identification of suitable calls; education and training requirements.
- Each pilot site had made an application and provided a high level plan setting out their intended model. We used these documents to identify additional themes which included strategic fit with ambulance service and wider urgent care system developments; partnership development; commissioning and financial considerations.
- In February 2018 a workshop was held where each of the pilot sites presented their intended model and progress. Information from these presentations and discussions were used to begin to identify subthemes of interest, for example numbers of rotational paramedics, times allocated to each rotation etc.

Stage 2 – Qualitative data collection

This framework enabled us to map the essential criteria across key themes which were then used to develop the questions for detailed interviews with key stakeholders in each pilot site. Questions were designed to explore each key theme, identify challenges and how they had been resolved, future plans and any potential risks. These interviews provided the main source of data to explore the key themes. Timing was important as the purpose was to describe the rotational models in

actual practice (rather than describing plans not yet realised). This meant we needed to give a long enough time for models to have been working but have sufficient time to analyse complex data. The pilots became operational between December 2017 and February 2018 and so the interviews were conducted in April 2018 when pilots had at least a few weeks of operational experience. We used a combination of face to face and telephone interviews, with a total of 30 interviews conducted across the pilot sites. These comprised:

- 7 Specialist paramedics and 1 Advanced Nurse Practitioner (working as an ambulance service employed advanced practitioner)
- 4 Specialist paramedic managers (including 2 rotational model clinical leads)
- 2 project leads (non-clinical)
- 4 Ambulance Service senior managers
- 2 GPs
- 8 MDT staff
- 1 practice manager
- 1 commissioner

Stage 3 – Qualitative data analysis

Interviews were audio recorded and transcribed and entered in to MAXQDA 18 software for analysing qualitative data. Qualitative data was examined by three researchers (JW, JT, PEW) for relevance to the key themes and subthemes identified in the study framework and additional subthemes identified from the data. These data were supplemented with the detailed information available in the pilot service high level plans and presentations at the February and later March workshops.

Concise descriptions of each pilot site model were constructed and we have then mapped each theme and sub-theme and compared them across the pilot sites to identify similarities and differences taking in to account contextual factors such as developmental stage and how long individual schemes have been running for. Given the time constraints we have primarily constructed summary tables to provide a high level summary of important factors and produced an overall assessment of the progress of pilot sites for each broad theme and feasibility in relation to the original conceptual framework .

Stage 4 – Quantitative analysis of pilot site activity

The qualitative work provides a description and analysis of the development and implementation of pilot site models in terms of their design and function. Pilot sites have also provided aggregated early data on activity and associated processes of patient management (e.g. workload, conveyance rates, see and treat rates) as a snapshot of how rotational paramedics are managing the patients they attend.

4. Results of qualitative analysis

The results of the qualitative work are presented using three broad headings;

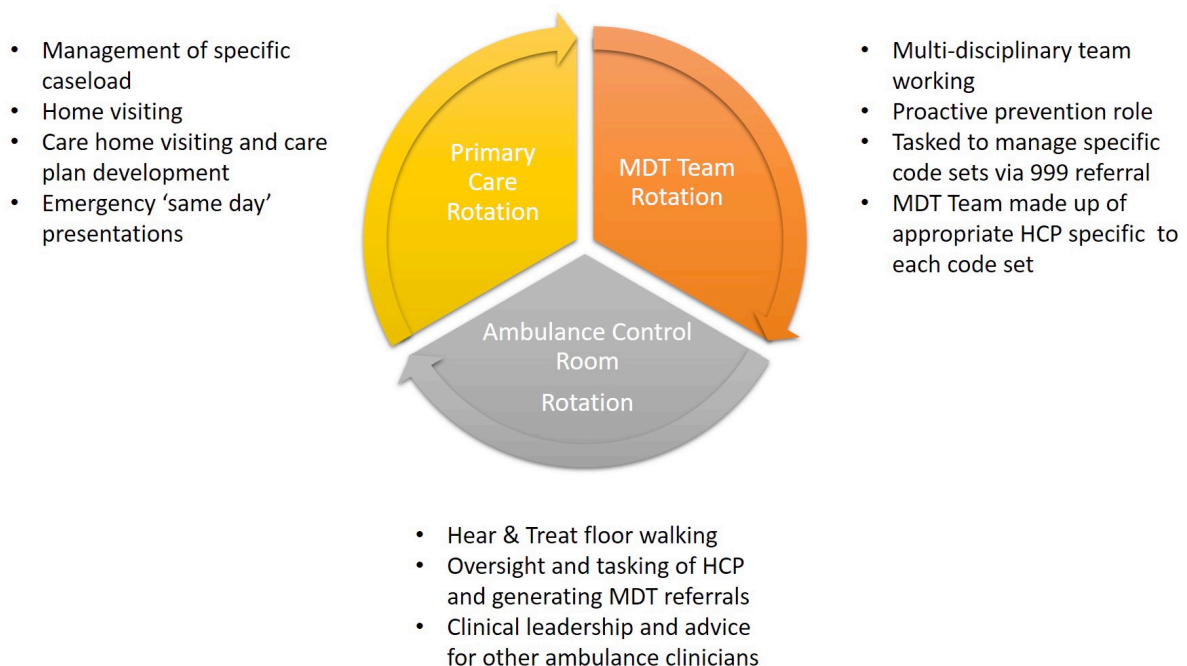
- a description of each pilot site model and a summary comparison of each model and how they “fit” with the initial suggested HEE framework
- a description and summary of the practical issues identified that are key components of turning a rotational paramedic model plan in to an operational service
- exploration of broader issues that have an impact or potential impact on future delivery and sustainability of a rotational paramedic model.

We have highlighted important factors identified across individual themes and subthemes to provide an overview of the models and important messages identified which will be of value for future decisions and development.

4.1 Pilot site models

The HEE development work provides an example rotational paramedic model illustrated in Figure 1.

Figure 1: Example rotating paramedic model.



This model is not intended to be prescriptive and is aspirational but provides a starting point for consideration of the pilot models. The overall premise is that patients get right care first time, specialist paramedics (SPs) are targeted to those patients where their skills are of most value freeing up ambulance resources and reducing hospital conveyances and managing some primary care presentations may reduce the number of requests for 999 ambulances making the urgent care system more efficient.

HEE initially awarded funds to 3 organisations to support pilot rotational schemes. One recipient (East Midlands) have used their funds to develop two distinct models in two localities and so we have described 4 rotational paramedic pilot schemes.

During the project an additional organisation (Yorkshire Ambulance Service) were also awarded funds to support development of rotational models including a primary care component in Leeds, and expansion of the existing SP scheme in Sheffield to include primary care elements. However these were not operational during the data collection period for this study and so have not been included in the analysis.

Figure 2 provides a brief description of each of the 4 pilot schemes included in the study. This reflects the planned model and not necessarily all activities or rotational components have yet been achieved. Table 1 provides a summary of key features of each model to date.

Figure 2: Description of pilot rotational schemes

South Central	South Hardwick (Derbyshire)
Developed by South Central Ambulance Service. Split between SPs primary care and ambulance operations. Primary care is home visits, urgent care clinic appointments and telephone triage. MDT component is within primary care. Ambulance operations planned as mix of EOC and frontline response to appropriate urgent care calls. Originally SE Hampshire but currently started in Reading	Developed by Hardwick CCG and East Midlands Ambulance Service. Built around SPs based within a locality MDT (SPA triage, OT, Physiotherapist, ANP, community matron, social care etc). Cases generated from SPA; direct requests for urgent visits from 3 GP surgeries; ambulance service category 4 falls and category 3 calls. Primary care component is integrated with MDT. EOC component not yet implemented.
East Lincolnshire	Newcastle
Developed by East Midlands Ambulance Service. Initial phase 1 model SPs rotating through EOC and 999 response to targeted calls. Continuous rotation by clinicians (i.e. EOC is not for a set length of time). Phase 2 SPs will rotate through 3 GP practices (including MDTs) with 5 day blocks based in practice and other weeks roving responders to GP requests within a specified area and 999 urgent calls.	Developed by North East Ambulance Service. SPs rotate on a daily basis through GP home visits, EOC and Out of Hours urgent care (MDT component) providing response to urgent care calls. The out of hours service is provided by NEAS so ambulance service based. Include more than one component within a single shift.

Table 1: Current rotational paramedic operational models

	South Central	South Hardwick (Derbyshire)	East Lincolnshire	Newcastle
Rotational model				
Primary care	Yes based in practice	Referrals from 3 practices	Yes- not practice based	Yes but based in AS
MDT	Embedded within PC	Yes based in MDT	Within PC	Out of hours urgent care
EOC	No	No	Yes	
Start date	1 st December 2017	22 nd January 2018	22 nd January 2018	February 2018
Current operation				
Primary care	1 SP in GP practice Dec 17 2 SP in GP Practice April 18 2 SP in GP Practice May 18 Mon-Fri 10:00 – 18:00	See below	4 SPs rotating through 1 GP practice in 5 day blocks each	3 Band 7 AP 1 band 6 Mon – Fri 09:30 – 17:00 GP home visits from 1 practice. Maximum 7 slots that can be booked
MDT	Embedded in Primary Care	2 SP Mon-Fri 09:00 -17:00 MDT and urgent GP referrals, Cat 4 falls Sat – Sun 09:00 -17:00 category 3 and 4 999 calls	Within primary care	Out of hours service (SP, nurses, GPs) from 18:00 Mon-Fri and Sat/Sun. Telephone triage and home visits.
EOC	Not started	Not started	4 SP (1 ANP) 7 day service 11:00 – 19:00 EOC rotational paramedic supports operational SPs by identifying suitable calls. Rotate every few days on a 4 week rota.	Mon – Fri 18:00 – 21:30 and Sat/Sun telephone triage for 999 and NHS111.
Response to 999 calls	Yes initially when service 10-2 for rest of shift. No since GP hours have extended.	Cat 4 falls. Cat 3 & 4 weekends. Cat 1 if available	Yes – urgent care calls Cat 1 if available	No
Exclusions		Under 18 years; mental health problems; palliative care requiring drugs		Under 18 years; mental health problems; palliative care requiring drugs; pregnancy

Characteristics of rotational schemes

The pilot schemes have adopted a variable and flexible approach to the development of their rotational schemes with differences in the how many components suggested by the HEE example model have been incorporated and the duration of time SPs have spent in each rotational component. There are some key messages identified from the ways these 4 schemes have implemented a rotating paramedic model.

Primary care and MDT components

There has been a liberal interpretation of primary care and MDT components. In the South Central scheme these have been considered within a primary care site which makes sense if multidisciplinary teams are based within large practices. Within the South Hardwick scheme the SPs are firmly embedded within a true MDT with the primary care component to deliver home visits linking in through this service. In reality the models reflect primary care and MDT as a “blended” component rather than two distinct and separate services. The East Lincolnshire scheme is adopting a similar approach although this was not yet operational. In contrast the Newcastle model that has identified 3 separate components with the MDT element provided by the Out of Hours (OOH) service NEAS are already contracted to provide. It is their view that tying the rotational model into existing services speeds up processes, is more efficient and reduces costs. For example, as providers of the OOH service NEAS already had access to and licences for the primary care System 1 information system and staff new how to use it which substantially reduced training and licensing costs for the GP urgent visit work

Rotational progress

For the most part the efforts so far have been based in setting up individual components to get started rather than all individual components at the same time. This is also reflected by the small numbers of SPs currently involved - larger numbers would support having staff in each component but schemes aren't large enough yet to facilitate this.

"I think the challenge is growing at a pace that it is achievable as well, in terms of the workforce that we've got at the moment. We're keen that all of our individual partnerships are a success, so we don't want to spread ourselves too thinly, and jeopardise that. So it's kind of growing at a pace, according to the starting levels that we've got in each area."

The South Central pilot has so far concentrated on developing the primary care component and getting that operational. This was seen as a priority to try and reduce the risk of GPs employing SPs themselves.

"...the reason why we put this business together was about the portfolio working. I think personally gone are the days where you joined the ambulance service, you stayed in the ambulance service until, you know, you got the bad back, mental health issues or whatever, gone are those days. But what we're now seeing is people jumping ship, but if we can keep those staff, keep those staff engaged, do the portfolio working, allow that rotation to work, we will engage and keep

*those staff, which will again benefit everybody because we're sharing a workforce but they're still staying within the ambulance service, so we're not training them up and then losing our experienced, most qualified staff, we still keep them.
So that's got to be a benefit again in terms of the whole ambulance service and in terms of education and support and systems and clinical and patient care and outcome."*

However they do envisage a two component model of Primary care then ambulance with a mix of EOC and frontline responding. Similarly the South Hardwick scheme has only developed the MDT component and the SPs there are next rotating in to an acute hospital setting rather than EOC. These first placements have been designed to keep SPs in a single component for an extended period of time so there has so far been no opportunity for rotation. However this has provided the advantage of allowing the SPs to establish themselves in a new environment, develop their working patterns and processes with their host organisations, develop their clinical skills and forge positive relationships within this new setting.

