A world class ambulance service for a world class city

Strategy 2018/19 – 2022/23

Chair's introduction

The London Ambulance Service (LAS) is one of the largest and busiest ambulance services in the world. Serving a growing population of over 8.6m people in one of the most socially and culturally diverse cities on earth, our distinctive vehicles are on the road 24 hours a day, 365 days a year, ready to respond to Londoners and visitors alike, whatever their medical emergency.

As an integral part of the National Health Service (NHS) in London, we play a vital part in ensuring patients get the right emergency care at the right time when things go wrong and, where necessary are conveyed quickly and effectively to the right care pathway for onward treatment.

The NHS in London is however under more pressure from growing demand than ever before. It is therefore vital that the LAS becomes even more effective at

quickly responding to and accurately triaging patients; treating people sooner whenever possible – whether on the phone from our control centres for those with more minor ailments (or, in the future, potentially online), or at the scene of incidents when we need to dispatch an ambulance, utilising the increasing capabilities of our paramedics, emergency ambulance crews and clinical support staff. We also need to work more closely than ever before with our colleagues in the wider NHS to develop and make more use of appropriate care pathways that often offer our patients better, quicker and more appropriate care and, as a consequence of this, take fewer people to general emergency departments (A&Es).

To do this, we need to work with our commissioners, NHS England, NHS Improvement and London's five sustainability and transformation partnerships (STPs), playing an increasing role at the heart of the city's healthcare system as London's primary integrator of access to urgent and emergency care 'on phone', 'on scene' and 'online'.

To achieve this, the LAS Trust Board has undertaken and commissioned extensive work, both internally and externally which has led to the development of this strategy. With the help of our partners, we are confident that we can deliver further sustainable improvements in the care we provide for our patients and support the wider healthcare system to deliver ever better value for money for the services we collectively provide.

Heather Lawrence OBE

Chief Executive's foreword

The LAS has a proud history of innovation in ambulance provision and serving the capital. Stretching back over a hundred and twenty years from the first ambulances provided by the London Asylum Board in the 1880s, through to the creation of the LAS as we know it today (in 1965), the service has always been at the heart of major developments in mobile medical care. Today, with over 5,000 people (and nearly 3,500 front-line clinical staff), we aim to be never more than a few streets away when you need us most.

Through recent advances in the treatment of major trauma, cardiac arrest, heart attack and stroke, many more people survive these serious events than was the case even only a few years ago. However, the majority of our patients have less serious illnesses and injuries and we need to evolve our service to better serve all of the 1.8m people who call 999 every year in London, together with the increasing numbers of people who use our 111 service to seek help and advice on less

urgent issues. To do this we need to transform our organisation, not only clinically and operationally, but also making sure we invest in our people, our vehicle fleet and estates infrastructure, as well as our IT systems and project management capability, to enable us to continue to provide the outstanding patient care that the organisation is rightly renowned for.

I have been incredibly proud to lead this organisation through one of the most challenging years in its history during 2017, dealing with more 'major incidents' than at any other time in recent history, and a particularly challenging winter. We now need to build on the successes we have had recently to ensure that we can continue to provide this exceptional level of care and service going forward. Treating more people at home or at the scene of incidents, providing more effective care on the phone or online and enabling more people to access better care through appropriate care pathways will enable us to improve the quality, effectiveness and cost efficiency of the care we provide to our patients.

As a result of advances we have made in the last few years, we have already reduced the proportion of patients we take to emergency departments from over 70% in 2011/12, down to around 63% today. I believe we must now challenge ourselves to improve on this further so that, by the end of the period covered by this document, we are nearer to only 50% of our patients needing to go to an emergency department to get the care they need. This will both improve the speed and quality of the care we provide and reduce pressure on the wider system.

The outstanding patient care that we provide is only possible through the dedication and skill of our workforce. Whether out on the road, in our control rooms, in workshops or any of our corporate and support functions, our staff work

tirelessly each and every day to help other people. It is therefore incumbent on us to make sure their working lives are as fulfilling and rewarding as possible. From ensuring that our staff have high quality and safe working environments to additional career development or training opportunities, this strategy outlines a number of ways in which we will support our people and provide them with the tools to do their jobs to the world class standard that they aspire to.

This strategy, which has been the subject of one of the largest staff, public, partner and patient engagement exercises we've ever undertaken, sets out our vision to achieve this, aiming to make the LAS the genuinely world class ambulance service that Londoner's and visitors to our great city expect and deserve.

Garrett Emmerson

Contents

1   Executive summary

Our new organisational strategy details how we will change and improve the way in which we provide urgent and emergency care to the people who live, work and travel in London. This strategy seeks to improve the care we provide for all of our patients and do so in the most cost effective way to generate savings for the NHS as a whole.

1.1   Challenges and opportunities for the urgent and emergency care system

Like the rest of the NHS, we continue to face substantial and sustained rises in the demand for urgent and emergency care. This is because of:

- a growing and ageing population
- an increase in acute and complex long-term health conditions which require coordinated care
- patients' expectations of how they access health services is changing, particularly due to the widespread use of smartphones – 85 per cent of Londoners now own a smartphone
- recruitment challenges.

To support the NHS *Five Year Forward View* and the *Keogh Urgent and Emergency Care Review*, we need to place a clear focus on avoiding unnecessary emergency department attendances and hospital admissions. For urgent physical or mental care needs, there should be highly responsive care close to home; and for more serious or life-threatening emergencies, there should be treatment at the scene and conveyance to the most appropriate facility.

We are the only pan-London NHS provider and have a unique opportunity to play a leading role in supporting national and regional strategies to improve patient outcomes and experiences. Working with London's five sustainability and transformation partnerships (STPs), we can support local needs and contribute to joint goals such as more consistent urgent and emergency care across London, improved access to acute and community care, better use of technology and rapid crisis intervention.

1.2   Our vision is: to be a world class ambulance service for a world class city

We want to be London's primary integrator of access to urgent and emergency care 'on scene', 'on phone' and 'on line'. We have four goals:

- Provide outstanding care for our **patients**
- Be a first class employer, valuing and developing the skills, diversity and quality of life of our **people**
- Provide the best possible value for the tax paying **public**, who pay for what we do
- **Partner** with the wider NHS and public sector to optimise healthcare and emergency services provision across London

This strategy plays an essential role in delivering on the goals of coordinating urgent and emergency care pathways, delivering more care on scene and avoiding taking patients to hospital.

We will do this through three themes.

1.3   Theme 1: Comprehensive urgent and emergency care coordination, access, triage and treatment, with multichannel access for patients

We want to manage and coordinate the flow of patients through urgent and emergency services, making it as easy as possible to access the help that they need. We want to develop an integrated clinical assessment and triage service: iCAT London, integrating access to urgent and emergency care, providing better patient care and a more cost effective service for London. Sitting behind both NHS 111 and 999, and supporting our frontline teams, iCAT London will place us as the integrated point of access to the most appropriate care, whether patients contact us by telephone or via another digital channel, and wherever in London they may be. Our integrated service features all aspects of urgent and emergency care, coordinated so that the patient's experience is one of a single health service with consistency across London.

Our South East London 111 service converts fewer NHS 111 calls to 999 emergency dispatches than any other 111 provider in London on a consistent basis. If we achieved the same low dispatch rates across London as we do in South East London, it would equate to 25,000 fewer ambulances being sent to patients per year. Implementing iCAT London as a whole could, we believe, save the health system in London up to £21m per annum.

1.4   Theme 2: A world class urgent and emergency response with enhanced treatment at scene and for critically ill patients a faster conveyance to hospital

We will continue to provide high quality care to everyone who contacts us, especially those most critically ill and injured. However, we will place a stronger emphasis on assessment and enhanced treatment at scene and in community settings, taking patients to alternative care settings where it's needed while accessing established pathways of care. Taking patients to hospital should only be used for those who need the assessment, treatment and equipment available only within an emergency department.

We will introduce 'ambulance pioneer services', a bespoke service for five patient groups:

- Urgent care response
- Mental health
- End of life
- Falls
- Maternity

Changing how we respond to these groups will deliver significant improvements in quality of care and patient experience, reducing unnecessary trips to an emergency department.

These services will provide a more tailored response when people dial 999, and will be an alternative to taking a patient to hospital, with patients having had their needs met in a more appropriate way, either at home or in the care of a loved one. Implementing our pioneer services would allow us to increase the number of patients who receive a differentiated service, specialised based on the specific patient illness or injury, from less than 10% to over 30% over the period of this strategy. We believe that it could also see up to 95,000 fewer patients taken to emergency departments; saving London's health system between £9.5m and £12.8m per annum.

1.5   Theme 3: Collaborating with NHS, emergency services and London system partners to provide more consistent, efficient and equitable services to Londoners

We will work, and partner with, London's other public services and will support every opportunity to improve patient outcomes and experiences whilst improving public value. We are also committed to working alongside the emergency services and London's wider stakeholder community and stand

behind the Mayor of London's pledge, and are a co-signatory, to "making London the safest global city".

As the only pan-London NHS provider, we have unique insight into the care that patients have available to them across London. We can help NHS England and the STPs identify the services that are best able to manage demand, where there are inconsistencies and where changes to service delivery would provide benefits to patients and the urgent and emergency care sector as a whole. We believe that we could, working with system partners to ensure a more consistent, efficient and equitable service, save London's health system between £2.2m and £2.7m per annum.

1.6   Delivering our strategy

We will need to deliver fundamental change to our organisation's culture, capabilities and infrastructure, to deliver this strategy.

- Our culture: a strong organisational culture which supports staff is crucial. Not only do we need the buy-in from our people to bring about the changes that we need to make, but we need them to be our champions. Our staff need to advocate the changes that we are making: with each other and with other people from the wider NHS system who they work with and speak to regularly. This will only happen if the culture of our organisation supports this.

- Our capabilities: Having the right organisational capabilities allows us to implement our strategy and support our vision. These include:

- Better education and training opportunities, and stronger career pathways;

- An agile and commercially focused organisation;

- Innovating for continuous improvement

- Involving the public in our work and building an extensive volunteer base

- Our infrastructure: our staff need the right high-quality infrastructure to support them. Our people need reliable, well-equipped and low-emission vehicles sent from strategic locations to serve the whole of London. We also need to become a 'digital first' organisation, ensuring that decision making is supported by accurate, real-time digital patient and management data that can be shared across providers.

Delivery of this strategy will be supported by a framework of detailed and interconnected enabling strategies which will specify, function-by-function, the plans that we will deliver over the lifespan of this strategy.

1.7   The impact of our strategy

Our strategy will have direct clinical benefits for patients by providing more care remotely by 'hear and treat' and by increasing, to over a quarter, the number of our patients who receive a pioneer response, discharging them on scene where possible by 'see and treat'.

Taking fewer patients to emergency departments means hospitals will see fewer patients: patients who can have their needs met at home or in the community, which has both operational and economic benefits. Through providing the right care to patients at the right time, and in the most cost effective way, we believe that, by 2023, our strategy will:

- Improve outcomes, experiences and consistency of services for all of our patients

- See up to 122,000 fewer patients conveyed to emergency departments when their needs could be effectively met in a different and more appropriate way

- Deliver between £12.1m and £36.5m per year in avoided costs for the urgent and emergency care sector

2   Challenges and opportunities for the urgent and emergency care system

The NHS continues to face substantial and sustained rises in the demand for urgent and emergency care. This section sets out the challenges of the system, the opportunities to improve services and the role that the London Ambulance Service needs to play in meeting this demand.

A number of factors, explained below, have an impact on the whole health system:

- The population is growing and aging, meaning more patients and greater complexity, increasing overall demand for our services and longer treatment times
- An increasing prevalence of acute and complex long-term conditions requiring coordinated care
- The need for care of critically ill patients is growing at a higher rate, which impacts upon the resources available for patients with less acute needs
- The way that patients are accessing the care system is changing fast and new technologies are becoming available that can improve the way we care for our patients
- Recruitment challenges within front-line and support functions

These pressures mean that changes to the urgent and emergency care system are essential. Working with our system partners, we will help to shape and deliver the changes required to make London's urgent and emergency care system more sustainable.

2.1   The national perspective

The NHS is struggling to deal with rises in demand for urgent and emergency care. Average emergency department waiting time performance in England has slipped from an average of 95.7% in four hours or less (exceeding the national target of 95% in four hours) in 2013/14 to 89.1% in 2016/17[1]. This has partly been due to the challenges in admitting patients due to the difficulty that hospitals sometimes face in discharging their patients when an appropriate care plan has not been put in place.

Hospitals have finite capacity, and care provided in hospitals is much more expensive than care provided in the community because of the higher level of specialism of clinicians and the more advance range of diagnostics and treatments that can be provided. As a result, there has been for many years an overarching objective to simplify and organise urgent and emergency care services, making them easier to navigate, so that more care is provided in primary and community settings, usually closer to home, reducing unnecessary attendances at emergency departments and enabling hospitals to focus on patients who are the most ill or who have the most complex conditions.

Ambulance services have delivered significant improvements to the standard of clinical care and services to patients over recent years despite demand increasing year-on-year. Patient experiences of 999 emergency services are consistently positive with patients having a high level of trust and confidence in the clinicians who attend them. Ambulance clinicians continue to develop from their

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[1] Quarterly time series 2004/05 onwards, A&E Attendances & Emergency Admissions, NHS England

historical role of delivering first aid and transportation to hospitals, towards a greater emphasis on decision-making, diagnosis, treatment and referral.

The NHS *Five Year Forward View*[2] (2014) recognised this development in clinical capability. It built on the vision and recommendations set out in Professor Sir Bruce Keogh's review of urgent and emergency care services in England[3] (2013) and explained the need to redesign service for people of all ages with physical and mental health problems by improving out-of-hospital services so that we deliver more care closer to home and reduce unnecessary hospital attendances and admissions.

The national vision for urgent and emergency care is:

- For adults and children with urgent care needs, we should provide a highly responsive service that delivers care as close to home as possible, minimising disruption and inconvenience for patients, carers and families

- For those people with more serious or life-threatening emergency care needs, we should ensure they are treated at the scene and then in centres with the right expertise and facilities to maximise the prospects of survival and good recovery

NHS England's national strategy, *Safer, faster better: good practice in delivering urgent and emergency care*[4] (2015) identified six key changes which are needed in order to deliver an improved system of urgent and emergency services:

1. Providing better support for people and their families to self-care or care for their dependants

2. Helping people who need urgent care to get the right advice in the right facilities, first time

3. Providing responsive, urgent physical and mental health services outside of hospital every day of the week, so people no longer choose to queue in hospital emergency departments

4. Ensuring that adults and children with more serious or life threatening emergency needs receive treatment in centres with the right facilities, processes and expertise in order to maximise their chances of survival and a good recovery

5. Ensuring parity of esteem for all patients

6. Connecting all urgent and emergency care services together so the overall physical and mental health and social care system becomes more than just the sum of its parts

2.1.1   Integrated urgent care

NHS England's new service specification for integrated urgent care[5] (IUC) responds to the need for simpler, better coordinated access to urgent care. NHS England's objective is for high quality clinical advice to be provided to patients over the telephone, video call and digital messaging with the aim of reducing the number of patients advised to go to their GP or to an emergency department as a precautionary measure. Importantly, however, clinicians will be able to make appointments or direct referrals for patients across the range of local services so that patients only need to contact the NHS once. IUC sits behind the existing NHS 111 telephone number, providing specialist clinical advice, and unifying 24/7 access to local urgent care services including out of hours GP services, and face-to-face services such as general practice, community services, social care, ambulance services, urgent care centres and emergency departments.

At the core of the specification is a new 'clinical assessment service' which will provide clinical advice to patients, call handlers and mobile health professionals working in the community. The service will be staffed by GPs, with a range of specialist clinicians including, paramedics, advanced nurse

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[2] NHS Five Year Forward View, NHS England, 2014

[3] Review of urgent and emergency care services in England, NHS England, 2013

[4] Safer, faster better: good practice in delivering urgent and emergency care, NHS England, 2015

[5] Integrated Urgent Care Service Specification, NHS England, 2017

practitioners, pharmacists, dental nurses, mental health nurses, palliative care nurses according to local demand, and will have access to advice from hospital specialists.

Figure 1: Transforming NHS 111 into integrated urgent care (Source: NHS England)

Current service
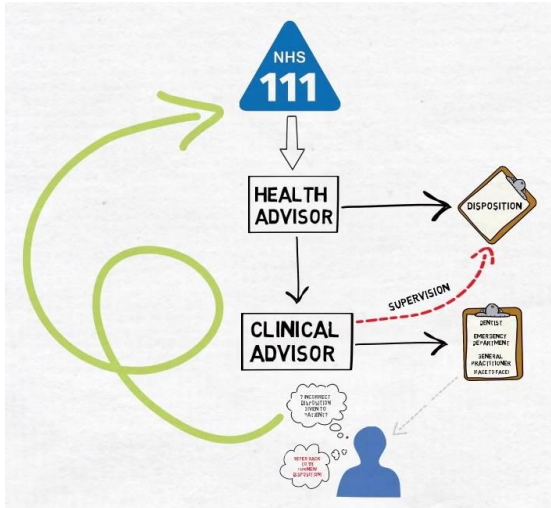
Integrated urgent care (including clinical assessment service)
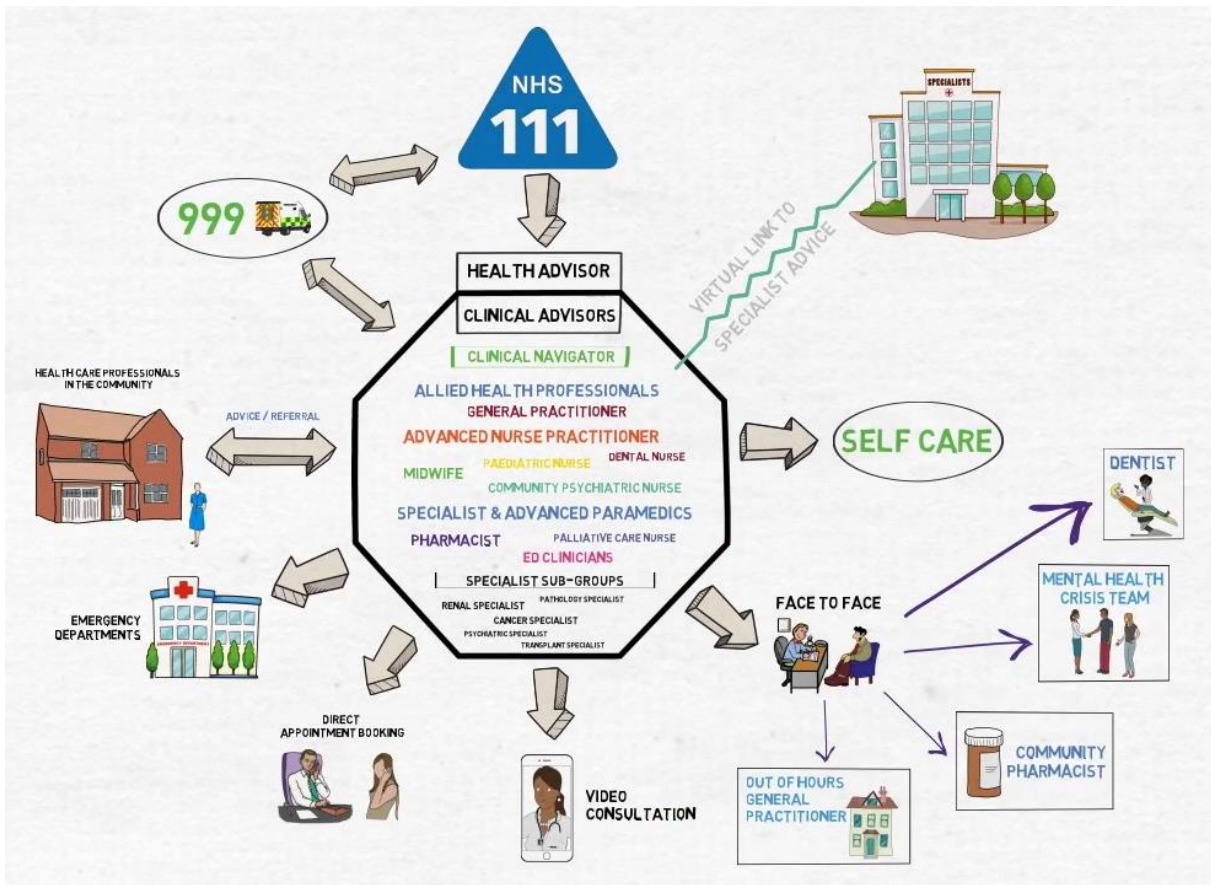
2.1.2   Emergency ambulance services

Safer, faster better[4] recognises that ambulance services play a central role in the provision of urgent and emergency care. It states:

> **Ambulance services and their commissioners should work together to develop a mobile urgent treatment service capable of dealing with more people at scene and avoiding unnecessary journeys to hospital.**

The strategy goes on to list a number of principles of good practice for ambulance services, which are:

- **Staffing 'clinical hubs' in control rooms with a range of clinicians** (including pharmacists, midwives, palliative care nurses and specialist or advanced trained paramedics) to ensure the appropriateness and timeliness of responses provided to patients by offering 'hear and treat' care to patients and clinical support to paramedics on scene

- **Using senior clinical decision makers** (such as specialist or advanced paramedics/nurses) to care for patients through 'see and treat', referral to community services or other pathways, to give better clinical outcomes and reduce the need for attendance or conveyance for non-critical 999 calls

- **Developing and evaluating alternatives to conveyance to hospital** (as a local healthcare system) so that paramedics have routine access to community health and social care services and can safely manage more patients at scene, either treating and discharging or referring onward to other appropriate services

- **Enabling ambulance services to have real time access to patient care plans** to develop a whole systems approach to patient management and flow

- **Minimising handover times for patients taken to hospital by:**
  - Sending patients' details ahead to the receiving emergency department and implementing electronic patient handovers
  - Using alternative vehicles to convey patients to the emergency department, thus keeping paramedic staffed ambulances available
  - Sharing predicted activity levels with acute trusts on an hourly and daily basis to trigger effective escalation when demand rises
 - Ensuring that delays are reviewed systematically and jointly by ambulance operations managers, hospital managers and clinicians

2.2   The regional perspective in London

2.2.1   London's vision and specification for urgent and emergency care

Sustainability and transformation partnerships

The NHS and local authorities have formed sustainability and transformation partnerships (STPs) in 44 areas covering England, enabling commissioners and providers of health and social care to work together at a larger scale to improve the health and wellbeing of the populations in their localities. Each STP has developed 'place-based' proposals focussed on their own population, which mean they vary according to specific local needs, demographics and geographical differences. London has five STPs: North West London, North Central London, North East London, South East London and South West London.