Conversely two other schemes have been rotating staff as the rotational periods have been much shorter. The East Lincolnshire pilot has rotated a group of SPs through EOC with one in EOC at all times to help improve targeting of 999 calls to the operational SPs and improve relationships and communication with EOC staff. Rotational periods are short (days) over a 4 week rota.

Although only just started the GP rotational attachment will be in 5 day blocks for 1 SP at a time with the others providing "roving" response to GP urgent requests and 999 urgent and one in EOC. This will be an example of a pool of staff rotating at frequent intervals across 3 components – GP practice; GP and 999 urgent response and EOC. Within the Newcastle model SPs rotate across components within the same day to best maximise use of their time so, for example, on a weekday 12 hour shift an SP will do 8 hours GP visits then 4 hours telephone triage in EOC. Weekend and night shifts are a mix of EOC and OOH so rotating through 2 components on a shift by shift basis. These models provide variety for staff and consistent exposure to the different components without long gaps away from any individual component.

Primary care scope of practice

There are differences in the scope of work for the primary care component. The South Central model includes being based solely within a GP practice for several months and carrying out a mix of home visits, practice consultations and telephone triage. The South Hardwick pilot enables GPs from 3 practices to directly request home visits only from the SP based in the MDT. In both of these schemes it was thought that having the SPs available to start home visiting early in the day helps smooth demand for urgent ambulance requests for those who do need to go to hospital reducing the afternoon spike which occurs when home visits by GPs don't start until late morning or early afternoon. The East Lincolnshire model will be a hybrid of practice based work and GP home visits whereas the Newcastle model has very tightly controlled the GP component by currently providing a maximum number (7) of GP home visits only from a single practice. There were differing views on the scope of primary care practice with some thinking clinic working valuable whereas others thought rapidly turning around patients in 10 minute appointments could potentially lead to SPs becoming burnt out and disillusioned unless the workload is well managed and controlled. A clear

message from the pilot schemes that did emerge was that scope of practice, tasks and activities need to be clear and agreed from the outset and that good support and mentorship is in place.

"Because one of the things that is evidence is that when our clinicians do rotate in to primary care, they need good support and mentorship from the GPs, and from the practices, to, I suppose, improve their confidence and capabilities. So, if you are simply filling a gap, then you're not necessarily going to get that support." (Amb: Senior Manager)

Availability for 999 calls

There are differences in the extent to which each scheme has embedded response to 999 calls. In South Central SPs rotating through the primary care component do not respond to any 999 calls. Similarly in Newcastle the SPs on the rotational model are not included in the 999 operational plans. In Hardwick and East Lincolnshire there is some provision for SPs to respond to urgent 999 calls relevant to their skills. In South Hardwick this is confined to category 4 falls on weekdays and category 3 and 4 calls at weekends although referrals have been low. In East Lincolnshire the larger pool of SPs respond to suitable 999 calls supported by the SP on rotation through EOC. In both of these pilot sites SPs can be asked to respond to category 1 calls if they are available and there is no other resource. In practice the SPs have reported they are rarely asked to respond to category 1 calls.

Availability for 999 calls also highlighted two related issues;

- Whether SP staff wear ambulance uniform or not - There were mixed views and policies on whether SPs wear ambulance uniform or not. As a general rule, where SPs were not responding to 999 calls (so out of plan) and based solely in primary care the preference was to not wear uniform as this was less confusing for patients and conformed to the same rules as other professional groups working in surgeries although this was not universal. If SPs were responding to 999 calls, either as a targeted response to low category urgent calls or, infrequently, a category 1 call then they did wear uniform. The decision about whether or not uniform is used is dependent on the rotational element and if the scope of work includes providing an ambulance response.
- Types of vehicle – related to uniform is also whether SPs work using an ambulance vehicle or unmarked cars and similar principles apply in that where SPs are providing an ambulance response to urgent calls then ambulance vehicles are used. Where a primary care based service is being provided this was variable. The South Central scheme does use SPs in ambulance vehicles (and uniform) on the basis that there may be instances where they are in the vicinity of a serious emergency and should be able to respond to that and have the equipment to manage it. In contrast, the Newcastle scheme only uses lease cars with basic equipment to provide the GP home visiting service. This is far less costly than an ambulance vehicle and also ensures the home visiting service isn't compromised by SPs being diverted to ambulance calls.

Working patterns

In all of the schemes the SPs are ambulance service employees with annualised rotas. There was variation in how this has been implemented depending on the rotational component. The South Central scheme which has concentrated on developing the primary care element predominantly uses a 5 day rota that fits with primary care working hours with occasional ambulance shifts to make

up hours. Staff valued the ambulance shifts as they felt it important to maintain their emergency skills. The other 3 schemes used 7 day rotas (although in the East Lincolnshire scheme the planned Primary care element includes a 5 day period based in a GP surgery then 7 days when providing a combined GP home visit and ambulance urgent care response). The Newcastle scheme utilises the 7 day rota by incorporating all 3 components in to the rota to ensure SPs are utilised effectively by, for example, providing GP out of hours responses (the MDT component) at nights and weekends and a 7 day presence in EOC. The South Hardwick scheme also used a 7 day rota but had less success in terms of effective utilisation of the SPs particularly at weekends, in part because the targeting of suitable category 3 and 4 calls was not very effective. The lesson learned from this site is that for 7 day working there needs to be some clear identification and planning of likely workloads out of hours and mechanisms put in place to support allocation of appropriate referrals. They have considered a range of options to improve this in the future including better referral of Category 3 and 4 calls by EOC, which should be helped when there is a big enough pool of SPs to include an EOC rotational component, but also exploring the scope to manage direct referrals from other sources such as NHS111 and nursing homes.

Summary of operational model findings

The basic design and operation of the 4 rotational paramedic pilot schemes have each evolved quite differently although the components suggested in the example model described by HEE have all been included in different combinations. Each pilot has been creative in beginning to operate a model that fits with local demand, existing partnerships and available staff. This is seen as a benefit by the participants and this flexibility is seen by the stakeholders as essential to the success of an operational rotational model.

Participants stressed the need to have a national model with flexibility to tailor the infrastructure to meet local healthcare and operational needs. There are elements of all three suggested components across the sites but not always a clear distinction between them with some creative thinking around combining primary care and MDT elements. There is also no obvious consensus around how long each rotational component should be with marked variation in how this has materialised in operation ranging from months to days and again the need for flexibility on this issue is important.

"I think that's potentially a slight difficulty in terms of developing rotational models and I think we are kind of at the start of a journey in a way in that there seems to be quite a want from the GPs and those working in primary care, that they seem to want to get to know the practitioners and they want that kind of longevity in terms of time of getting to know them over a period of weeks, months, potentially four to six months to kind of get to know the practitioners and embed them with in the surgery. But then from an ambulance service perspective in terms of rotation that limits the number of people that are rotating within that scheme initially. So if we only put one or two people into a surgery to rotate for six months, then actually if you've got 12 practitioners say based on a station near that surgery it's going to take a number of years before each of those practitioners has had an opportunity to rotate."

"obviously we've had to kind of go down this model of having them embedded in there for six months so that the GPs can get to know them and things like that. I think going forward I think as we build that trust with GPs I think those rotations need to be a lot shorter, because otherwise I think if they do six months but then don't go in again for another two and a half

years whilst you are waiting for other practitioners to rotate into there, they'll have lost that knowledge and skill. So I do think that that moving forward, once that establishment and rapport has been built we need to find a way to make going through the different environments more fluid or much shorter, whether it be one week in, one week out. One week in ambulance work, one week in primary care work, one week in control, one week in an acute sector, or whether it changes on a daily basis or weekly basis or monthly basis."

The initial findings suggest that there is no single preferable model and indeed a degree of flexibility has allowed these pilot sites to move forward in a very short space of time. With respect to the MDT/primary care element length of rotation may be related to the planned work and activities. Where SPs are embedded in primary care there was some concordance that a minimum of 3 months is needed to make best use of learning and establish new working practices. However, where an ambulance service is providing a GP home visiting service combined with other rotational elements within the same day, as in the Newcastle scheme, there is no dedicated time spent within a single element but of course experience is built as this happens on a continuous rota so there is no time away from that element where skills might be lost.

"Yes, I don't think I could cope with doing a big massive block all in one go and then having to rotate, because if there is a favourite bit, or a bit that you're not so keen on, then you just feel like-, but if it's turned over a little bit quicker, then you don't mind so much, because then you know that once you've got those shifts out the way then you're on to the next bit. Yes, and I suppose if you're doing the primary care stuff, if you left it for a while, you might think you'd be need to be catching up on your skills again. Whereas this way, we're doing it all the time"

The length of the EOC component raised some important issues which are discussed in more detail in the next section but there was a clear message that EOC work is better suited to short periods within a rota combined with frontline SP response than long blocks of weeks or months. Each has their own potential advantages and disadvantages and a more rigid requirement may well have thwarted progress. The ability to adapt and flexibly respond by developing models, or first steps in models, that have practically allowed them to move beyond an idea and to have SPs beginning to work in selected components or to rotate in shorter timeframes than originally envisaged is probably necessary to move the rotating paramedic model forward.

"so for our qualified, so once they've qualified we're saying 'Actually, 50% of the year needs to be in a collaborative working partnership' personally I don't mind what that looks like, providing it works financially and from a rota point of view, it's obviously the biggest thing. So, if a specialist said 'Actually, six weeks at a time works really well for me to go and work in a GP surgery' and then come out and then go back or whatever, and that works."

"So I think trying to find...optimise a way to maintain frequent contact I think and finding that optimal model is quite difficult. I think you almost need to be dipping in and out on a fairly frequent basis from the standard ambulance work to be able to maintain those skills and confidence and just be able to walk in on day one, get on with doing telephone triage or to be able to go into primary care or an acute sector, so that you are not having that skill and

knowledge degradation when you are not there, if that makes sense. What that optimal model is and how you make that work I think is probably going to be the biggest challenge”.

Length of rotation can be tailored to local needs, the service specifications being offered and the pool of staff available to rotate. Each rotational model has had advantages, whether it be providing a long enough period to establish SP working in a new environment or shift based rotation at short intervals to support working through multiple components on a regular basis. In the longer term a hybrid may be needed where a longer initial period is needed to consolidate new skills in primary care or MDT but subsequent rotations could be shorter. Periods may also be influenced by There are also potential disadvantages to both models but the pilot schemes where planned rotational have most likely not been operating for long enough for these to become apparent. This is particularly true of the schemes where SPs have been dedicated to a single component and it would be interesting to re-visit the schemes after they have been operating for 12-18 months to see what features emerge when comparing models with long and short rotational elements.

Important factors for consideration when setting up a rotational model are highlighted in Figure 3.

Figure 3: Factors relevant to establishing a rotational paramedic model

- Flexibility in development of rotational elements
- When limited resources or numbers of staff concentrate efforts on developing single elements well rather than trying to develop all rotational elements at once
- Some blending of Primary care and MDT can be more efficient where there is mixed teams and potential for across service working
- EOC may need to be combined with frontline response as an ambulance component rather than just EOC
- Primary care working out of plan and protected from 999 response may be better with staff out of uniform
- Use of lease cars may be more cost effective for out of plan primary care response
- Rotational components that include some ambulance response work will need staff to be in uniform and using ambulance vehicles
- Rota decisions need to be flexed to support the workload of each component. This may mean different periods within different elements
- Where 7 day working is required consideration and planning needs to be given to ensuring SPs are used efficiently out of hours (nights and weekends) either by frequency of rotation through services that operate 24/7 or exploring direct referral pathways from sources other than 999 to best utilise SP urgent care skills

4.2 Factors and practical considerations related to implementation

We identified a set of key themes and subthemes related to the development and practical implementation of the rotational paramedic pilot schemes. These are summarised in tables 2 and 3. For simplicity we have reported general findings where there was consensus across the pilot sites and supplemented these with experiences from individual sites where appropriate.