There are some unique factors in London that affect demand for health and social care services. London is a major centre for tourism, with the seat of national government, national landmarks and a

concentration of the UK's airports. It also has the highest rate of non-residential population in the country, with many workers commuting to or through the capital every day.

Figure 2: London and its population

Common goals for urgent and emergency care across all of London's STPs include:

- Investment in and promotion of healthy living initiatives, preventative care and self-management, with a particular focus on older adults, who may need greater support to remain healthy and living in their own homes

- Improved access to primary and community care – through extended hours, out of hours, and out of hospital hub services (which bring together community nurses, GPs, other NHS specialists and social care staff in the same building)

- Provision of urgent care centres as a mid-level step between community care and hospital services for patients who have urgent but not emergency or life-threatening conditions

- Enhanced 111 services to meet the national integrated urgent care specification, which will provide patients with information through a wider range of channels and enable them to receive clinical advice and assessment from a wider range of experienced clinicians – with the aim of resolving more calls without the need for follow-up appointments

- Making better use of available technology to enable patients to speak with clinicians online or via a video link from a smartphone

- Avoiding high-end need through crisis intervention, for example through rapid response teams and dedicated mental health crisis services

London has a history of being at the forefront of implementing specialist emergency care models that improve outcomes for patients, including major trauma centres, hyper acute stroke unit (HASUs) and heart attack centres. As a result, in recent years cardiac arrest survival rates have risen from 5% to 30%, nine out of 10 patients diagnosed with heart attacks by ambulance clinicians leave hospital within five days following treatment at specialist centres, and stroke patients in London are almost three times more likely to receive thrombolysis treatment.

Healthy London Partnership

Healthy London Partnership (HLP) was established in response to the NHS *Five Year Forward View* and the London Health Commission's report *Better Health for London*[6]. Its aim is to improve the health of Londoners and make London the healthiest city in the world.

HLP provides an infrastructure for STPs to work with regional bodies to design consistent services across London, including urgent and emergency care. It was formed in 2015 by the 32 London Clinical Commissioning Groups, NHS England (London), Public Health England, London Councils, Health Education England, the Greater London Authority and the Mayor of London.

HLP carried out an extensive survey and interviews in 2015 which concluded that the urgent and emergency care system is confusing to navigate, especially when it comes to the availability and different types of out of hospital services.

Coordinated, consistent and clear urgent and emergency care

In November 2017, the HLP published *Coordinated, consistent and clear urgent and emergency care*[7], a vision and specification for the urgent and emergency care system in London. It seeks to formalise the relationships and interdependencies between urgent and emergency care services and the organisations that provide them. It also outlines aspects of services and facilities that should be consistent across London.

The document sets out three priorities "to improve patient outcomes and experience through high quality and consistent urgent and emergency care services that are available seven days a week":

1. Developing **responsive, effective and personalised urgent care with 111 as the 'front door'** of the urgent and emergency care system providing the public with access to the right advice in the right place, first time – any hour of the day and any day of the week.

2. Developing a facility **specification for consistent urgent care centres** to reduce public confusion and developing specifications for emergency centres and emergency centres with specialist services for those with more serious or life-threatening emergency needs to ensure access to the best expertise and facilities to reduce risk and maximise chances of survival and good recovery.

3. Developing **urgent and emergency care networks** to provide overarching coordination and accountability for the system around all urgent and emergency care services.

2.2.2 The population is growing and aging, meaning more patients and greater complexity, increasing overall demand for our services and longer treatment times

London's health system, as well as the wider NHS, is being challenged with substantial and sustained rises in the demand for urgent and emergency care, which is driven in part by increases in population and a changing demographic mix. Increases in demand for urgent care, emergency department services and emergency admissions have all been above population growth over the past three years.

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[6] Better Health for London, London Health Commission, 2014

[7] Coordinated, consistent and clear urgent and emergency care, Healthy London Partnership, 2017

Figure 3:   Population and activity data over the past seven years shows that there is a strong correlation between population (total and over 65 years) and LAS activity, making it a key driver when modelling projections.
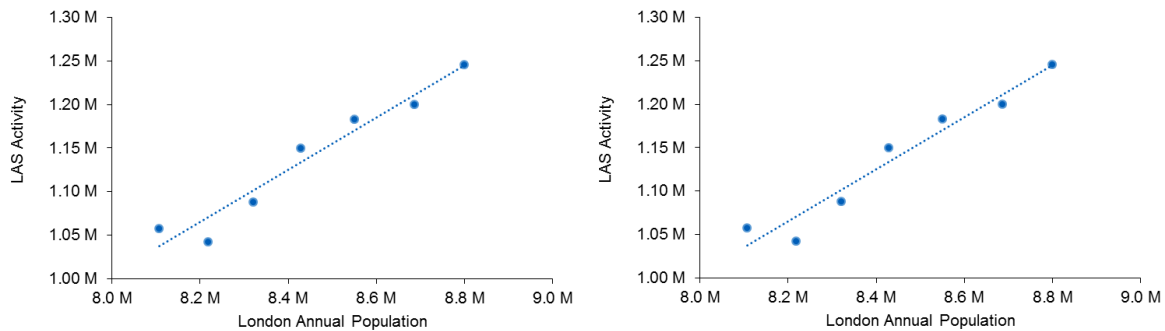
London's population is expected to rise from 9.0m in 2018/19 to 9.4m in 2022/23[8] and to 9.7m in 2028/29. With population growth being experienced across the capital, most keenly in North West and North East London, we know that demand for our services is also going to significantly increase. Figure 4 shows the projected cumulative growth of London population over the next 10 years.

Figure 4:   Shows London population growth projection, 2018/19–2028/29, most starkly seen in North West and North East London
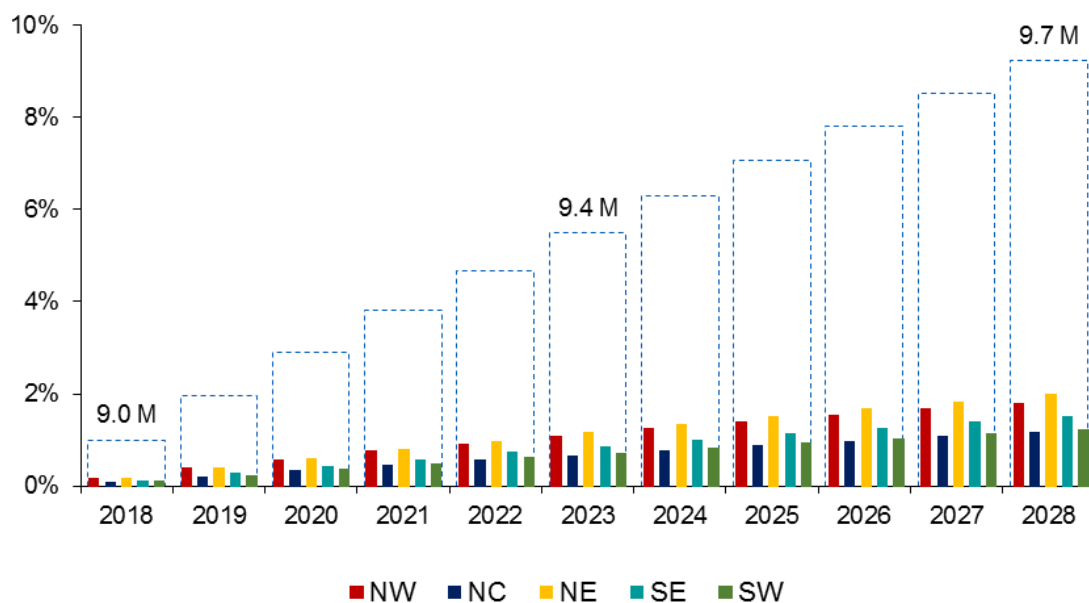
As a proportion, the largest population increases are in the 85+ age range (31%) and in the 65–84 age range (23%), who are typically the most significant users of health services and with whom we need to spend more time (on-scene time). These cohorts will grow at a faster rate than the population as a whole, resulting in a disproportionate increase in demand for our services.

Figure 5 shows population growth by age band (orange bars), and the anticipated growth in activity associated with each band (dotted blue lines). This highlights the faster growth of the older age population, which account for a disproportionate number of incidents[9]. In the 85+ age cohort there are

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[8] GLA population projections

[9] "Incidents" are 999 calls we respond to physically by sending a clinician to the patient

over 1.3 incidents per year for every member of the population: 185,000 incidents for the 145,000 people older than 85.

Figure 5:   Shows London population growth from 2018/19–2028/29 by age band. The older age bands, which have a disproportionate volume of incidents, show a faster growth rate.
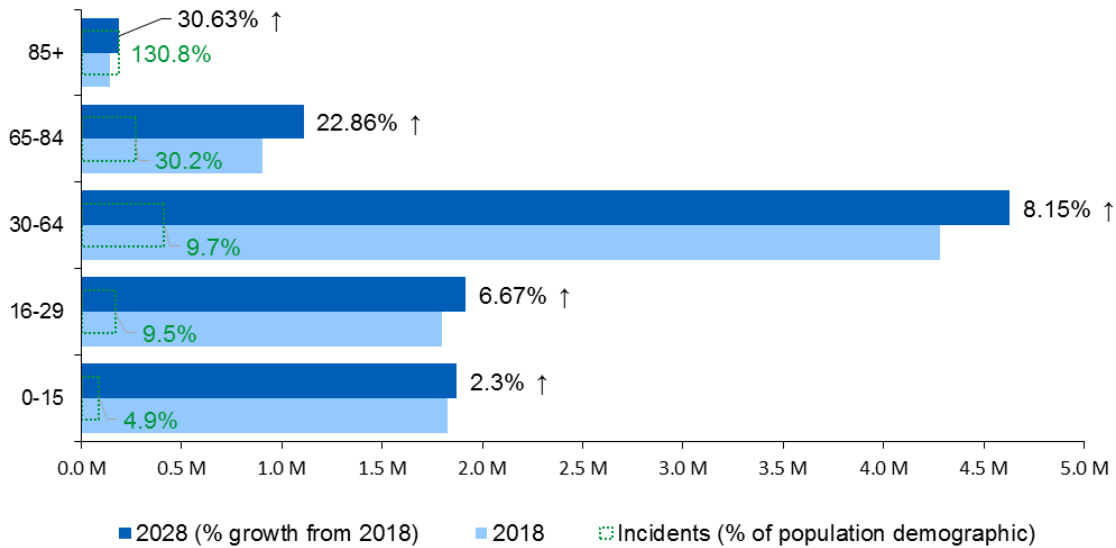
Age is also a major factor in how much time we spend on scene with patients. Figure 6 shows 'job cycle time', which is a measure of the time from the start of a 999 call until an ambulance is available to attend their next patient, increases with the age of patients. This is due to the higher likelihood of conveyance for an elderly patient, and the likelihood of dealing with more complex co-morbidities. This implies that an aging population will result in our staff attending more calls and spending more time with each patient (on average) and therefore increase staffing requirements.

Figure 6:   Shows an increasing average 'job cycle time' by patient age from LAS 2017 incidents statistics (red dotted trend line)
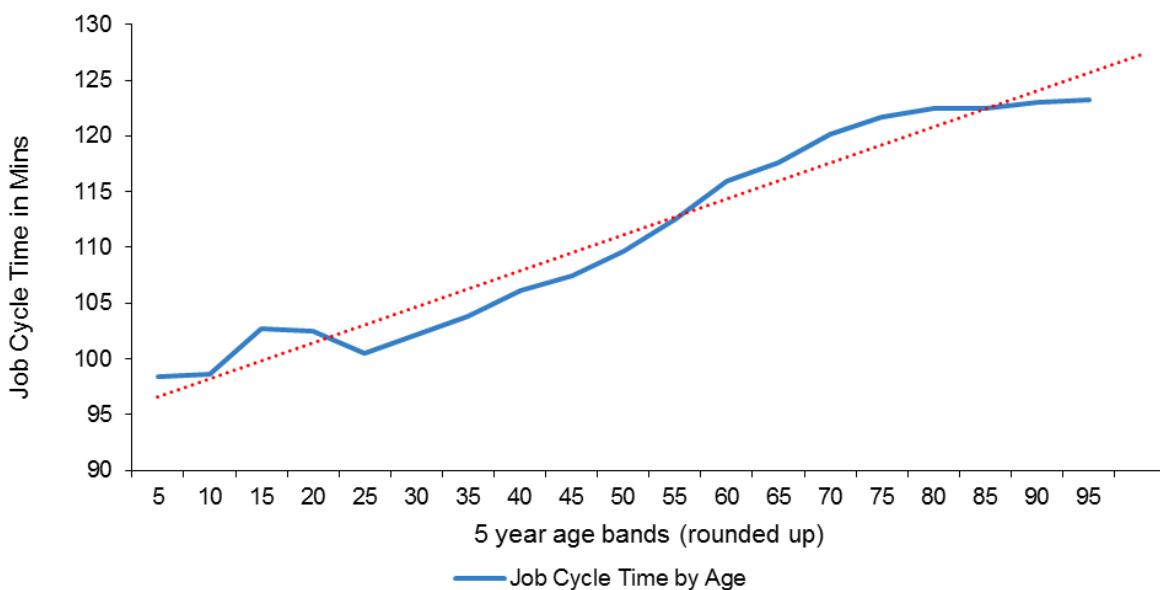
The London Ambulance Service could have a greater role in proactive public health. We already share public health and prevention messages communicated by our partners and by the Association of

Ambulance Chief Executives (AACE). There could be a more practical role for us through our volunteer network.

> **There is an opportunity for us to respond to the complexity of managing a growing and aging population by using a wider range of specialised staff and to deliver more care through our telephone services and in the community to avoid unnecessary emergency department attendances and hospital admissions.**

2.2.3   An increasing prevalence of acute and complex long-term conditions requiring coordinated care

Changes in the prevalence of complex physical and mental health conditions affecting the population require health and social care services to respond differently to meet the needs of Londoners. Hospital is not always the most appropriate place for many people.

A growing number of patients have complex healthcare needs. In England, more than 15 million people have at least one long-term condition. This number is set to increase over the next ten years, with a significant rise in the number of patients with three or more conditions. London's ethnic diversity means that there are significant numbers of patients with genetically-linked conditions such as sickle cell disorders.

We are also at a hugely exciting juncture in healthcare and medicine with major advances being made on a regular basis. However, this has a knock-on effect on demand for our services, as the numbers of patients with very complex care needs such as cardiac assist devices (left ventricular assist device) and children with life-limiting congenital conditions increase.

Table 1: Landscape of complex conditions

Stroke	Nearly 40% of men and 30% of women have high blood pressure, a key risk factor for stroke
Obesity	63% of adults and 34% of under 11s are obese or overweight
Mental health	1 in 4 people in the UK will experience a mental health problem each year
Dementia	The number of people with dementia is expected to more than double over the next 30 years
Long term conditions and co-morbidity	Around 15 million people in England have one or more long-term condition, with care for these conditions accounting for 55% of GP appointments, 68% of outpatient and emergency department attendances and 77% of inpatient bed days[10]
Deprivation	Some people in deprived areas will have multiple health problems 10–15 years earlier than people in affluent areas

> **There is an opportunity for us to further integrate ambulance services with community health teams and social care hubs, co-located or connected virtually to enable robust, high quality and cost effective coordination of the delivery of urgent and social care.**

2.2.4   The need for care of critically ill patients is growing at a higher rate, which impacts upon the resources available for patients with less acute needs

Following the largest clinical ambulance trials in the world, NHS England announced a new set of response time measures for ambulance services[11]. The changes focus on making sure the best, high quality, most appropriate response is provided for each patient first time. This includes providing call

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[10] Managing the care of people with long-term conditions, House of Commons Health Committee, 2014

[11] New ambulance standards, NHS England

handlers with more time to assess 999 calls that are not immediately life-threatening, enabling them to identify patients' needs better and send the most appropriate response.

The new Ambulance Response Programme (ARP) standards will ensure early recognition of life-threatening conditions, particularly cardiac arrest. A new set of pre-triage questions is now asked so that when you dial 999, those patients in need of the fastest response are quickly identified. New nationally set response times will free up more vehicles and staff to respond to emergencies.

There are four categories of call:

1. Calls from people with life-threatening illnesses or injuries (average response in 7 minutes)

2. Emergency calls (18 minutes response)

3. Urgent calls (120 minute response)

4. Less urgent calls (180 minute response)

We implemented these changes on 31 October 2017. As a result of the additional time allowed for less urgent calls, we have been able to get to the highest category of call more quickly.

Increase in 999 and 111 call volumes

We provide 999 emergency services across London. The volume of 999 calls we receive has been growing at a year-on-year average of 2.0% over the last three years. NHS 111 is a non-emergency number that was introduced nationally in April 2013. We provide the 111 service in South East London and will be running the service in North East London from August 2018. The volume of 111 calls we receive has been growing at a year-on-year average of 8.7% over the last three years.

Figure 7: Case mix of 999 incidents for top 20 advanced medical priority dispatch system (AMPDS) codes
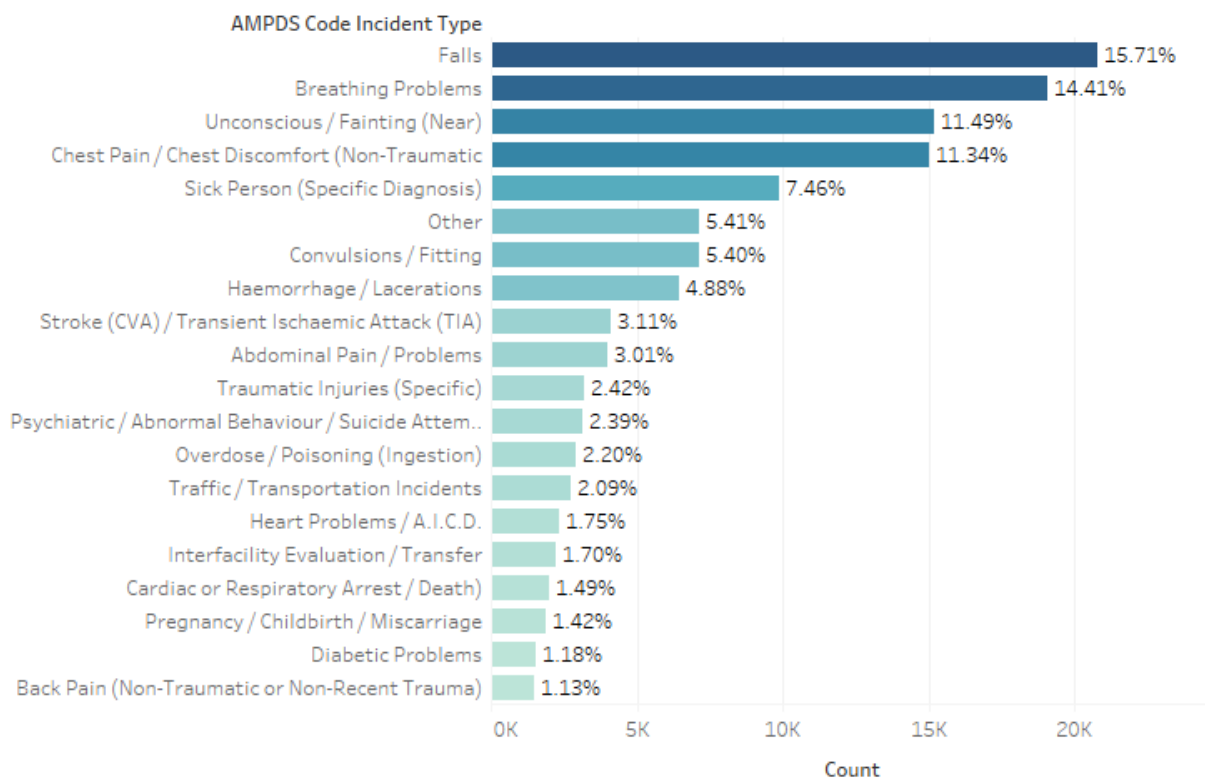
Calls escalated to 999 from all five 111 services in London, which are then responded to as emergency calls, now make up roughly 13% of our total 999 calls. The volume of escalated calls we receive is growing at a faster rate than 999 calls made directly to us. Figure 8 shows the total 999 incidents since 2013/14 with a growing proportion of incidents that come from 111 transfers. These are currently triaged outside the 999 system and sent immediately for dispatch.