Table 2: Key themes on recruitment and staff

	Challenges	Solutions	Benefits	Risks
Recruitment	<p>All services reported a significant loss of existing specialist and advanced practitioners to other sectors.</p> <p>Retaining existing staff before they leave. Attracting new staff or those that had left with a better offer than had previously been available.</p> <p>Individual SP and AP staff reported that they felt their skills were not being properly utilised which caused them frustration and demotivated them. They saw this as a way to change this so they could better practice their urgent care skills.</p> <p>Loss of income from shift allowances and daytime only fixed shifts was a concern for some staff.</p>	<p>Increasing SP training posts.</p> <p>Including advanced practitioner nurses.</p> <p>Creating attractive job descriptions that enabled real portfolio working and opportunities to further advance urgent care skills.</p> <p>Re-banding posts – Primarily band 7 for APs and band 6 for SPs as trainees.</p> <p>Rotas that include 12 hour shifts and weekend working where feasible.</p>	<p>No pilot schemes reported difficulties in recruitment.</p> <p>All of them reported an increase in enquiries from SP and AP staff who had left. The rotational scheme appears to fill a gap that was unavailable to former staff and provides the opportunities and scope of practice they previously felt was missing.</p> <p>For more recently qualified staff provides a pathway to specialist career development which may in the longer term enable them to stay within the ambulance service but practice their specialist skills.</p>	<p>Few risks were identified. The main one was that Primary Care may still recruit staff to work exclusively in their organisations with contracts at a band 8.</p> <p>Where weekend and out of hours working is included in rotas there has to be sufficient workload to justify the SP post and it needs to be financially viable.</p>

<p>Staff skills and training</p>	<p>There was very clear consensus across the pilots about the skill levels required and the need to provide accredited training,</p> <p>There were some concerns about the capacity of Primary Care to provide sufficient placements and mentorship to provide training places as SPs will be competing with other HCPs and GP trainees.</p>	<p>Schemes were using national or locally based University led programmes to provide post graduate programmes using the College of Paramedics framework (PGCert/PG Diploma and MSc).</p> <p>Processes have been negotiated with multiple GP Practices to provide placements and ongoing supervision to a controlled small number currently in training.</p>	<p>Provides a clear and rigorous training programme.</p> <p>Provides a clinical career pathway for those paramedics that want to progress.</p> <p>Allows development of a range of extended clinical skills.</p>	<p>Increasing the specialist paramedic workforce will put pressure on training placements where there will be competition with other HCP groups.</p> <p>This will increase if urgent care becomes a bigger focus in undergraduate paramedic training.</p> <p>There were related diverging views around providing newly qualified paramedics with more urgent care skills to support see and treat. Some thought this could be within scope whereas others saw this as very much within the domain of specialist practice.</p> <p>Some rotational paramedics will still want to retain their emergency work skills and this needs to be considered and incorporated in to rotas if needed.</p> <p>Not all specialist paramedics will want to rotate and so careful recruitment of those</p>
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Table 3: Key themes on clinical governance, contracting and finance

	Challenges	Solutions	Benefits	Risks
Clinical governance	Clarity around responsibilities for clinical governance across different services. Clarity around scope of practice in different settings.	All services had found that having a single ambulance service employer had made managing the clinical governance process easier. For primary care/ MDT rotations the ambulance service remains the employer with services contracted out. Where SPs are based with GP practices the practices provide clinical oversight. All managers and SPs were very clear that the rotational paramedics only work within their scope of practice and agreed protocols and PGDs or drugs This had made clear the working boundaries.	Avoids having multiple governance arrangements and responsibilities for different components with consequent risk this is not adequately addressed and managed. Clear boundaries for SPs on their scope of practice in different settings. Clinical oversight in GP practices was seen as a real advantage by SPs as both a learning opportunity and maintaining confidence in clinical skills. Debrief sessions after patient contacts was commonly cited as very important.	No significant risks relating to clinical governance were identified.
Contracting	Development of contracts that clarify arrangements about scope and duties, activity, employment contracts, indemnity and	Various solutions have been employed including memorandum of understanding and template contracts (for example	Time consuming to set up but template approaches mean subsequent contracting processes are much quicker.	Insufficient consideration of contracting arrangements exposes all organisations and individual practitioners to risk.

	insurance, VAT, partnerships.	between ambulance service and GP practices. Contracts need to be adapted depending on whether is individual practices of CCGs to cover multiple practices. Appropriate risk assessments and advice taken from NHS Resolutions. Where possible build on existing contracts.	Tie in to existing arrangements is cost saving (for example in Newcastle the existing indemnity and insurance arrangements for providing the out of hours service were sufficient to cover the rotational model)	Lack of clarity on what will be provided and how much risks increasing and unsustainable workloads. Lack of boundaries on scope of practice puts SPs at risk of being asked to do work outside their scope of practice.
Financing	The main challenges have been around establishing who will pay for the different elements of the rotational model including; Loss of staff from the main ambulance workforce if they will not be responding to core 999 work Education and training of SPs – both the academic component and clinical placements Provision of staff in non-ambulance services (Primary Care and MDT)	Of the 4 pilots the South East Hampshire model is the only one that, from the outset, has created a financial model where GP practices pay for the rotational paramedics while they are within the practice. It is also the only one currently where the primary care rotational element is for a substantial block of time. This charging mechanism is allowing it to continue to expand. All other pilots have absorbed costs using the HEE pilot money but this creates uncertainty about continuation in the future.	The South East Hampshire model has clear advantages in that charging for SP services in primary care offsets the costs of replacing them in the general 999 pool. Consideration of what needs to be provided can produce costs savings. In the Newcastle scheme using basic lease cars and equipment rather than expensive ambulance response vehicles for GP home visiting has proved an effective way of reducing costs.	Schemes so far have progressed because there has been no or minimal cost to external services. The true cost of services needs to be determined and presented to Primary care and MDT services (or CCGs) in a way that demonstrates value for money and persuades them they are worth investing in. Uncertainty and short term arrangements will thwart the continuation of some schemes and may see them stop altogether. It may well be that cost savings occur elsewhere in

			<p>Over time, if some of the potential benefits are realised for ambulance services – fewer primary care requests for 999 ambulances, more calls managed by single response SPs or resolved through telephone clinical assessment then some costs may be recouped but this would need to be at scale.</p>	<p>the system – for example by reducing unplanned hospital admissions. This needs to be better understood to accurately map costs which when understood could justify additional ambulance service investment to support the rotational model.</p>
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Key learning points

All of the rotational paramedic schemes have faced challenges in getting their first rotational elements up and running but they have found solutions.

Contracting and clinical governance arrangements

A common theme in the interviews was the short timescales needed to resolve important issues like contracting and clinical governance arrangements and this did lead to some delays but working through these processes has led to solutions that will make subsequent arrangements quicker and more streamlined. It has also been important to understand and explore exactly what services are needed that the rotational scheme can support.

"So, if we get the working practices actually established with somewhere that's working well, then we can take our services to the other surgeries rather than sort of disrupting all three of them, we can just hone our sort of working practices in one and then move that as a package to the other two."

"I think that's one thing that I wanted to get away from in terms of I didn't want to be too didactic when I went to those organisations; I went in with 'What do you want? What are you looking for, and is that something we can adapt or change?' so that's the model I've taken or approach I've taken.

I've not gone in, I've said 'We're here to do collaborative working' but I haven't said anything more than that. I've gone in and said 'Okay, what are you looking for? What do you want? What's your biggest problem? Is it your home visits, or is it your telephone triage, or is it your face-to-face consultations and having that, needing somebody to...? Or is it your respiratory clinic, you haven't got anyone that can do that or your chronic illness clinic management?' So, I guess that's the thing that might be different is I'm having that conversation with the practice managers or the senior partners and saying 'What is it you want? What's your gap?' and then I'm saying 'Okay, we can deliver that' or 'Actually, we can deliver that but we need a bit of support from you, X, Y, Z'."

It was also emphasised that in the early stages collaborating with well performing GP practices was important as this helped the SPs learn more and get the right level of mentorship. There was a clear message that support for struggling practices should come once experience and good processes are in place. The need to make roles and scope of practice clear from the outset was also emphasised.

"the contact that the paramedics have with GPs in terms of prior to going out and a debrief when they come back is most valuable. And I know that there are other models out there where they work a bit more remotely and are given a visit list and very occasionally will liaise with the GP. Just in my personal opinion I don't think that enhances learning or the MDT working".

"These GPs are so different, they're so positive, they are still motivated about their jobs. They

know their patients and they are a good example of really good GPs. And I know the idea is that eventually we will be - I think the idea is that you focus is in poorly-performing GP surgeries, where we could probably make the most difference. But it's good to get in to see how things should be done, and can be done, to then be able to identify... Because there are ... practices, I think there is some fluctuation between performance, and we are in the best-performing one. And the idea is we will then move on to the others, and see if we can make a difference in those one." SP

"There's got to be the initial support from the GPs, basically. And that time at the beginning to - for them to assess you, and for you to ask questions about their role, and see where you fit in. And from then on, if you're ringing up a GP, say, and I'm seeing this, this and this, they know you, they know what you're capable of and there isn't just that risk of being put into a surgery and used straightaway for everything, and anything, and being asked to do things outside your scope. So it's got to have that support at the beginning, really, of them seeing exactly where you are, I think,"

Staff recruitment

A very positive finding was the amount of interest in the rotational posts from both existing ambulance staff and, reportedly, those who had left indicating that, from a paramedic perspective, this is seen as a much needed step forward as a clinical career pathway.

"...the reason why we put this business together was about the portfolio working. I think personally gone are the days where you joined the ambulance service, you stayed in the ambulance service until, you know, you got the bad back, mental health issues or whatever, gone are those days.

But what we're now seeing is people jumping ship, but if we can keep those staff, keep those staff engaged, do the portfolio working, allow that rotation to work, we will engage and keep those staff, which will again benefit everybody because we're sharing a workforce but they're still staying within the ambulance service, so we're not training them up and then losing our experienced, most qualified staff, we still keep them.

So that's got to be a benefit again in terms of the whole ambulance service and in terms of education and support and systems and clinical and patient care and outcome".

"We've actually - we ran a recruitment campaign back in November for a trainee specialist, and we're then sending them on their training, which is actually in their own time, but we provide the placements. Yeah, and the support of the support, obviously. And that had a really good response, and we had a mixture of internal and external applicants. And then we've actually just gone out to advert again, so we've slightly revamped and revised the role to fit in with our project, and the enhanced requirement for rotation of working. So the job description and personnel spec reviewed, and it's been re-banded as a seven. So we've just gone out again with two adverts: one, looking for a qualified Band 7 staff, hoping that we might attract back, and attract some new qualified staff. And then we've gone out with another trainee advert as well, and I think both of them have had a pretty good response so far".

"So we've also had ECPs who have left who are now starting to knock on our door to say 'We are hearing it is now running, please would you keep us abreast because actually if the organisation is serious about this role again we would actually like to come back.' And these are people we would welcome back with open arms that we should never have lost in the first place."

The issue of what pay band specialist and advanced paramedics are employed as was mentioned frequently. Within the pilot schemes the early cohorts have been band 6 specialist paramedics and band 7 advanced paramedics but there was recognition that there is work to be done in properly banding posts, particularly if the retention aspect is to be addressed. This is a complex area but there was consensus that, as an overall strategy, band 6 specialists are considered training posts with supervision and mentorship from band 7s and studying for or holding post registration certificate or diploma level qualifications. Band 7 are the advanced paramedic practitioners studying for or qualified to postgraduate Masters level although there was some variability in expected post registration qualification at each band. A common theme across all schemes was the availability of existing post registration courses within their localities and a movement towards the adoption of the College of Paramedics Diploma in Primary and Urgent Care. This is currently in development with an expectation that it will be validated by the RCGP.

Looking forward, two issues were raised. Firstly that some consideration needs to be given to providing some scope for further career development and creating rotating posts at the higher band 8 if the ambulance service is to remain competitive with primary care.

"I don't know it's trying to achieve, because what you're doing is upskilling Band 7s who are looking for Band 8 jobs, you upskill them and give them clinical skills, diagnostic skills, examination skills, they are going to move on and unless EMAS and unless the ambulance service pays them a Band 8 they're just going to move on and they're going to get jobs in GP practices"

"I think obviously potentially the banding and the pay reward needs to reflect that as a career progression I think. And again that comes back then to the whole funding model doesn't it I think essentially. So I think the whole career framework and supervision and the mentorship would then all kind of fit together. So I think in my eyes I see the paramedics are Band 6 now, moving forward entry to practitioner level work, whether it be in primary or critical care is a PGDip, PGCert level which marries that of the College of Paramedics career framework. As a specialist practitioner at Band 7 potentially, you will have your PGDip or PGCert and then potentially moving forward those that want to progress on to full Masters level, attain their full Masters, classed as an advanced practitioner then at full Masters level. That equally then attracts a higher banding at 8A and provides that incentive to go on to be an advanced practitioner and equally then as you have your advanced practitioners that provides your mentorship and support structure for those specialist practitioners at 7 as well, so then it all kind of filters down the chain I think in terms of preparation moving forward. Does that make sense?"

Secondly a much broader issue of providing rotational opportunities for student and newly qualified staff, not so they operate as specialist rotating paramedics but as a way of developing a pipeline of staff who have had placements and some experience of other work sectors such as primary care and EOC which may then encourage them to take up specialist training and stay within the ambulance service as more career pathways become available to them.

Finance and funding

The most complex issue and the one that poses most risk to the continued development of the models is that of finding sustainable ways to fund a rotational paramedic programme. In the short term there is a sense that, at least in some schemes, until either a longer period of funding is made available from HEE or another source to support continued development and operation, the schemes will at least pause while financial solutions are found and if this cannot be overcome may stop.