Figure 8:   Shows growing percentage of 999 incidents that are 111 transfers
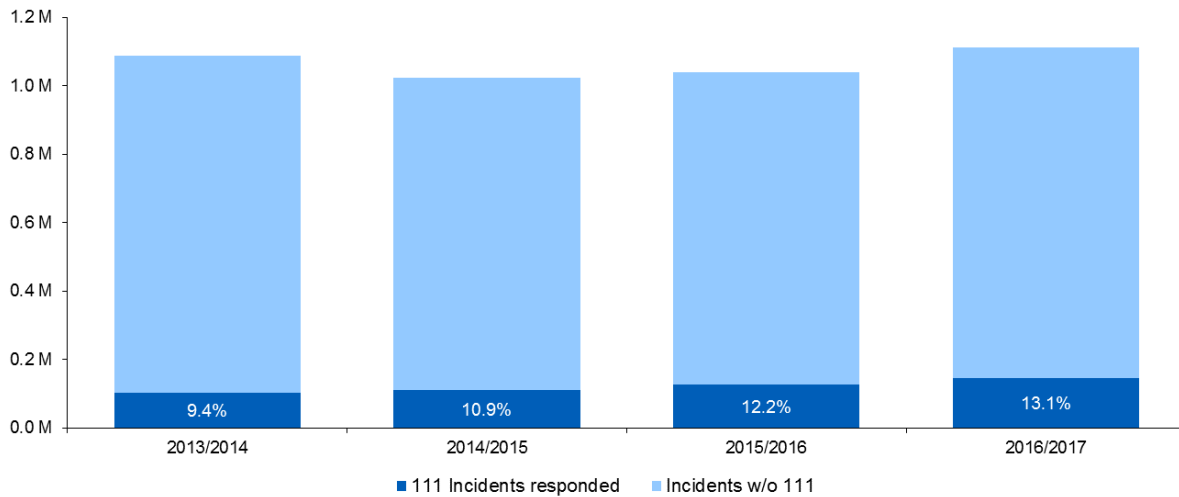
Our South East London 111 service converts fewer NHS 111 calls to 999 emergency dispatches than any other 111 provider in London because our teams understand how each other work, have a better understanding of the different levels of response that we can provide and are supported by the same set of senior clinical managers. This is of particular benefit during periods of high demand such as over Christmas and the New Year. Once we establish our North East London service, we anticipate being able to achieve the same benefits that we currently achieve for South East London.

Figure 9 shows the proportion of 111 calls escalated to 999 for all 111 services in London. South East London 111, which we run, shows a consistently low level of ambulance dispatch in comparison to other London 111 services. If all 111 services had similarly low dispatch rates, this would equate to 25,000 or 2.2% fewer incidents that required a physical response to patients per year.

Figure 9:   Shows performance of LAS 111 service in minimising 999 escalation in comparison to other London 111 providers. Line charts show % of 111 calls (3 month rolling average) from London's NHS 111 minimum data set
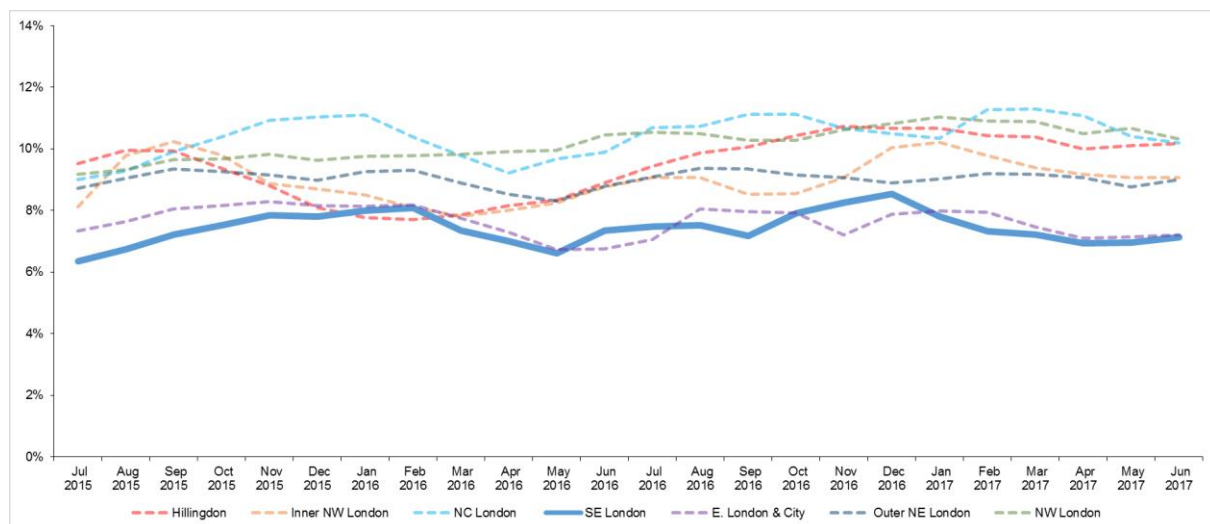
Increase in acuity of 999 calls

The proportion of 999 calls prioritised into our highest category has been increasing at a year-on-year average of 6% over the last three years. Figure 10 shows the significant historical growth of Category A incidents (the highest acuity call before the ambulance measures changed in November 2017), accounting for nearly half of all incidents in 2016/17[12].

Figure 10:   Shows the growing rate of Category A incidents as a proportion of total number of incidents before the transition to current ARP categories provided for comparison
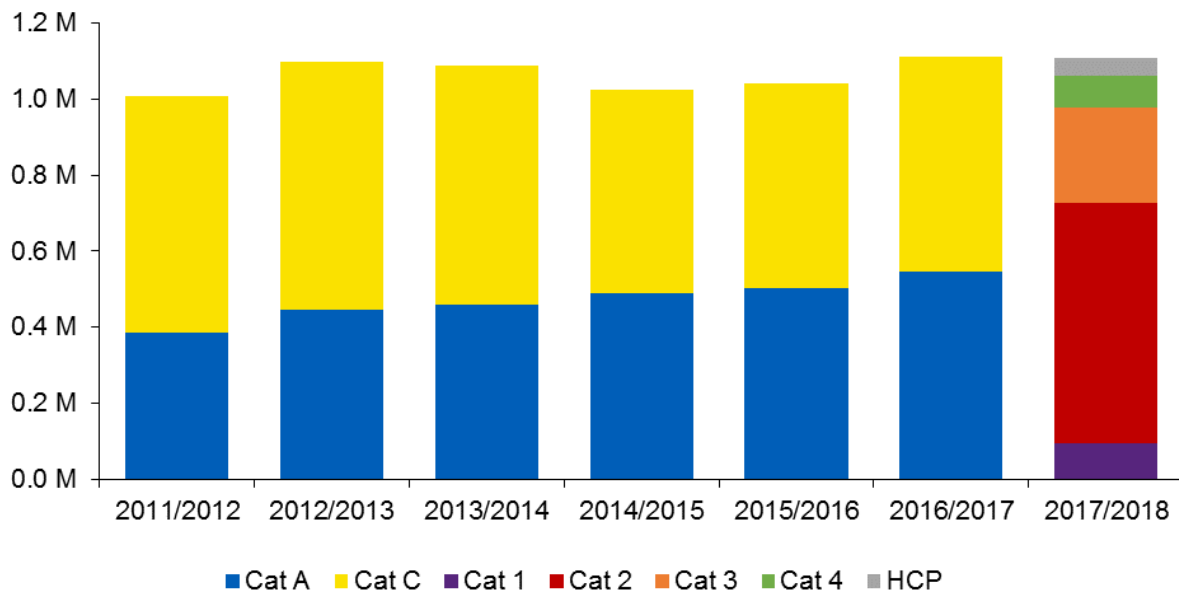
Note to table: HCP incidents are those with a non-emergency conveyance where a 1, 2, 3 or 4 hour response has been agreed, without triage in response to a call from a healthcare professional. As these are not ARP targets and do not sit within Categories 1–4, they are counted separately.

Figure 11 demonstrates that, whilst the acuity of incidents has been increasing, we have become more successful at treating lower acuity patients in ways that avoid unnecessarily conveying them to hospital, including through our 'hear and treat' service where patients are discharged from our care through telephone advice provided by an experienced clinician.

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[12] It is not possible to compare statistics for activity before and after the ARP transition took place as the new ambulance response measures are not directly comparable

Figure 11: Shows the outcomes of activity, incidents have increased in volume by 7.4% over the period, even with the introduction of hear and treat
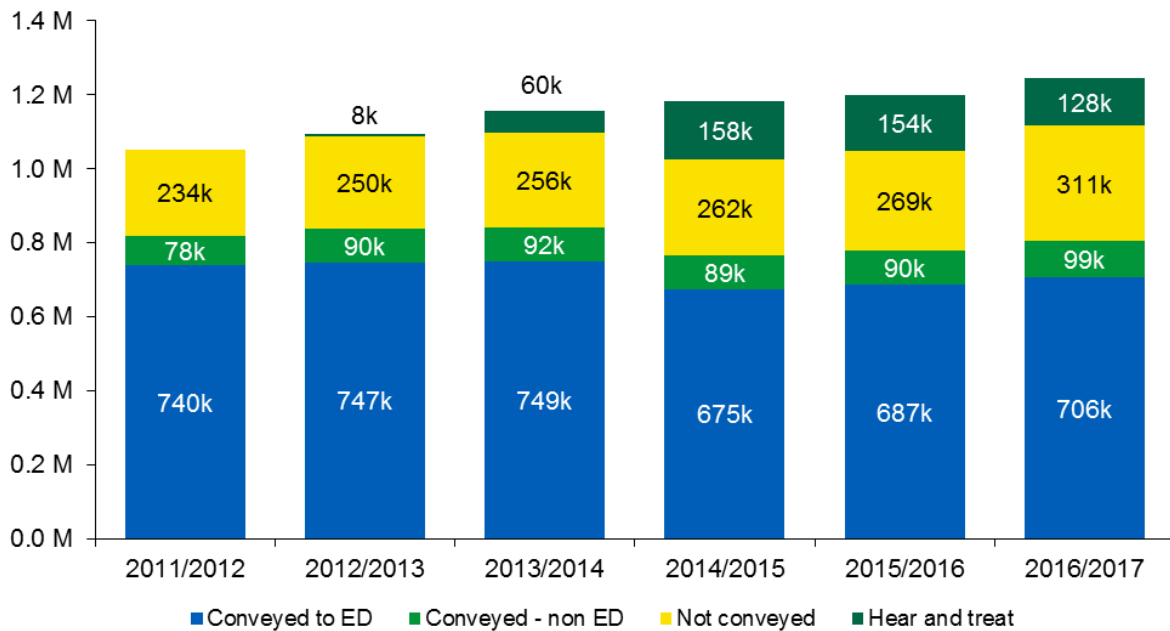
In 2016/17 we resolved approximately 10% of 999 calls without the need to send an ambulance.