"We've got the funding...so we've got funding for another month but that leaves me with a bit of a problem whereby I can't...because what I would like to do is because the numbers the last couple of weeks have started to drop a little because we are coming out of winter, I would like to go with confidence, we've got funding for X amount of time, can we take another couple of practices on in the short term. But what I need to understand is...for a practice it's a difficult sell for me to say 'Actually would you want to do this scheme or this pilot for three to four weeks?' " I just can't recruit them because they're just going to turn round and say well that's a lot of changes in pathways and working processes, a lot of effort for three weeks' worth of work, so that is the issue I've got at the moment."

Financial stability is needed not only to support the existing models but also to further develop and expand them. It is difficult to arrange partnerships with other services for short periods of a few weeks with no guarantee a rotation will continue beyond that.

The South Central model has overcome this by making the Primary Care rotational component a service that has to be paid for from the outset. This has entailed undertaking detailed costings of all elements of the service.

"Yeah, exactly. Yeah, funding is the biggest issue and we are on a, as I say, it's the chicken and the egg and it is in terms of making this sustainable. And that's the reason why we're charging, and some people I've given them the charges and they've said 'I can't pay that. I can get a locum for that' and I get that, but it's about economy of scale, it's about how we do that and how we can tweak our prices, what support and funding is there, you know, in the wider economy.

But I guess the selling point for us saying that this cost does include your first-line management, your professional management, your indemnity, your insurance, your competencies to ensure that they're up to date, your DBS checks, your national insurance contributions, your pension contributions..... equipment, your insurance, exactly, your fuel, all of this stuff. So, when, I guess what I'm trying to say is those schemes that have gone on board are those practice managers I've been able to have that conversation with and say 'Okay, just go away, look at what it would cost you for all of this and then come back and compare what we're charging'.

And actually, on reflection it's much the same, it's just certainly GPs see the bottom figure and they say 'I can get a locum for that' or 'I can employ a paramedic directly' and by all means, yeah, they can, but in terms of that line management, in terms of taking out annual leave, in terms of all of that stuff, they don't or haven't considered, is a big, big thing."

They seem to have no shortage of "customers" for this service although it is also true that some have been lost when it became clear the service was not free.

"Well, we've tried involving commissioners, we've tried going to GP surgeries individually. Some of them have expressed interest, but then we've got a cost framework set up, and once they've seen our framework, haven't been interested in proceeding. So that's been quite a challenge".

Other schemes are unsure if their primary care partners will be willing to pay for home visiting once the current service funded by HEE pilot site money ends. They are however quite clear that the true costs of providing a service need to be well thought out so that there is a strong negotiating tool which shows potential primary care partners the actual costs of a service over and above simple "employing a locum".

Some participants suggested that there needs to be a practical and cultural shift in perceptions of funding and that new ways of funding need to be developed alongside these new ways of working.

"the skillset is right with some minor tweaking and some minor education, but that's not insurmountable. But certainly the bottom line is who is paying for it I think and how you develop that funding model so that you can have people sat under one NHS provider but have a portfolio career and the money has got to flow somehow to that one NHS provider so that they can provide those services to other providers. Because until the finances in place it won't work I don't think. The finance has to work somehow to make it run. As much as I don't like it being about money it is."

"The CCG, the CCG who I work for, are again very positive and supportive of this. But I think that we - again, to add momentum, to add some clarity and almost credib-...not credibility, because it doesn't need that, but fiscal sort of credibility, if you like, to it. We need to - the commissioners need to commission in a different way. I'm not sure what that is, but they need to commission this role, or this arrangement somehow to integrate that the funding does come from primary care and ambulance.....They need to start looking in the next round of commissioning, how are we going to do this? And I know it's in its infancy, but that can't wait because it will give people the ability to say we can't afford this, we're paying for this. It may be working, but we're paying for this, so that really needs settling down. So they need to commission ambulance services in a different way. I'm not sure what they are at the moment, to be honest, but they need to commission it in a different way".

There remain tensions between ambulance services and their willingness to fund staff who are outside the frontline workforce responding to 999 calls.

"So we need to hold our nerve and say, right, these four people, or these ten people - taking them out - nothing to do with the ambulance service. We're going to train them, we're going to support them, we're going to lead them and we'll reap the rewards. Or you can say we'll take these ten people out of the equation, demand gets high and we're saying we're sorry, we're going to put you back in the stack, so you just lose your mojo, I suppose."

There are also questions particularly around the primary care element as GPs are already resourced to provide primary care services.

Where this is supplemented by paramedics on rotation there is uncertainty about how much CCGs will want contribute – it may be economically sensible if it achieves intended benefits such as reducing hospital admissions but there is also an argument that primary care is potentially being paid twice to provide one service.

"For me there is a lot of interest being generated by this already and I think news is spreading fast. I have already started to talk to and I'm presenting to two A&E delivery boards around the concept and early findings of the model, and what I want to do is I'm not suggesting that this is a panacea, but what I'm suggesting is that this is an option that we might wish to consider going into next winter and where the commissioners might wish to look at, where their areas of greatest need are, because we've been very clear with the practice this is not to do their work, this is to pick up unmet need. And they are very clear on that because they are also talking to the commissioners about what this pilot is and is not doing for them, because they were nervous that somebody would come to them and say you are actually using somebody else to do your core business. So we're both very clear on that and I think we've been really useful."

Without resolution of these issues there will be a serious risk that rotational models will not operate for long enough periods to develop, mature and grow to a level where tangible benefits can be realised.

The qualitative data and feedback at rotational paramedic pilot workshops provided a rich source of information in terms of lessons learned on the practical implementation. A summary of practical issues is provided in Figures 4 and 5.

Figure 4: Practical issues related to implementation

- Single employer makes overall management of clinical governance easier
- For the primary care/MDT component GP oversight is important
- Contracts need to clarify clear boundaries on scope of practice, activities and workload
- Explore what services are needed and where there are gaps in provision locally so a rotational solution can be tailored
- Template contracts and memorandum of understanding improve processes and make new contracting simpler as schemes expand
- Where possible build on existing contracts to simplify processes
- Conduct rigorous risk assessment using existing support systems such as NHS Resolutions
- Consider the impact of loss of workforce on core 999 work if taken out of plan
- Build business cases that justify investment in training and employment of staff outside the 999 workforce
- Make provision for ongoing staff training and educational consolidation in contracts
- Consider using lease cars and equipment requirement for SPs working out of 999 plan
- Establish from outset which elements of the rotational model need to be paid for as additional to existing Ambulance Service contract
- In the longer term more work is needed to understand costs and the shifts in costs across the urgent care system as these may not always be visible (e.g. if savings are in hospital from reduced unplanned admissions)

Figure 5: Practical issues related to recruitment

- Consider capacity within primary care to provide clinical supervision and placements for specialist training
- Build in training and supervision time
- Set out the case for portfolio working, career development and expansion of skills not just a rotational post job to attract existing staff and potential returners
- Review scope and expectations of posts and band appropriately
- Rotas may need to be flexible and tailored depending on rotational component and individual preferences for 5 day or 7 day work and shift patterns
- Rotational elements may need to be flexible if there are components staff do not want to do
- Provide internal support networks for new cohorts or teams of rotational paramedics as they move to new ways of working

4.3 Broad issues identified by key stakeholders

The detailed interviews revealed a number of broader issues related to the experiences resulting from implementing the first stages of a rotational model which reflect benefits and potential further challenges and solutions.

Partnerships between ambulance service and MDT

The experiences recounted were overwhelmingly positive. Interviewees felt real strides had been made in understanding each other's work. Paramedics understand better what primary care and multidisciplinary teams do and primary care and MDT better understood the skill sets and scope of practice of the SPs and had become confident in their abilities which in turn improved SPs confidence.

"It's increased my clinical knowledge. It's increased my knowledge of the operational day-to-days of a GP surgery. It's increased my understanding of the pressures on a GP, as an individual, and the pressures on a GP surgery, as a group. And I think it has - it's increased my understanding of the whole NHS, and we moan about the fact that why is it taking so long for me to get this referral to come through? But you don't understand some of the links that these have to go through to get to where they get to.

Commissioning, for example, and does a GP have to justify that referral?[....] If I'm applying for that for my patient, I've got to pay for it. We don't understand that - well, I never did anyway. So it does - anything that increases understanding between parts of the NHS, has got to be a good thing. We don't realise the demands on other parts of the NHS."

"I mean it's opened their eyes toand the ambulance service, let alone the sort of clinical skills that we actually have, how to best utilise the ambulance service in future to get the best out of the ambulance service for what they need. At times they've thought that dialling 999 is the best was forward for them and actually it's not because they're then graded on the ARP system whereas if it's a clinician-to-clinician call it's a totally better result"

"From a wider thinking the advanced paramedic has added value to that team, it has added value to primary care in that particular area. So from my point of view, do I see a future role of the advanced practitioner in the MDT? Without a shadow of a doubt. And I think it's completely changed the thinking of the CCGs. The CCGs before this model were all about advanced nurse practitioners, now we've actually brought the skills to the table of the AP as well who will have a different way of working, a different way of thinking. So yeah, it's certainly brought to the table in the strategic thinking about that urgent care within the community, the role of what the AP has got to give"

The SPs were seen as real asset to the primary care and MDT settings and in one scheme they had added value by providing BLS/ALS training and reviewing emergency equipment. Both parties felt they had learned from each other. In the South Hardwick pilot the MDT team had begun to utilise the SPs for advice and to share visits. There were some challenges identified predominantly that the experiences had been so positive there is a danger that the model can become a "victim of its own

success” and create demand that can’t be fulfilled or is used inappropriately to fill gaps in other services.

“The MDT and the primary care, again, is an important part, but one area that I would like to see is greater clarity and purpose for that area of rotation, you know, because I’m mindful that some areas may have seen... that it, effectively, has added just a bit more extra capacity to primary care rather than, I suppose, filling in the true gap in patient need and I think we just need to understand what the primary care element of rotation would give and whether... whether it is a paramedic that is offering something to the care pathway, or whether it’s, I suppose, you know, filling a gap that we need to fill in another way. Because one of the things that is evidence is that when our clinicians do rotate in to primary care, they need good support and mentorship from the GPs, and from the practices, to, I suppose, improve their confidence and capabilities. So, if you are simply filling a gap, then you’re not necessarily going to get that support”.

There was also awareness that shifting demand creates extra work in some areas and this needs to be factored in to planning. For example, the routing of GP urgent home visits through the MDT single point of access system creates extra calls that have to be managed by the existing telephone triage resources. As the pilot is still small scale this had been absorbed but if the numbers of SPs and GP practices increases extra telephone handling resources may need consideration.

Emergency Operations Centre (EOC)

Overall, the EOC component seems to be the most problematic part and there was less enthusiasm for this component amongst the SPs. They understand value of identifying potential hear and treat and see and treat calls and supporting EOC and crews.

“The area that I see really mixed views about is the EOC, the control room element. Again, within EMAS, we had a well-established clinical assessment team, so they were focusing on the ‘hear and treat’ of patients, and we performed really well. So, it was quite difficult to quantify what benefits that the rotation pilot would bring to EOC. Would it further enhance that capability? Or would it cause a confused and mixed identity? So, I personally feel that the EOC rotation is valuable, but, again, we need to be absolutely clear on what the objectives of that are. I think if it’s part of a rotation package, it would work really well, but I think what we found, in such a short period of time, was that it is hard to quantify or clarify what benefits it bringsfor me, that’s why I would want an absolute clear sense of purpose, as to what it is aiming to achieve.”

“No, I wouldn’t walk away from the way that the job is actually working, because for years once the targets for ambulance response came in I did believe that an ambulance on every corner was the only way forward. But now it’s actually frustrating to see the change in the nature of calls and they’re totally inappropriate for ambulance calls.

So, to be able to do something about that for two thirds of the rotation and actually put up with EOC, then I probably would.

And I do feel as well that once EOC is up and running properly, if we got more ECPs to

actually look for jobs and dispatch and we get more involvement with the hear-and-treat side of things, because I was a little bit wary about doing that and saying 'You don't need an ambulance' not knowing what parameters I was working within. So, I think once it actually becomes established as the full EOC rotation, then it might be different. I think you're going to be very busy and also very useful. But for what we were actually doing, it was not something I really sort of enjoyed."

However the prospect of long blocks of time spent only in EOC was not popular. Some expressed the view that they would tolerate it – particularly if it was mixed with some front line responding to SP appropriate calls but in one or two cases a long period in EOC would be enough to stop them considering a rotational post.

"I think on a timescale thing, if you did three months on the road, and three months in one of these kind of facilities [GP surgery/MDT], but I don't think you'd want to do three months in an EOC. That you'd want a much shorter timeframe, because it's just so demanding and stressful".

The value of the EOC component may also be dependent on the existing clinical capacity. One view expressed that in EOCs where there are large clinical assessment teams of clinicians then effort would be better spent supporting existing clinical staff to better identify SP suitable calls. There were also some apparent tensions with existing EOC staff and an amount of encroaching on territories. However this was not universal and another view was that SP time in EOC had built relationships, better understanding and better matching of calls to SP skills which is already seeing benefits.