Increase in number of emergency incidents and conveyances

The overall number of true emergency incidents we attend has been increasing at a year-on-year average of 2.8% over the last three years. While this has occurred we have reduced both the proportion of people we convey to the emergency department and the absolute number by 62,000 patients, an 8% reduction.

Figure 12: Shows a falling proportion of incidents conveyed to the emergency department by year
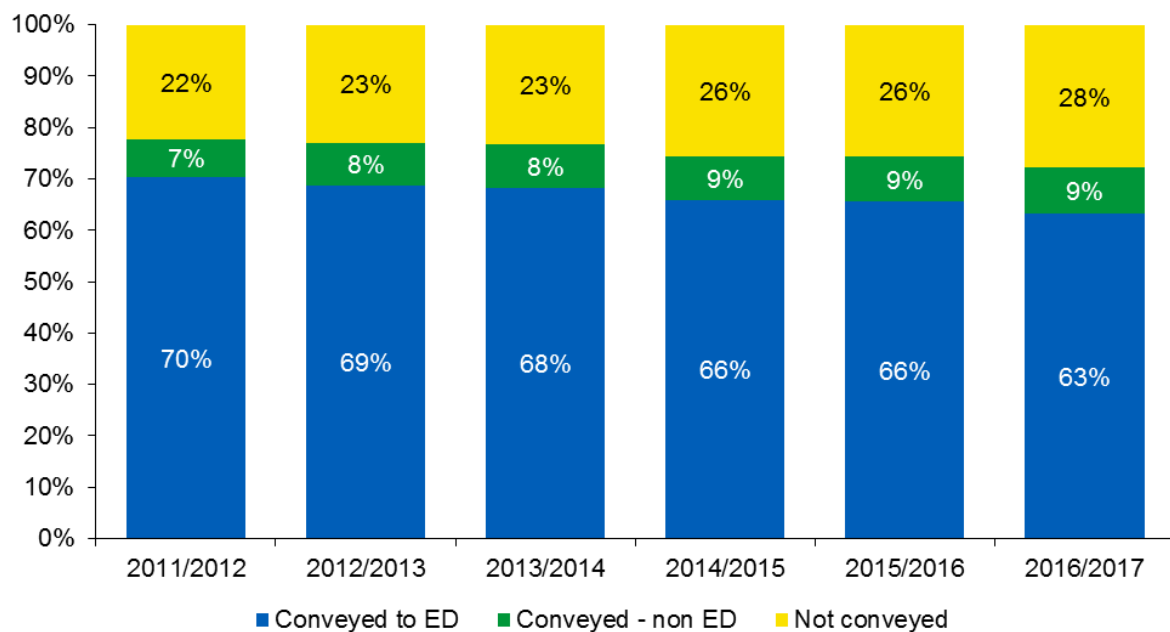
Our longer term forecasting shows that if we do not take any action to manage demand on us we can expect total weekly calls to increase to c.39,000 by 2022/23 (+9% from 2016/17).

> **There is an opportunity for us to increase the use of our 'hear and treat' and 'see and treat' services, and work with London's five STPs to seek other ways to manage or mitigate demand on the urgent and emergency care system.**

2.2.5 The way that patients are accessing the care system is changing fast and new technologies are becoming available that can improve the way we care for our patients

Patients' expectations of health and social care services are changing. Patients expect services to be conveniently located and available at times that suit them rather than the clinicians. London is also one of the most connected cities in the world: more than half of our 999 calls are made from mobile devices. Patients expect services to use modern technology, to be coordinated and connected so that clinicians can share information and patients only need to have a discussion once. The convenience of taxi and takeaway apps needs to be brought into how we respond to patients requiring urgent or emergency care.

However, there are generational and demographic differences. While many people may be comfortable and confident using mobile technology to find out about and access services, those who have not yet learned how to use technology confidently – or can't afford it – are at risk of 'digital deprivation'. Some patients prefer to see the same clinician, with whom they have built a relationship over time; for others, convenience or timeliness is more important and they are happy to have a more transactional relationship with a number of clinicians. The larger the number of clinicians involved in a patient's care, the more obvious it is that there must be a shared care record for continuity of care. Coordination becomes very important, which is why 111 services are being developed into 'integrated urgent care'.

The telephone will always be a core channel for us, however the majority of our patients are only currently able to get in touch with 111 or 999 services by telephone. We provide 'text type' for people with hearing difficulties, however patients may not always have access to the equipment they need to access this.

> **There is an opportunity for us to transform our services to take advantage of a wider range of digital technology so that patients can contact us in the way that best suits their needs and preferences.**

2.2.6 Recruitment challenges within front-line and support functions

Like all parts of the NHS, we are constantly looking for new and innovative ways of recruiting staff and retaining the people who already work for our service. There is a national shortage of paramedics which has been a key recruitment challenge for us over the past few years, and we will continue to look creatively at how we can attract new clinicians to our organisation, or how we can 'grow our own'. Similarly, we have a number of other areas of our organisation where we have recruitment challenges such as within IM&T and our fleet workshops. All of these areas are crucial to the delivery of our service and therefore priorities for our organisation to fix.

Front-line vacancies increase pressures on operational staff, meaning that they have higher than planned utilisation rates. This leads to higher stress and sickness levels, and lower staff satisfaction and morale resulting in greater retention problems. This can therefore become a vicious circle. Recruitment and retention problems are not confined to road staff: call-taking staff in Control Services also experience stressful working conditions leading to turnover and a constant requirement to recruit and train new staff.

Our paramedic vacancy rate has averaged around 8% over the last year[13], which is below the recent national average of 10%[14]. In the past, paramedics have only been able to find employment in ambulance trusts. However this is no longer the case as other health settings have realised the considerable skills that paramedics can bring and we are now facing competition for paramedics from other settings including GP surgeries and urgent care centres[15]. Figure 13 shows that, despite these challenges, we have made significant progress over the last few years in bringing down our vacancy and turnover rates.

Figure 13: Shows a falling paramedic turnover rate (rolling 12 months) against front-line paramedic vacancy rate as a 3 month rolling average.

There is an opportunity for us to further improve recruitment and retention so that we can continue to attract the best staff in the country.

2.3   Responding to the opportunities in London

Our ambition with this strategy is to set out how we will play a major role in delivering the objectives of core national and regional strategies to improve patient outcomes and experience. As the only pan-London NHS provider, and a member of each of London's five STPs, we are ideally placed to integrate access to urgent and emergency care, and identify variation in services across London as well as what works best.

We also have valuable data covering patients across London. We can play an important role in shaping a consistent approach to improving urgent and emergency care, offering more care in or close to patients' homes and reducing unnecessary hospital attendance and admissions.

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[13] Source: Workforce Planning Team, London Ambulance Service

[14] NHS Ambulance Services, National Audit Office, 2017

[15] The future of primary care: Creating teams for tomorrow, Primary Care Workforce Commission, 2015

An overarching principle for urgent and emergency care is to treat patients in the most appropriate setting for the acuity of their condition. Local people told South West London's STP in a survey that "too many people use emergency departments because they can't get an appointment with their GP or they don't know where else to go", and that "very few people had heard of NHS 111"[16].

There are opportunities for us to:

- Respond to the complexity of managing a growing and aging population by using a wider range of specialised staff and to deliver more care through our telephone services and in the community to avoid unnecessary emergency department attendances and hospital admissions

- Further integrate ambulance services with community health teams and social care hubs, co-located or connected virtually to enable robust, high quality and cost effective coordination of the delivery of urgent and social care

- Increase the use of our 'hear and treat' and 'see and treat' services, and work with London's five STPs to seek other ways to manage or mitigate demand on the urgent and emergency care system

- Transform our services to take advantage of a wider range of digital technology so that patients can contact us in the way that best suits their needs and preferences
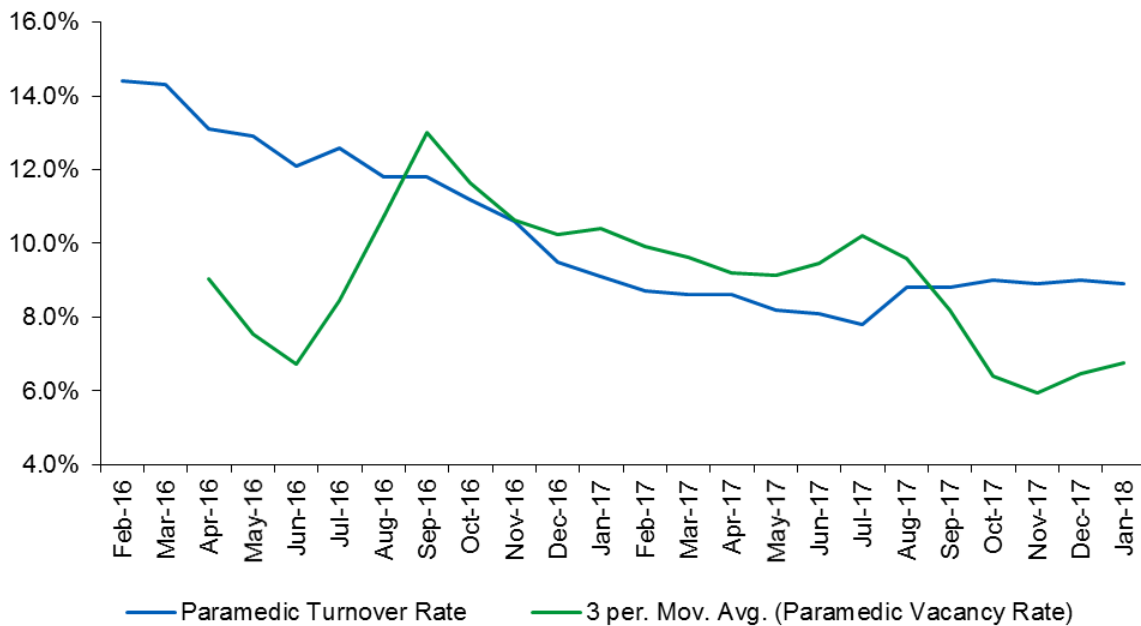
- Further improve recruitment and retention so that we can continue to attract the best staff in the country

In the next section we set out how we will respond to these opportunities.