"But in terms of the conversations that we had in EOC and the understanding that we actually built up and the rapport with the staff, I think in that respect it was very useful to change the EOC sort of process of job, send. There were actually, obviously ARPs made a difference to this, but they were actually now able to discuss with us and say 'Well, yeah, send an ECP', I can see it's going to save a crew and if it's an appropriate job it's saving a crew and an ECP. So, yeah, the working relationship we built up, it was definitely worthwhile having that contact with EOC.

And the clinical side of our experience, that they were actually asking questions and using our knowledge to further what they were doing. So, in that respect, yes, it was very useful." (SP)

These are a small number of opinions so we cannot generalise but they were very consistent and it does highlight that when planning and moving forward the EOC element needs careful consideration both in terms of length of rotational time and how this might be mixed with patient contact work. In the Newcastle scheme there is already rotation through EOC and as these are short periods shared amongst the current cohort of staff and were already quite well embedded were seen as less difficult. The East Lincolnshire site has also been rotating SPs through EOC but for short rostered periods.

In one site with a small number of rotational paramedics based in MDT there was a recognition that some tasking to urgent (category 3 and 4) calls had not happened because the links to EOC were poor but there was not a sufficient number of SPs to include an EOC element and that this could improve when capacity increases to support EOC SP working.

"Now what I would say is that if you had a link in the EOC, somebody who was taking those jobs off the pile or off the workload then we could make better use of that resource in the community, and I think that would be something whereby... I know that EMAS have got a clinical navigator which isn't part of this project working in there. I think there's a real opportunity there because I think there's a real link there. So in terms of an urgent care need, in terms of reducing non-elective admissions, reducing a conveyance of an ambulance, we can only stop those conveyance of ambulances if we can crack that EOC and I don't think we've done that yet with this model".

In one site there was also recognition that better communication might have improved the EOC experience for both the SPs and other EOC staff.

"And I think that's the bit, when I reflect back because looking backwards into Phase 1, did we really set out very clearly what it was we were doing, both to the ECPs and to the rest of the organisation? Because you then get into that picture, particularly in EOC of an ECP going in and then saying 'Well what are you doing here?' and it's that level of education. And I think had we done a little bit more in terms of actually publicising internally what we were trying to do I suspect that the level of support...well the level of understanding would have been greater and therefore the level of support would have been better."

Specialist and advanced paramedics working in EOC is not a new innovation and a number of ambulance services have been utilising specialist staff in this role for many years. Yorkshire Ambulance Service (YAS) are one of the HEE funded pilot sites and although the rotational models have not yet started, this is a service that has employed a substantial number specialist paramedics within an operating model of SPs working in EOC as part of a standardised rota. Their 10 years of experience have helped identify a number of strategies that can help support developing the EOC component. Key principles are empowering the EOC SP to manage the SP workforce and ensuring a variety of tasks can be utilised so that best use is made of the EOC SP. This is particularly important where numbers of SPs in a pool or locality who are being tasked to urgent calls is small as the corresponding workload is also small. At the other end of the scale YAS have also recognised and started to plan ahead for the likely changes and increase in workload that will arise as the rotational schemes expand and new staff will rotate in to EOC. They have also recognised, as has been apparent in the pilot sites, that there can remain tensions between different groups of EOC staff which may not always be resolved and that there may be some rotational SPs that do not want to work in EOC and this will need to be taken in to consideration when designing rotational elements for some individuals. Nevertheless they have identified a number of strategies that might prove helpful in developing an EOC component. These are summarised in Figure 6.

Figure 6: Strategies that can support development of an EOC component

- Roster time to match SP shifts
- Dedicated desk with dedicated telephone number (not in a corner at the back of the room)
- Empower to manage own clinical team
- Specify tasks to provide variety, use of clinical expertise and provide sufficient work. These can include:
 - Tasking SPs
 - Hear and treat (to fit with other clinical hub expertise)
 - Providing specialist advice to direct calls from nursing homes and GPs who can call the SP desk
 - Providing clinical advice and support to frontline crews who need reassurance for non-conveyance decisions
 - At times of peak demand scanning call stacks for call backs and clinical advice
- Supportive information and communication with other EOC staff to clarify role
- As demand increases identify call types with high non-conveyance and develop clinical criteria for dispatchers to flag suitable calls for SP allocation
- As schemes expand consider area desks to manage sectors and pools of SPs

This may be the component that will be most difficult one to get right and will need some creative thinking and flexibility but there are established strategies that can help with development.

Specialist and advanced paramedics experiences

There was universal consensus from the SPs about the value of the primary care and MDT components. They felt they were using skills more appropriately, skills were improving and they were continuing to learn – the latter being an important factor when considering whether to stay within an ambulance service or not.

“I think the pilot we've run, the doctors have been very, very, very supportive, and they've taken time on the phone to go through things with us, explained different conditions and their red flag markers, and gone through those with us. And they have been very, very good, but I think if you haven't got that and you were just ringing up, and you were just getting the bare minimum, I think it would be nice to have some sort of supervision. I think it's not really caused us a problem here, because they've been so good”.

“Yeah, fantastic. The surgery is absolutely brilliant. They've welcomed us, they're a really well-performing surgery, which is really slick in how they operate. And not to know a great deal about GP surgeries, but that's the instant impression that you get. So, it's an absolutely pleasure to work there.”

“If nothing else, if it's not what you're actually learning in the GP surgery it's the confidence that I feel that I'm now getting back in being able to manage patients in a better way. It's almost a feeling like I've got some clinical support, especially if it's within the surgery

hours, I've got some clinical support there that is at hand, you had that before on the road but perhaps in a little bit more impersonal way. It was a case of phone the GP and then you were having to actually establish a rapport with that GP, whereas that is actually in place and you just phone up and say 'Hi, it's, right, what have you got?' they know who you are, how you work, and they probably know the patients anyway. So actually yeah, it is a two-way thing"

The Rotational model is very appealing and those currently involved were really enthusiastic and see it as a positive step and one which will encourage them to stay within the ambulance service as it gives them a clearly defined career pathway in clinical practice which allows them to grow and develop. For some it has been a way of returning to what they have been trained to do.

"So I've been getting frustrated for a while about this going out to patients, and taking them to hospital and then trying to sort of get people to see things in other ways: you can improve patient care keeping them at home. So then this pilot came up and it was just like it was written for me to go and do, so I applied for it..."

One issue that did arise was the speed with which the pilot sites had been set up and implemented. Respondents recognised why this had happened but SPs and primary care respondents did comment that, for future cohorts as schemes build it would be helpful to have some more time to familiarise themselves with their new working environment and get to know the teams they would be working with.

"No, it was like here's the paramedics, they're starting on Monday. Okay, what are they doing?"

I think, myself, it'd be preparing the teams before they come. Introducing them a little bit more, and saying what their role is going to be. So that staff know, and they know and then they can develop in that way, and all join forces. So it's, how shall I say? So everybody's singing from the same hymn sheet. But I think, yeah, it needs to be planned a little bit more than just Friday coming, oh, they're starting Monday. Okay, what are they doing? And we didn't know how long they were going to be stopping".

"I think you need, before you start, to spend a bit of time shadowing each one of the multidisciplinary professionals, just to spend a day with them just to see what they can actually do and what the scope is, we've kind of learnt that as we've gone along....".

They felt that working in the primary care or MDT setting had forged valuable links and relationships which they would continue to utilise when working in an ambulance response setting as these would help them increase see and treat and hear and treat by building community pathways and referral links. This also has the benefit of SPs being able to provide support to non-specialist crews when they are making decisions about whether to transport patients or request SP assessment. This will be an important benefit as the major urgent care policy agenda is to manage more patients outside hospital but research has shown the decision making process for paramedics around whether or not to take a patient to hospital has significant risk⁶. Senior clinician support will help frontline ambulance crews make better conveyance decisions.

“Yeah, so when I come back on the frontline, I kind of think of not whether I should refer this to a GP, but whether I should refer this to a GP and what are they going to do, and what am I expecting the GP to do. So it's the further management of it, at almost a point that you couldn't rec-...because sometimes a GP would turn around and go, well, what do you want me to do with this? Just if it's a difficult situation, and it's also you can then pre-empt that and say, well, actually, can we not do this, this and this? And it may work, it may not work, and some GPs are offended, but some have quite open arms and think, actually, that's a good idea.”

“those GP patients within that - the cohort of patients - naturally I'm going to see those patients while I'm in the ambulance service. And now I feel - and certainly as we carry on the GP rotation, is have that confidence to speak to GPs and say it's ..., and I've done x, y and z, and I want to do x, y and z, will you support me with that, or is there anything you want me to do differently? I've got that confidence to do that, and I probably - it probably would give me the confidence now to speak to other GPs. Whereas before I'm very respectful, and I would ring up and bow down to their better knowledge all the time. But there are GPs out there that are quite resistant, so, yeah, it would give me some foundations to build on with regards to talking to other GPs.”

“So it's - but it's about one of the key roles for APs, when they're back in the ambulance, and not just when they're back in the ambulance, but predominantly when they're back in the ambulance environment, is giving other ambulance staff, technicians, paramedics, to me, giving them direct access to them. Almost as if you were asking for advice from a GP, to avoid this, let's just load them up and go, and that's still going, that still goes on”.

They also saw their increased capability to arrange direct admissions as a valuable way of diverting patients away from ED. They are already seeing scope for further expansion and contribution for example by creating direct referrals to SPs from nursing homes rather than using 999, and also a SP referral disposition from 111 (rather than ambulance). This was seen as one way to increase weekend and out of hours work when GP home visiting decreases and which would make 7 day service working more viable.

Paramedic prescribing

There were mixed views about the likely impact of introducing paramedic prescribing. Some participants thought this would further enhance their scope of practice and increase efficiency as it would reduce the number of cases they had to refer to another HCP or GP for prescribing. Others thought it wouldn't make a huge difference as the number of relevant additional drugs was unlikely to expand much beyond current practice and this could be covered through PGDs. One risk that was identified is that some services are already getting enquiries from GPs about Advanced Practitioners with independent prescribing skills which may result in more specialists leaving the ambulance service for primary care if alternative career options are not available to them.

Strategy and fit with strategic plans

Senior ambulance managers revealed some interesting views on how they had had to build their cases for support and investment in the rotational paramedic model. There is a complex history attached to the development of advanced paramedic practice and variation in how this has been embraced at an organisational level. Some ambulance services had heavily invested in developing advanced practice at the time this began to evolve in the early and mid 2000s (the Emergency Care Practitioner – ECP schemes) but at that time there was no clear career framework and in many cases ECPs had either not been properly utilised or, as demand and pressures have increased, had become absorbed in to general 999 response work. Much of ambulance operations and strategic priorities have remained driven by response time targets. This created the environment that has led to many specialist practitioners leaving the ambulance service and it has therefore been difficult to persuade services to further invest in a specialist workforce where another sector, particularly primary care, can reap the benefits at no cost. The persuasive arguments have centred on a) with a supportive career pathway such as the rotational model then it is much more likely these specialists will stay in the ambulance service b) they will support better alignment of the right response to the revised call categories introduced as part of the ambulance response programme and c) there is increasing focus from both NHS England and local systems (either through CCGs, STPs or ACOs) on increasing hear and treat and see and treat and this will influence commissioning and funding decisions.

"So, subsequently then there's been no real hard and fast rule about what a specialist should do and what they should develop.

So, thought about how we, how I could maybe convince the Trust and the organisation to change direction and reinvest in that, and the only way really was about if it was financially viable and there wasn't a loss like they'd had before in terms of the outset. So previously it was agreed that they would pay for backfill, they would pay for their time at university, all of these things, they would pay for their placements and plus the cost of the course. So, it was a massive cost and I totally understand why the Trust made that decision not to spend any more money.

So, I put a proposal to the board, it in principle was agreed but they wanted to look at the figures, wasn't sure that it would overtly work, but were looking at something new and different if it did work.

So, we went away, looked at figures again and how this would work, and just finalised it, did a bit of scoping, looked at what interest there was out there and took that back to the board and the board approved this project to go ahead".

"I know the ambulance service needs to do things differently, I know, at times, it's a big leap of faith, but we also need, you know, the stakeholders, commissioners, people to buy in to the concept, as well. Because, you know, we've only got a finite amount of resources across the system, but we've got probably a growing number of patients, and we need to best meet their needs, in the best possible way. So, I think just by being a little bit creative, and doing things differently, you know, we can get a lot of good results. But we just need to, like I say, take stock of the fact that it's been a very short pilot, we haven't got everything right, we might need to do things a little bit differently, you know, if we continue, or if we scale it up, but actually, it's a really compelling argument to people. It's really hard not to... not to, I suppose, think that this is the right direction that we're heading in."

For the most part engagement with the broader system organisations has been a valuable part of the process as it has helped identify potential benefits across the urgent care system. This has been persuasive in both developing business cases and helping identify funding as the entire burden of training and provision of SPs and APs cannot lie with ambulance services alone or at least within their existing budgets. Interestingly one pilot scheme has taken a different stance and has developed a model that is entirely determined by the ambulance service and not CCGs. They have done this so that they retain control of exactly what activities they can and can't provide as they see a risk in contracting a service at a CCG level as operating areas become too big and the service becomes less efficient if SPs have to cover long distances (i.e. each SP then sees substantially fewer cases). Their preference is to contract with individual GP practices or GP federations and to contract for a very specific amount of activity.