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[16] South West London Health and Care Partnership: One Year On, 2017

3   A world class ambulance service for a world class city

As the only London-wide healthcare provider, we are uniquely placed to become the capital's primary integrator of access to urgent and emergency care. This section sets out our vision for the future and previews the three strategic themes described in sections 4, 5 and 6 that will enable us to realise our vision by 2022/23.

3.1   Our vision and three strategic themes

The London Ambulance Service has four goals:

- Provide outstanding care for our **patients**
- Be a first class employer, valuing and developing the skills, diversity and quality of life of our **people**
- Provide the best possible value for the tax paying **public**, who pay for what we do
- **Partner** with the wider NHS and public sector to optimise healthcare and emergency services provision across London

Our vision is:

> To be a world class ambulance service for a world class city: London's primary integrator of access to urgent and emergency care 'on scene', 'on phone' and 'on line'

Our strategy is an essential part of delivering on the goals of coordinating urgent and emergency care pathways, delivering more care on scene and avoiding unnecessary attendance at emergency departments. We will provide the right care at the right time, enabling rapid access to the most appropriate patient care, through three strategic themes:

1. Comprehensive urgent and emergency care coordination, access, triage and treatment, with multichannel access for patients

2. A world class urgent and emergency response with enhanced treatment at scene and for critically ill patients a faster conveyance to hospital

3. Collaborate with NHS, emergency services and London system partners to provide more consistent, efficient and equitable services to Londoners

Delivering these three strategic themes will result in significantly improved patient care, a reduction in unnecessary conveyances to emergency departments and better use of our resources and best value for money for the urgent and emergency care system and the taxpayers who pay for it. The collective benefit of these initiatives will reduce the number of crew hours required to respond to increasing demand, allowing for more efficient use of our resources. Over time we will review the make-up of our fleet and estate to ensure that our resources are helping us to deliver the response required by our population.

3.2   Our values and behaviours

We can only realise our vision through the adaptability, determination, flexibility and engagement of our people: how our people feel about working for us; how new people feel about coming to work here and how engaged we all are in our work. These are all vital to us to achieve outstanding care for our patients. Our new values and behaviours articulate how we as an organisation and as individuals should work. Our values demonstrate the qualities that we embody and our new set of organisational behaviours detail how we demonstrate these values every day.

Figure 14: Our values and behaviours

VALUES The Qualities we embody	BEHAVIOURS How we demonstrate our values in actions
Respect	• **Caring** for our patients & each other with compassion and empathy • Championing equality and diversity • Acting **fairly**
Professional	• Acting with honesty & integrity • **Aspiring to** clinical, technical and managerial **excellence** • **Leading** by example • Being **accountable** and **outcomes orientated**
Innovate	• **Thinking creatively** • **Driving value and sustainable change** • **Harnessing technology and new ways of working** • Taking **courageous decision**
Collaborative	• **Listening and Learning from each other** • **Working with partners** • **Being open & transparent** • **Building trust**

Our proposition to our staff through our strategy is that we will create a richer, supportive working environment with greater opportunities for learning and career development, attracting and retaining the best staff in the country from all walks of life.

4 Strategic theme 1: Comprehensive urgent and emergency care coordination, access, triage and treatment, with multichannel access for patients

At the heart of our strategy is the idea that we want to manage and coordinate the flow of patients through urgent and emergency services, making it as easy as possible for people to access the help that they need. Our response is to develop an integrated clinical assessment and triage service: iCAT London, which will sit behind both NHS 111 and 999, providing integrated urgent and emergency care.

A world class ambulance service needs to be at the forefront of using all technology and digital innovations to provide the best possible service to London, using public money as responsibly and efficiently as possible. We not only want to use available technology, we want to lead the way in developing, piloting and utilising new technology. We are forging a strong relationship with NHS Digital and NHS England to work with them to design and pilot initiatives that can benefit the sector as a whole.

4.1 Service summary

iCAT London is our proposed integrated clinical assessment and triage service. It will be a fully integrated service behind 999 and 111 which delivers consistent, safe and efficient care seamlessly accessing pathways ensuring that patients receive the most appropriate care, at the earliest stage, to meet their needs whatever entry point they access. Our integrated service will encompass all aspects of urgent and emergency care, coordinated so that the patient's experience is one of a single health service and that there is consistency across London. This will mean:

Table 2:   iCAT London service summary

Service delivery (patient-facing)	Service implementation (staff-facing)
• Improving the availability of high quality clinical information available to patients through a variety of digital means, utilising emerging artificial intelligence technology to assist with initial triage • Development of online self-triage systems linking to clinical self-care information, and connecting to the clinical queue where further assessment is required • Multidisciplinary clinical assessment service, utilising a broad range of clinicians, enabling the service to manage a high proportion of calls via 'hear and treat' using an evidence-based clinical decision support system, reducing the number of unnecessary onward referrals • Well-governed referral pathways with smooth transfer of information between providers reducing the need for patients to repeat themselves • Post event messaging/discharge summary to a patient's GP to provide information about the assessment and management plan as well as recommendations for follow-up	• Full inter-operability between the 999 and IUC services facilitating seamless referrals and greater economic benefits of scale and scope • Shared access to clinical records supporting safe prescribing and tailored clinical management • A comprehensive directory of services populated with primary/secondary/community/voluntary sector services, facilitating appropriate referral • Electronic information transfer, prescribing and appointment booking in real-time with information following the patient • Central oversight of clinical queues with alert systems and a demand/capacity dashboard monitored to maintain patient safety • Opportunities for clinical workforce development/sharing clinical resources across the system

This approach of unifying access to urgent and emergency care across London can only be delivered by the London Ambulance Service.

Figure 15: Integrated clinical assessment and triage
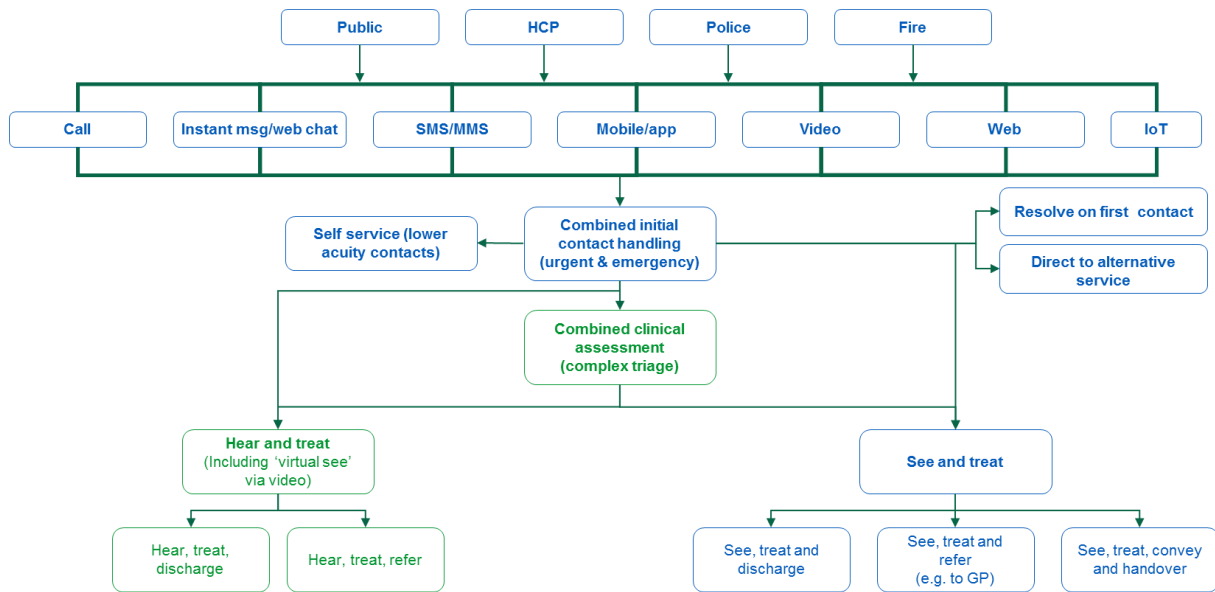
HCP	Calls from healthcare professionals	MMS	Multimedia (photo) message
SMS	Text message	IoT	Internet of things – internet-enabled devices such as wearables, monitors and detectors

iCAT London will use technology that allows us to better assess and treat patients as well as allowing patients to access our services in a variety of ways. Currently all 999 calls are received over the phone in one of our two control rooms. 111 calls are received via telephone in our 111 call centres or via 111 online. We will expand the methods of access to include video calls from home and mobile, web-chat, online self-care advice and text based messaging: iCAT London will have true multichannel access. By introducing these methods we will enhance the service that we are able to provide as well as making our service more accessible to those with hearing or communication difficulties.

4.2   Service model

Our current clinical hub, which provides expert clinical advice to our 999 call-takers, is staffed by experienced and skilled paramedics, alongside a small number of registered mental health nurses. We will expand the number of different professions we have working as part of our clinical hub to make it a truly multi-disciplinary team. At the core of iCAT London will be a new integrated clinical assessment service (CAS) which will provide clinical advice to patients, mobile health professionals working in the community as well as to our own staff. The service will be staffed by a range of specialist clinicians including GPs, paramedics, advanced nurse practitioners, midwives, pharmacists, dental nurses and mental health nurses, according to local demand, and will have access to advice from hospital specialists.

NHS England's specification for integrated urgent care (IUC) contains a 'clinical assessment service', which will provide advice to NHS 111/integrated urgent care call-takers. iCAT London will be supported by a fully integrated clinical assessment service, going well beyond the national specification.

iCAT London is our unique way of joining together our 111/IUC and 999 services, including multichannel access, integrated clinical queue, integrated CAS and integrated dispatch system.

4.2.1   iCAT London

We will endeavour to provide treatment to patients via a 'hear and treat' model wherever possible and clinically appropriate, via the telephone and a number of digital channels. Where referrals need to be made, these will be supported by access to the directory of services which is a live resource providing information on appropriate care pathways, suited to individual patient needs.

The CAS (described below) will provide the clinical expertise to manage complex patients with comorbidities; access to clinical notes will allow safe prescribing and referral. Through improved information sharing of patient records, we will be able to support a holistic model of care for patients with long-term conditions so that their care continues to be seamless across multiple providers within the system. We will utilise appropriate care pathways and the directory of services to refer patients to community teams such as rapid response, falls teams and district nursing teams to facilitate care closer to home and avoid unnecessary admissions.

Clinicians within the CAS will provide enhanced assessment and specialist advice to patients accessing our IUC and 999 services as well as to our call-takers and front-line staff, and other clinicians external to the service. Technology will allow clinicians to provide peer support and advice to each other (e.g. real time access to specialist consultants, mental health nurses, pharmacists or GPs for advice regarding a case).