Others are taking the view that, in the longer term as schemes expand a move to pools of staff working across a number of GP practices may be a better way of managing the primary care and MDT components so that there is better resilience for covering annual leave, sickness and staff training although this conflicts with the desire of primary care to maintain individual relationships and knowing people. Whichever view is taken there is a clear message about organising at locality level to keep models big enough that they are sustainable and effective but small enough to keep strong and trusted relationships.

There was also a clear view that the rotational paramedic model should avoid just being a solution to provide extra capacity for failing services as SPs won't get the support they need. However it was recognised there is scope for selective targeting of practices where the model may have most impact, for example, those with high 999 urgent requests. There were also some innovative forward thinking ideas about how, in the future with larger cohorts of SPs there is huge scope to improve direct working between SPs based in MDTs or community based services and wider integrated care teams supporting primary care nursing homes.

Code sets for identifying SP relevant urgent 999 calls

A key activity identified in the HEE documents on developing a rotational scheme is the identification of suitable triage codes for targeting SPs responding to urgent 999 calls. However there was little discussion in the interviews about this aspect. This may be because the EOC component is the least developed component. Where this has been in place work already done this has improved – not just for rotating SPs but also other SPs doing 999 response as not all SPs will be rotating. The South Hardwick pilot had identified 999 Category 4 falls as suitable for response in hours and 999 Category 3 and 4 calls at weekends but very few referrals had been made to the SPs. However there were only 2 SPs and none as yet in EOC so there has been no opportunity for an EOC rotational paramedic to influence this. Identification of suitable SP calls is discussed in more detail in the next section.

Information systems

There were some discussions about information systems particularly where a mix of ambulance service and primary care records are used as there are cumbersome processes in linking these up or transferring between systems. This also has a bearing on rotational patterns as there is an element of gaining experience and confidence in using different information systems.

"I think some of the things that don't work so well, for me, because I'm only in there once a week, is the systems, learning the systems to be able to come back and you come back in, and you've got to find a room, you've got to find a computer. You've got to remember how that system works when you haven't used it for ten days. It's something that you've never had - physiotherapy referral, ah, I know I can do one, but I can't remember how. It's those types of things that if we put our people in there full-time or maybe three days a week, they will get to know their systems better. And we're only - I only work between two surgeries, and those two surgeries have two different systems. So it's - and then it's a different system here, so you're logging...oh right, what's my log on for this one? Oh, but what's my log on for that one? Okay, oh, that one doesn't do this, that one does. So it's systems. It would be lovely if all GP surgeries used the same system. I think that would make life easier. I think it just means that more people can get seen, more patients get more time from, hopefully, the most relevant clinician".

Future solutions will be needed to streamline these processes and improve accessibility to different systems. There were also difficulties in recording and generating the system information needed to measure impact and outcomes although the pilot schemes have been proactive in adopting a standardised simple smartsheet data capture process to enable them record and analyse their workload, casemix and patient management decisions . Some have started to go further and examine the rotational SP work in the context the contribution to the larger overall 999 workload in their localities. Others have started to look in more detail at locality demand profiles to see where SPs can make the most difference. Data capture from different component sources will need to be a key consideration for future planning and measurement of impact and benefits.

Overall, the experiences of the 4 pilot schemes have been extremely positive. There is no doubt that very significant amounts of work have been done to move each scheme from a plan to an operational service. They have overcome practical problems but it is important to also highlight the wider issues that have come to light which have both contributed to successful implementation and which may require careful management in the future. A major value that is evident from the qualitative data is the clear benefit the process of setting up and implementing these pilot schemes has had on generating positive relationships across the different sectors. These benefit not only the pilot schemes operations but are a real step forward in beginning to foster much better understanding and collaborative relationships across organisations that have predominantly worked independently of each other in the past and has the potential to influence urgent care system development at a much broader level than the rotating paramedic programme.

. "I guess benefits {for ambulance service} is about that collaborative working, it's about the understanding, it's about the networking, it's about building up that rapport, it's about maintaining staff, so it's about retention, retention is a big thing. It's about portfolio working, it's about giving staff, clinicians the opportunity to learn and develop as part of an MDT. But equally, those skills they have learnt in primary care, transferring them back to the operational frontline service. So, I think again it's a two-way thing in terms of learning, I think it's been really valuable for all of those things, as I say, for shared learning, for shared treatment, for shared protocols, for understanding referral pathways, for confidence gaining. Generally, I think the biggest thing that's helped is that rapport, is that understanding what a GP does and can do and equally them understanding what we can do and what our strengths

and weaknesses are and building up that really good rapport with them. I think that's invaluable in terms of that side of things"

"Yes. It's interesting that, our lead commissioner for the is CCG, and are also the area that we're working in, so we've kind of got some real good GP advocates, who kind of want to work with the ambulance service, want to work with, in a different way. So, it's been really positive from the commissioners, and I think, you know, that... that's helped build some good relationships, as well, that I think will take us beyond just doing this pilot, it will kind of be an enabler for other stuff within the urgent and emergency care agenda".

"And there's some fabulous stuff out there, there really is and I just hope nationally or locally, or whatever, we don't miss a trick on this one. Because out of 36 years, and, obviously, the first 15/20 years of those we were basic ambulance men before paramedic training came in. But I have never known it so close to something quite innovative, but also... And I'm biased, because some of the primary care colleagues I worked with when I was in commissioning, etcetera, and we've got good relationships with the GPs. But I've never known such a positive and productive, and fertile relationship between ourselves and primary care. And it'll only spread, I think. And my real worry is that because we've got that engagement now, if we don't carry this on, I'm frightened we'll lose that. Not just the engagement but a little bit of respect".

"I just think it's a great opportunity. I think what enthuses me, is that I've seen like a glimpse of what could be done before and this is far better - the rotation is, it's ideal. I think we know where the challenges are going to be, and they don't worry me as long as we've got the data that proves it. I suppose the thing that worries me is it's a relatively small, short pilot, and that'll be easier for the naysayers to pour doubt on it. But I suppose going back to, well, at the end what happens, I'd like to be in a position where we can say, look, this has worked, let's keep these guys doing what they're doing, even if it's just four or five of them. And then we can work out what is the workforce development, going forward."

"I suppose where I'd like to say with the context, I think there needs to be a recognition of the timescales, of where we've come from. I'm very proud of the team of where we've turned this round from...well, the end of December to getting something up and running by the end of January..."

5. Pilot schemes activity and processes

5.1 Potential call population

Prior to beginning the rotational paramedic pilot models HEE collected basic call type by volume data from all services across the UK. Each service provided numbers of calls for the 10 most frequently occurring call types. This was to illustrate the potential for increasing the number of calls managed closer to home and reducing 999 demand if there is a stable and reliable specialist and advanced paramedic workforce across the urgent care system. To provide context the most common call types by volume are presented in Tables 5 and 6. Two call triage systems for assessing 999 calls are currently used across the UK – NHS Pathways and the Advanced Medical Priority Dispatch System (AMPDS). Each system varies in the description of call types so the results are presented separately for each system. Only results for England are presented as total call volumes were required to calculate the proportion of all calls for each call type and this information is available from the NHS England Ambulance Quality Indicators. Only services returning complete data are reported.

For all services the largest call type as a proportion of all calls were referrals from NHS111 (range 10.3% - 22.4%). These calls have already been triaged as requiring an ambulance response and are not recorded by problem type. We have excluded these and shown the 9 most common call types by number of call and proportion of all calls. For proportions we have shown call types in terms of rank by colour - the 3 most common types red; largest categories ranked 4-6 orange and largest categories ranked 7-9 in green.

Table 5: Nine most frequently used call types NHS Pathways services

Call type	Total calls 2016/17	% of total call volume	Total calls 2016/17	% of total call volume
	SECAMB		WMAS	
Trauma	100032	17.9%	115616	14.5%
999 HCP	60433	10.8%	45982	5.8%
Medical	58414	10.4%	34498	4.3%
PREALERT	43737	7.8%		
Generally unwell	43123	7.7%		
Falls <12ft	41061	7.3%	45120	5.7%
Chest pain/cardiac problem	36406	6.5%	92490	11.6%
NHS111 (Manual entry)	32632	5.8%		
Stroke/neurological	32187	5.8%	31379	3.9%
Breathing problems			87909	11.0%
Abdominal pain			39784	5.0%
Medical minor			70683	8.9%
Unconscious			35742	4.5%

Table 6: Nine most frequently used call types AMPDS services

	Total calls 2016/17	% of total call volume	Total calls 2016/17 ¹	% of total call volume	Total calls 2016/17	% of total call volume	Total calls 2016/17	% of total call volume	Total calls 2016/17	% of total call volume
	NWAS		SWAST		EEAST		LAS		YAS	
999 HCP	78929	8.8%	6623	17.2%	110796	18.7%	106625	9.6%	82215	16.0%
Falls	72451	8.1%	5318	13.8%	115921	19.6%	123407	11.1%	96901	18.8%
Breathing problems	51752	5.8%	3345	8.7%	66538	11.2%	111772	10.1%	59574	11.6%
Top 3 total		22.7%		39.7%		49.5%		30.8%		46.4%
Chest pain	46015	5.1%	3151	8.2%	63273	10.7%	93806	8.4%	58655	11.4%
Unconscious/fainting	41304	4.6%	2775	7.2%	41789	7.1%	93325	8.4%	40119	7.8%
Sick person	37164	4.1%	1870	4.8%	39575	6.7%	61870	5.6%	43656	8.5%
Psychiatric/suicide attempt	27732	3.1%							20337	4.0%
Convulsions /fitting	26665	3.0%	1513	3.9%	28936	4.9%	39983	3.6%	25995	5.1%
Overdose/poisoning	20520	2.3%								
Not recorded/unknown			2688	7.0%			96156	8.7%		
Haemorrhage/lacerations			1280	3.3%	22233	3.8%	32750	2.9%		
Stroke					21859	3.7%				
Traumatic injuries									19849	3.9%

¹ 4 weeks only Nov-Dec 2016

There are some differences between the two systems reflecting differences in how calls are described and recorded. Data was available for only 2 NHS pathways services and there is a larger number of call type descriptions so it is difficult to make comparisons and identify common themes. The SECAMB data includes calls by operational factors (Pre-alert and some NHS 111 calls which don't reflect problem type. However, considering these are the most common call types there are groups of calls that appear within the highest call volumes in both services – trauma; HCP 999 calls; medical problems; falls and chest pain.

The AMPDS services provide a better illustration of common call types as there is a more structured and consistent process for recording call types. The table shows there is remarkable consistency in the 3 most frequent types of calls – HCP 999 calls, falls and breathing problems. These 3 call types alone account for between 23% and 50% of all 999 activity and these are call types where specialist and advanced paramedic skills could be used to provide appropriate care without the need for a hospital attendance for some calls. Of course there are some call types where an emergency response and likely transport to hospital will be needed and these feature in the 9 most common call types, particularly chest pain and unconsciousness. However other call types such as “sick person” also feature in all services most common call types and these may be rich in cases where specialist skills may be of value. Data from Wales, Scotland and Northern Island also showed that HCP 999 calls and falls were the two largest groups of calls followed by breathing problems or sick person.

The purpose of reviewing the most common call types was to provide some context for the potential within the 999 call workload to manage some calls differently and there are clearly some high volume groups of calls where this is possible. However, it is important not to over-interpret this potential. Within each group, for example falls or breathing problems, there will be a range of acuities and some patients will still need emergency care and hospital care. Others could be ideal candidates for SP and AP care and management in the community. Similarly, HCP 999 calls account for an average 12.4% of 999 activity (range 5.8% - 18.7%). One perceived benefit of the rotating paramedic model is that by increasing capacity within primary care some of these calls can be diverted away from 999. What is unclear at the moment is what proportion this is likely to apply to as some will need an ambulance response. In looking at reducing demand the capacity to achieve this also needs to be taken in to account – the call volumes presented in the table are of the order of 10's of thousands so, a small number of specialist practitioners in pilot schemes will make no discernible impact on these numbers at an ambulance service or regional level but there may be more value in examining this in localities served by SP rotational schemes. Benefit will only be measurable when there is a better understanding of the proportion of calls that are the target population and to some extent this will only become apparent as pilot schemes operate over time so that these factors can be measured more accurately.

5.2 Pilot scheme activity

To support the description of how the pilot schemes have been operating during the initial few weeks we have reported a summary of early activity using aggregated data supplied by the 4 pilot models. This is primarily process data of activity volumes and patient management processes.

South Central

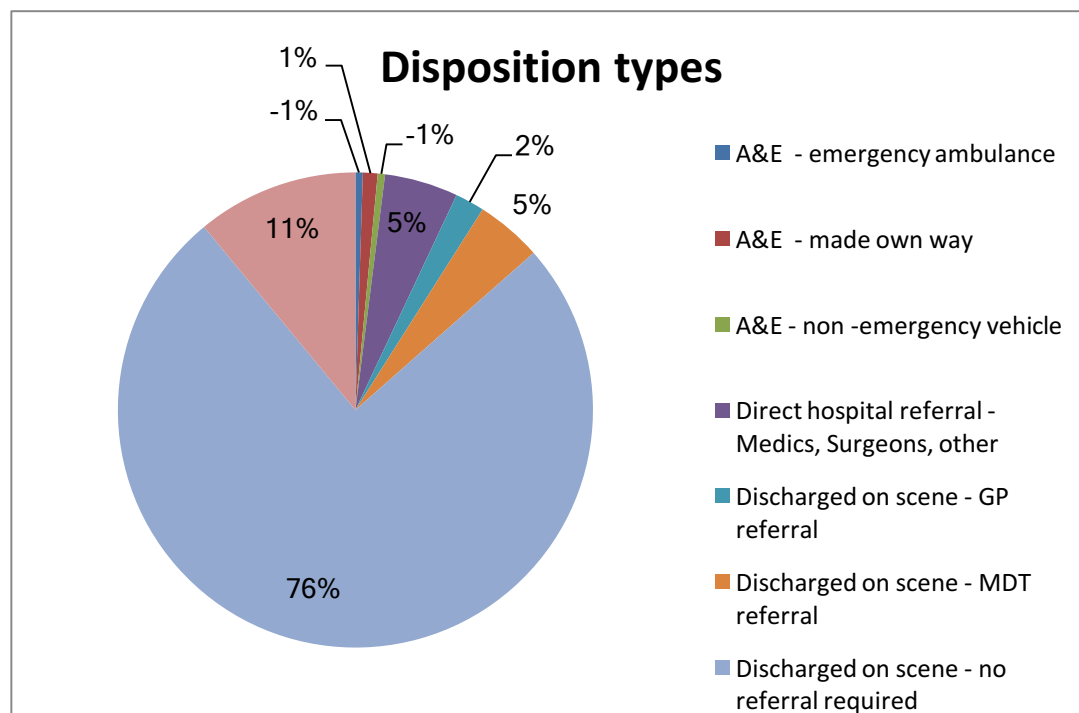
The South Central pilot team provided summary data for 200 patient contacts at one GP surgery for the period 12/12/17 – 25/4/18 although there were 49 days data missing which may be up to 250 patients. This provides a snapshot of activity and dispositions in a primary care rotation component (Table 7, Figure 7).

Table 7: Summary of activity and case type in one GP practice

	Number (%)
Contact type	
Home visit	174 (87%)
GP surgery	18 (9%)
Missing	8(4%)
Patient characteristics	
Female	125 (62.5%)
Male	70 (35%)
Missing	5 (2.8%)
<i>Age Group(years)</i>	
1-5	8 (4%)
6-60	20 (10%)
>60	164 (82%)
Missing	8 (4%)
Disposition	
A&E – emergency ambulance	1 (0.5%)
A&E – made own way	2 (1%)
A&E – non-emergency ambulance	1 (0.5%)
Direct hospital referral	10 (5%)
Discharged on scene – GP referral	4 (2%)
Discharged on scene – MDT referral	9 (4.5%)
Discharged on scene – no referral required	151 (75.5%)
Missing	22 (11%)

The majority of the workload was home visits. Patients were predominantly female and over 80% were aged over 60 years. In just over half of patients (107) no drugs were given and for 75 cases a prescription from another HPC or GP was needed. Only 2% of patients were directed to ED and half of these made their own way with 5% requiring a direct hospital referral. Overall, of cases where disposition was recorded, 93.3% did not require a transfer by ambulance.

Figure 7: Proportions of calls with each disposition type South Central



East Lincolnshire

The East Lincolnshire pilot has provided a picture of the effects of rotating a SP through EOC on hear and treat and see and treat rates for emergency and urgent calls. The pilot has only been running for a small number of weeks and these crude changes against the preceding year have not been adjusted for other factors that may affect disposition type but they do provide an indication of the direction of travel. All call volumes are for the operational area of the pilot service. (Tables 8 & 9).

Table 8: Change in activity by disposition for 999/111/HCP calls

Disposal Type	Preceding year 23.07.16 - 13.04.17		Pilot year 23.07.17 - 13.04.18		Difference
	Number of calls	% of total calls	Number of calls	% of total calls	
Hear & Treat	1654	14.5%	1982	14.4%	↓0.1%
See & Treat	1876	16.5%	2336	17.0%	↑0.5%
H&T/S&T combined	3530	31.0%	4318	31.4%	↑0.4%
See, Treat & Convey	6108	53.7%	6775	49.3%	↓4.4%
Total	11379		13737		

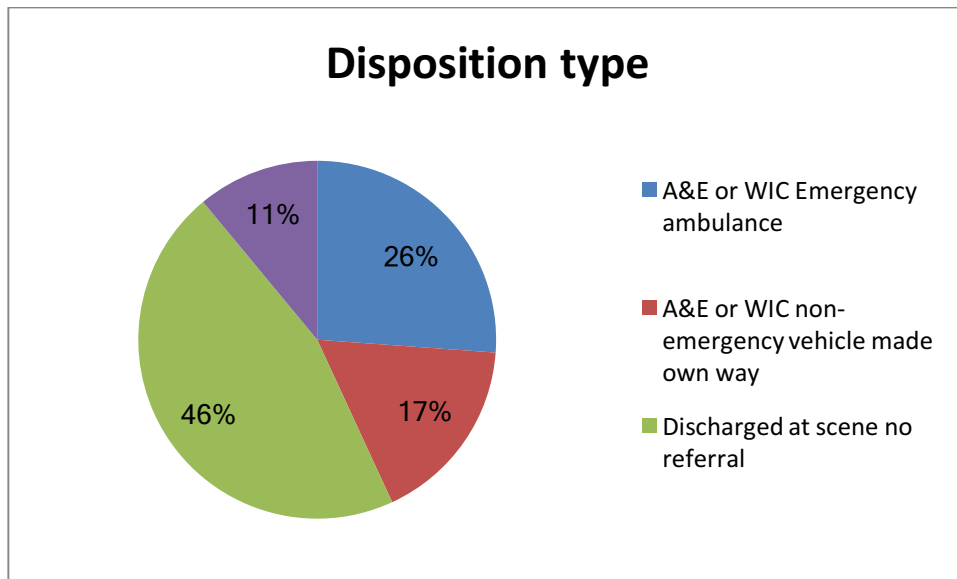
Table 9: Change in activity by disposition for all calls

Disposal Type	Preceding year 23.07.16 - 13.04.17		Pilot year 23.07.17 - 13.04.18		Difference
	Number of calls	% of total calls	Number of calls	% of total calls	
Hear & Treat	2332	13.3%	2633	14.0%	↑0.7%
See & Treat	3080	17.5%	3314	17.6%	↑0.1%
H&T/S&T combined	5412	30.8%	5947	31.5%	↑0.8%
See, Treat & Convey	9509	54.1%	9340	49.5%	↓4.6%
Total	17578		18859		

The results indicate that, even over a short time, there has been a reduction in the proportion of calls conveyed to hospital. Of course it is not possible to directly attribute this to the rotational paramedic scheme over such a short period as other influences may be affecting this but a 4% change in the call disposition type in the corresponding operational area indicates a potential shift in the right direction.

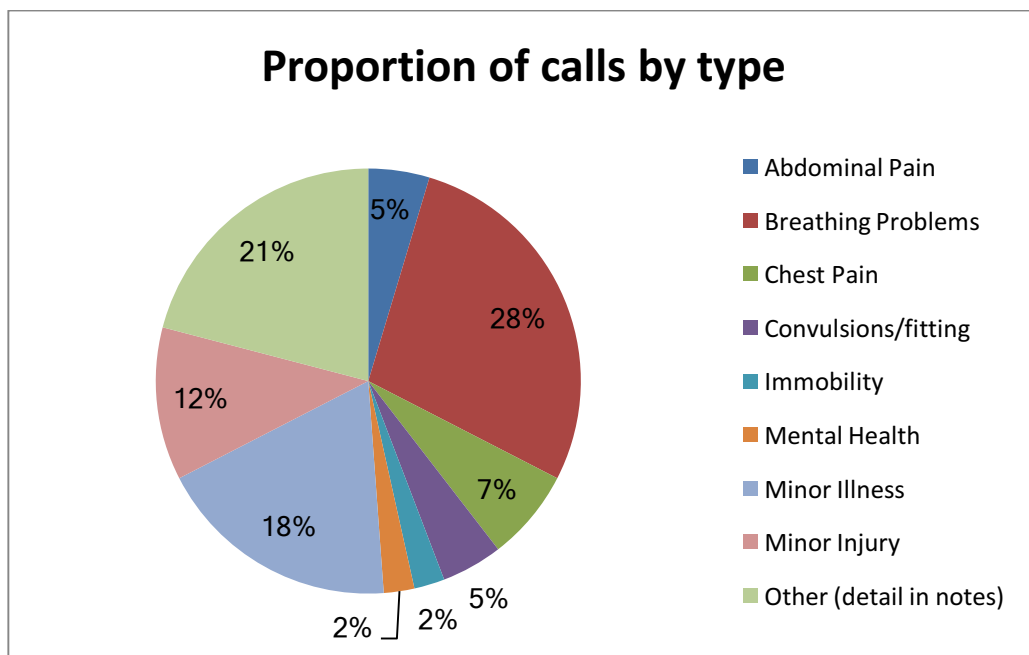
East Lincolnshire have also provided summary data of the SP ambulance rotational period 23/1/18 to 08/04/18 for 223 cases. This includes 201 patients seen at home and 22 cases managed within EOC. Of these 223 cases the average age was 69 years (range 1-19 years). Figure 8 shows the overall disposition of patients attended by the rotational SPs. 57% of cases were discharged at scene and 17% directed to ED or a walk in centre (WIC) or urgent care centre by non-emergency ambulance or patients made their own way. 25% required transport to ED by emergency ambulance.

Figure 8: Patient disposition for patients attended by East Lincolnshire SP ambulance rotation



More recently the East Lincolnshire pilot site has implemented a primary care rotational component. During the first 4 week period for 1 SP based in primary care (13 day shifts) the SP managed 43 cases with an average age of 62 years (range 10-95 years). Figure 9 shows the type of calls managed with the majority being breathing problems (28%). 35 patients (81%) were discharged without referral, 3 (7%) were discharged with referral to a GP or MDT and 5 cases (12%) were sent to ED by emergency ambulance.

Figure 9: East Lincolnshire - Disposition of calls managed by one SP during one month primary care rotation



Newcastle

The Newcastle pilot site provided data on activity for the period 20/2/18 – 19/4/18 although some records had yet to be entered. There was data available for 515 cases managed by the rotational paramedics. The average age was 51 years (range 4 weeks to 95 years) excluding 29 cases with an age of less than 1 year. 55% were female and 45% male. This site has rapid rotation through each component with a controlled allocation of GP urgent care home visits 5 days per week. This is reflected in the activity with 27 cases recorded as primary care (GP home visits), 484 (94%) as urgent care (the MDT out of hours component) and 4 cases as ambulance service EOC cases. The high proportion of urgent care calls reflects the rostering system where out of hours (evenings and weekends) is incorporated around the Monday to Friday GP home visits.

Figure 10 shows the proportions of calls managed by each type of disposition and Figure 11 the proportion of calls managed by call type.

Figure 10: Newcastle – Disposition of calls managed by rotational SPs

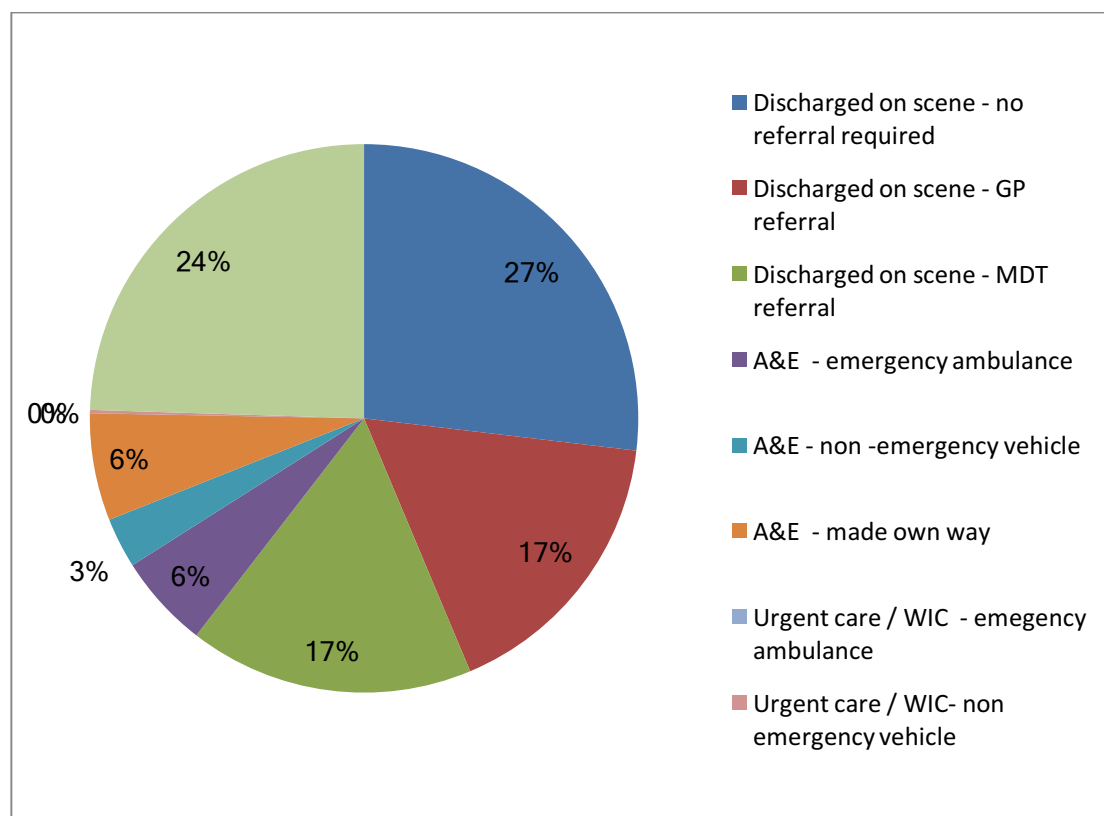
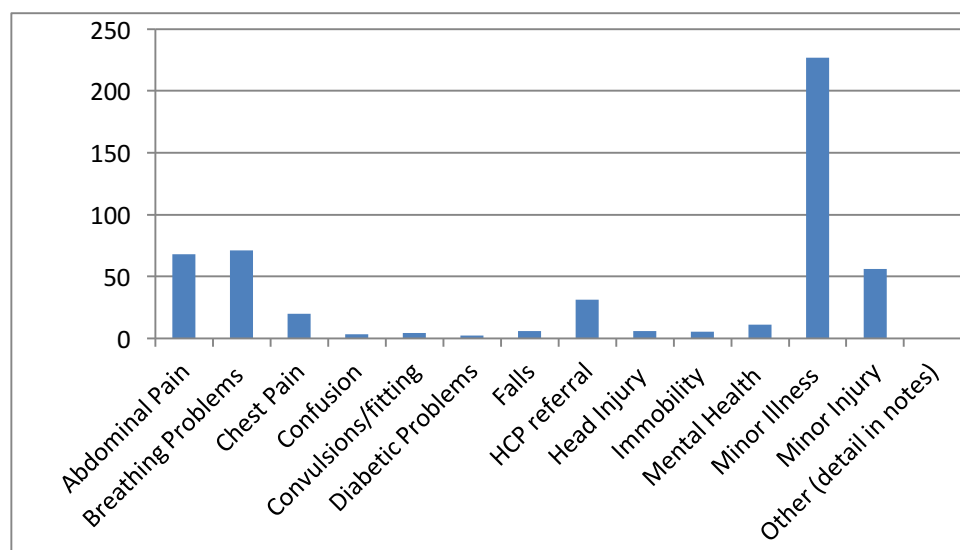


Figure 11: Newcastle – Calls by type



The majority of cases were managed by discharging at scene (61%) or referral to a walk in centre or urgent care centre (24%). Only 15% of patients were referred to ED and 6% required emergency ambulance transport. The main call type was minor illness which may reflect the different call origin with a higher proportion coming from the out of hours service. Table 10 provides a summary of the disposition types for each pilot scheme

Table 10: Summary of the disposition types for four pilot schemes

	East Lincs	Newcastle	Hardwick	South Central
Patient disposition	No. of cases			
Discharged on scene - no referral required	100	118	43	151
Discharged on scene - GP referral	13	77	37	4
Discharged on scene - MDT referral	11	81	16	9
A&E - emergency ambulance	54	27	27	1
A&E - non-emergency vehicle	3	15	4	1
A&E - made own way	21	27	1	2
Urgent care / WIC - emergency ambulance	3	0		
Urgent care / WIC- non emergency vehicle	4	1		
Urgent care / WIC - made own way	9	118		
Direct hospital referral				10
Non-conveyance rate	70.6%	91%	76%	93.3%
Missing	8	9	6	22
Total	226	473	134	200

5.3 Summary of quantitative findings

The results show that there is some variance in the non-conveyance rate across the 4 sites but they all have a rate of at least 70%. The variance is likely to be due to differences in case-mix. The highest rate is in the South Central site which is primary care based and the caseload may be of lower acuity than those using 999. The Newcastle pilot also has a non-conveyance rate of over 90% and this is a more mixed population of primary care, out of hours urgent and 999 urgent. The lowest rate is in East Lincolnshire but this service is managing calls coming via the ambulance service not from primary care so the acuity is likely to be higher and there may be more cases which do need emergency or at least hospital care. The South Hardwick site is primarily primary care focussed but requests are made by GPs remotely and there may be some subtle differences in that these requests may be more likely to be calls that previously would have generated an emergency ambulance request. More detailed data over time will help understand case-mix differences better.

These quantitative descriptions of activity and processes cannot demonstrate impact or benefit as to do this comparative data is needed to show changes over time. This type of controlled times series analysis will be essential in a long term evaluation to assess impact over a realistic operational period. What they do show is that, with the right patient cohort, a very high proportion of cases can be managed by specialist paramedics without the need for hospital referral which fits the intended objectives of managing urgent care problems with care closer to home. These findings also mirror those in a longer running and more established programme developed in Wales where specialist practitioners rotate through EOC and urgent care 999 response targeted to specific urgent call types with a non- conveyance rate of 70%.

6. Summary and conclusions

We have described the early experiences of designing and implementing a rotational paramedic model in four pilot sites and compared progress in relation to the HEE programme model. The 4 pilot sites have each adapted the basic framework and created a feasible model that has allowed them to move forward from a plan to implementation in a very short space of time. The rotational model represents a substantial change of service provision both in terms of scope and complexity. The pilot sites have only been operating for a very short period of time so it is therefore unrealistic to draw any conclusions about an optimal rotational model but what is clear is that by taking the principles of the 3 component model suggested by HEE but having the freedom to be creative and flexible in how each pilot as developed has probably been a cornerstone of making the difficult transition from planning a service to making it operational in the real world. Different approaches have been taken, in some cases building the components in a similar way to the HEE model, so for example creating a primary care or MDT rotational component but this does mean that only one element is in place. However it is clear that concentrating effort and working through the complexities of establishing partnerships, contracts and training has been key to successful start up. The same effort will be needed for the next components. Others have taken a different approach and already incorporated some form of rotation through at least two components but this does mean the rotational times in each component are shorter. It will take a much longer period of assessment over a time period that encompasses all components to establish whether there is an optimum model but, so far, adapting the model does not appear to have hindered progress and indeed it is not rigidly sticking to an expected plan that has allowed such swift progress to be made. It is entirely possible that there is no single “ideal” model only the best one that fits local needs that allows it to operate efficiently and sustainably according to a local plan and service specification. The pilot sites have also acknowledged the support provided by the HEE programme team in facilitating this process and providing encouragement to test and revise their models on an ongoing basis and the opportunity to share learning through the regular meetings and workshops that have been an integral part of the process.

Some key positive messages and lessons have emerged from the pilot site experiences. In summary these are:

- They have sensibly concentrated efforts on making sure each starting point has been well developed and thought through to maximise the chances of successful implementation rather than trying to operationalise the whole rotational scheme at a scale that cannot be put in to practice. This can be either developing a rotational component in detail or implementing a rotational scheme that is at a small enough scale it can be well managed.
- It is feasible to begin to set up a rotating paramedic model but adaptability is needed to ensure it moves from a plan to paramedics actually working rotationally. This is preferable to trying to get everything in place before starting which may prevent it ever getting off the ground

- Planning is important and considerable effort is needed to develop the strategic case for investment and support. Working with the wider urgent care system organisations can help with this
- Attention to detail in developing clinical governance processes, contracts and financial arrangements is needed to protect organisations and staff. Clear boundaries should be set out about scope of practice, activities and workload
- Length of rotation in each component is not straightforward. Longer rotations, particularly in primary care support learning and relationship building but shorter rotations increase variety and better support shift rota patterns – there is less likelihood of periods of low activity – and may better support the EOC component. For some SPs it was important to retain at least some frontline emergency experience, both to keep up their skills and because they still want to do some of that work. As models mature there may be more scope to tailor rotational patterns to individuals if this will help retention.
- There is a real appetite amongst specialist paramedics for a rotational programme as it allows them to better use and further develop their skills and gives them a clearly defined clinical career pathway. Early evidence suggests this will help retain current staff and may encourage staff who have left for other sectors to return to the ambulance service
- Experiences so far have been overwhelmingly positive for the primary care and MDT components. The collaborative arrangements have enhanced understanding and trust between different professional groups. This is also reflected in better working relationships with other organisations such as CCGs which is helping develop more coherent urgent care pathways. There is more work to do managing the EOC component as this is the least developed and least popular option amongst SPs
- Early data shows SP patient management results in a high proportion of patients receiving assessment and care in local communities rather than acute hospitals.

Recommendations for next steps

- The current pilot sites are in their infancy and small in scale. There are a large number of expected benefits - reducing ED attendances and unplanned admissions, reducing HCP 999 demand, reducing resource allocation for 999 calls and handover delays at hospital – as well as improving patient outcomes and staff recruitment, retention and satisfaction. However these are difficult things to measure in terms of tangible impact when SP numbers are small – two specialists seeing 10 patients a day will not make a detectable difference to 999 call volumes. To detect these types of changes models will a) need to mature, expand and run for several rotational cycles and b) be allowed to run for long enough that changes over time can be measured. There is a real danger that if neither of these conditions is fulfilled and benefits are not apparent in the short term then the models will be judged to have “failed” when in reality they may not have been given sufficient time to succeed.

- Some of this can be mitigated by being very careful in choosing the denominator for any ongoing evaluation. In particular the operating context will be crucial and measurement should be confined to the populations within operating areas not the general population of, for example, a regional ambulance service. There also needs to be better assessment of the baseline activity and problems so that the scale of potential effect can be properly assessed. One example is that if an expected benefit is a reduction of 999 GP calls then the true proportion of those calls that are suitable for alternative management needs to be established as it is only the outcome of these calls that can be changed. Some modelling of locality urgent care demand may help define the scope of potential change and provide a baseline for measuring impact.
- There is a clear case for continued support so that models can be run for long enough to generate the evidence to establish their value. At a local level this may be achieved within a year if carefully assessed in relation to a local system and population and can support decisions about continued support. Realistically there will need to be a much longer period to assess the impact on high level objectives such as reducing ED attendances and unplanned admissions and changing recruitment and retention patterns as this will require time series analyses and schemes of sufficient scale to demonstrate measurable benefits. This will need 2 or 3 years given this is a significant change in service delivery - and this means they will need a stable and continuous source of funding. This is evidently not the case at the moment and there is considerable uncertainty about the continuation of the existing pilot sites even beyond the first few months of operation. Without proper financial commitment to a long term trial there is a serious risk that models will cease to function or will become individual component services rather than truly rotational. The opportunity will then be lost to seriously change the career pathway for specialist practitioners in ambulance services and retain them. The market for their skills outside the ambulance service will not diminish. It will also impede the policy objectives of providing more care closer to home and right care first time.
- If the model is to be sustainable and expand there will need to be a plan to maintain an ongoing pipeline of SP recruitment and training so consideration will be needed on how this can be funded.

The rotational model has the potential to reverse some of the failings of the past when specialist practitioners in the ambulance service were not used to their full potential resulting in depletion of a paramedic workforce that is already in short supply. It also has potential to improve the clinical care of patients by providing them with high quality urgent care appropriate to their needs in the right setting . There is a huge amount of enthusiasm for the rotational model both from the pilot sites and other ambulance services who are already looking to develop this type of model. The pilot sites have made what is the most difficult transition from plan to action but in such a short time cannot provide the evidence needed to establish whether such a fundamental change will have the desired effects at a whole system level. To do that a much longer period of support and consolidation is needed to build on the progress made so far and exploit it to its full potential.

Limitations

Clearly the pilot sites have only been functioning for a short period of time and therefore, the current evaluation is unable to assess in whole whether the models achieved their intended benefits. Only when the new service models have had time mature and operated for some time at a sufficient scale can their effects be reliably measured. This evaluation has produced relevant, interesting data but some caution needs to be applied to the findings as it is an early evaluation and necessarily descriptive in nature.

Currently there are few paramedics employed in these roles, thus there has been limited experience of actually rotating paramedics through all areas which limits what can be drawn from the findings as, at the time of the evaluation, a majority of effort had gone in to the initial set up and preparation of staff for working with GPs in particular.

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