From our 999 clinical hub, we have experience in dispatching specialist resources including advanced paramedic practitioners in urgent care and critical care. We have been recognised by the International Academies of Emergency Medical Dispatch as an 'Accredited Centre of Excellence' since 2002; and were the first NHS ambulance trust to obtain the Cabinet Office's Customer Service Excellence® accreditation, which we have held since 2010. We will continue to work with London commissioners to develop resources according to local need that can be dispatched via our CAS.

4.2.2   Integrated clinical assessment service

Our integrated CAS will operate as one system across 999 and IUC, using the same clinical decision support system (CDSS), which will add resilience to the clinical support by providing clinical decision support while allowing clinical autonomy and empowering utilisation of their knowledge and skills. The CAS will comprise GPs, advanced practitioner nurses, paramedics, and pharmacists who will be supported by a wider range of specialist clinicians including mental health nurses and midwives. Specialist 999 resources such as our air ambulance dispatch desk will sit within our CAS.

CAS clinicians will be able to work from any London Ambulance Service control room and will use the CDSS as well as their own clinical expertise to triage calls. They can also work remotely in order to support the system in times of surge. Their training will encompass development of an understanding of the urgent care system as a whole (including how 999 and IUC services integrate with the urgent care system). They will have access to records via locally agreed shared records as well as care plans including Coordinate My Care, to aid clinical decision-making; and will have access to clinical advice from secondary care where required.

Our system will have the capability to conduct video assessment and receive photographs to support joint assessment with external clinicians for example our front-line 999 clinicians who have recently been issued with hand-held electronic devices, community nurses or nursing home staff. Longer term, the system will be able to access telehealth data in order to support decision-making when treating patients and to provide outreach assessments to patients who have triggered alerts with changes to their clinical parameters.

Clinical navigators in the CAS will ensure that patients are allocated correctly to the right clinician and that clinical prioritisation models are followed, supporting clinical decision-making, patient safety and case prioritisation. The clinical navigator will review the lower acuity calls which have not yet received a response to identify calls that might need a more urgent review. Cases will then be allocated to clinicians depending on patient need, demand and capacity. They will also advise and support health

advisors and clinicians. There will be oversight of all urgent and emergency care demand across the service.

Prescribing clinicians will issue medications via electronic prescribing where clinically appropriate, allowing prescriptions to be sent to a local pharmacy. This will reduce unnecessary further referrals to other services which will improve patient experience by being able to meet all their needs in one place. Access to patient records, prescribing decision support and online resources will support clinical decision-making and prescribing. The prescribing system will be supported via medicines optimisation software that will facilitate decision-making at the point of prescribing, enhancing patient safety and efficiency of the service by incorporating prompts for staff around allergies, contraindications, interactions and compliance with the local formulary and clinical guidelines.

4.2.3   Governance and support

iCAT London will be supported by a senior clinical on-call structure which provides senior leadership and clinical accountability at an operational level 24/7. This meets national objectives of "no decision in isolation" while ensuring that necessary auditing and compliance monitoring is a protected aspect of the service.

We will encourage clinical staff to undertake regular face-to-face clinical shifts to continue to develop and maintain their clinical skills. We will support and facilitate this by arranging cross-organisational agreements where required and allowing portfolio contracts.

Clinical leadership and the governance team within the IUC service will be supported by our medical directorate, which incorporates multiple clinical specialties including general practice, emergency medicine, general and mental health nursing, pharmacy, midwifery and consultant paramedic level clinicians.

We will continue to develop and refine iCAT London to meet the needs of patients and the public, and the wider urgent and emergency care system. Using activity data, we will be able to identify trends and patterns of how patients behave and use the system, and thereby inform future service development.

4.3   Summary of potential benefits

The benefits of iCAT London will scale with the number of 111/IUC services we provide. The larger the scale, the greater the synergies between our 111 and 999 services and the further beyond NHS England's IUC specification we will be able to go. We show graphically in Figure 16 how utilisation of call handling would scale: one of the principal economic benefits.

Figure 16:   Shows the increasing utilisation of call handling staff with scale. A larger number of calls are covered by staff (whole time equivalent) as calls offered (total number of call received by 111 service) increases. The red line shows initial call handlers; the blue line shows clinicians (who handle a smaller percentage of total calls); values are based on NEL 111 performance metrics.
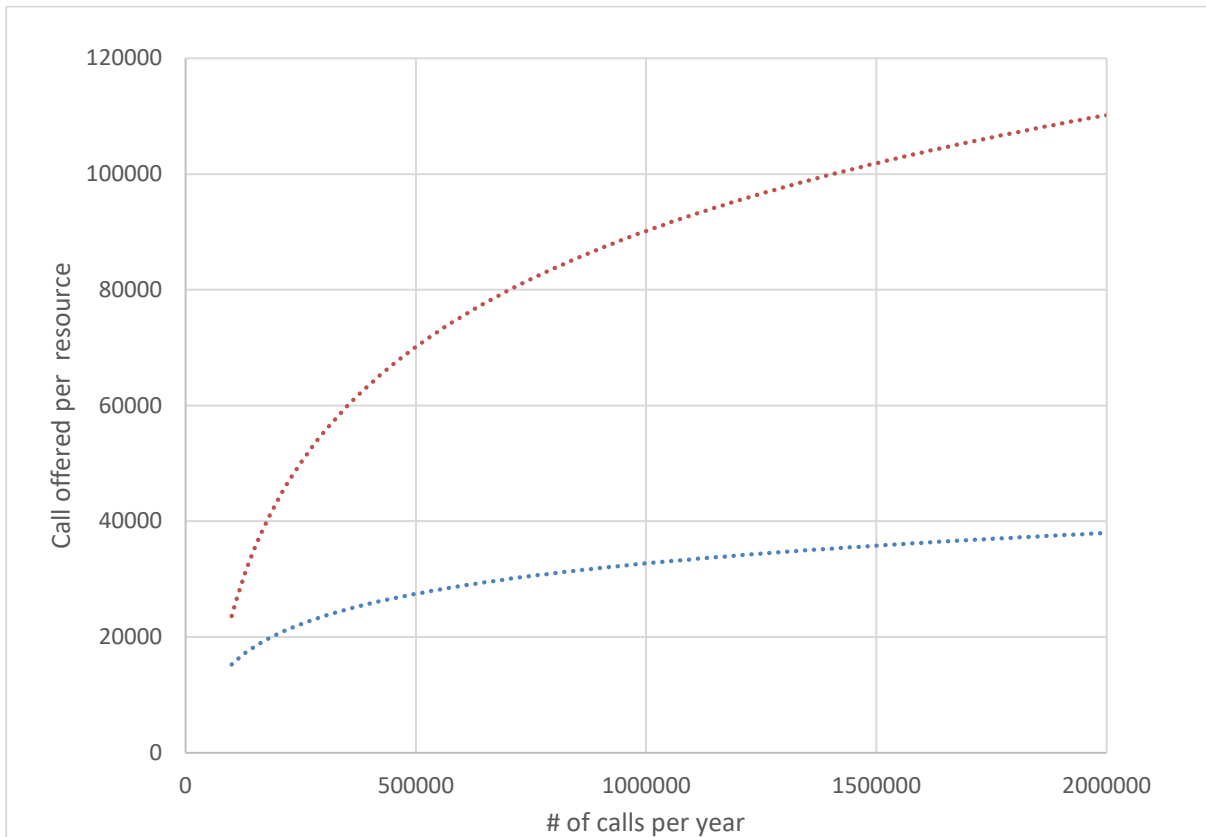
We want to be London's 'primary integrator' of access to urgent and emergency care but this doesn't mean we would seek to provide everything in-house. It will be important for us to balance the benefits of scale and scope with efficiencies that come with competition. We feel that we are best placed to perform this integrating role for London, as the lead provider for urgent and emergency clinical assessment and triage. Successfully implementing iCAT London would deliver benefits as described in the following sections.

4.3.1   Patient Benefits

Table 3:   iCAT London – summary of potential patient benefits

Providing multichannel access
• **Improved ease of contact for patients** Having multiple contact channels available allows patients to contact the service via their preferred method.
• **Improved patient outcomes from better data capture** Having all contacts registered in one system gives the opportunity to capture and recall data to improve patient experience.
Expanding clinical triage
• **Optimising patient triage** An integrated clinical assessment service will ensure that emergency triage is not used for non-urgent patients and vice-versa. This will improve patient experiences by reducing the need for transfers between systems such as the 111 transfers to 999 that occur at present or requesting patients to contact a different service.

Treating more patients remotely
A larger volume and range of calls will allow for an expanded clinical assessment service. This will allow us to quickly provide advice to patients over the phone rather than them waiting for longer for a physical response which they do not require to meet their needs.
Optimising initial contact handling
• **Artificial intelligence improving triage**   A.I. will provide a patient with an instantaneous response, making a breadth of information available without human intervention   • **Providing optimal response to contact**   Integrated call handling will allow us to determine the urgency and categorisation of calls more efficiently, reducing the time it takes for patients to reach the right service.
Supporting physical response performance
• **Improving information for physical response teams**   Delivering additional information to our on scene teams will support them in determining most appropriate clinical response and where it's best to convey patients.

4.3.2   System Benefits

The principal benefits of implementing iCAT London are improvements for the patients and the economic benefits that accrue to the London Ambulance Service through earlier resolution of calls. There are however, three potential sources of additional benefit to the wider system that we have not yet quantified:

- Time and resource savings from direct bookings into integrated systems
- Multichannel access opening up a range of educational benefits for communities by helping patients to inform each other about appropriate services and how to access them
- The London Ambulance Service as a provider of data analysis and insight to improve urgent and emergency care across the wider system

It is difficult to estimate the benefit to the London region from avoided emergency department attendances or admissions *over and above* those already anticipated from the implementation of integrated urgent care (IUC), which CCGs and providers will already have documented in service business cases.

4.3.3   Economic Benefits

There is a large range of potential economic benefits which are presented below in Table 4. These will need to be explored further as technology and optimisation opportunities are better defined to understand implementation cost and benefit. A subset of these, where more detailed data exists, have been quantified in Table 5.

Table 4:   iCAT London – summary of potential economic benefits

Providing multichannel access
• **Diverting contacts that only require information**   Some of these channels, such as text or e-mail, will allow for easier and quicker responses by call handlers where the contact is simply a request for information. Up to 1% of current 999 calls require information only.   • **Reduced call times from better data capture**   Understanding past contacts and medical history has the potential to reduce call times through faster initial triage.
Expanding clinical triage
• **Optimising patient triage times**   An integrated clinical assessment service will ensure that emergency triage is not used for non-urgent patients and vice versa. This will optimise time taken for each triage by reducing the need for transfers and a triage system most appropriate to the situation.

- **Treating more patients remotely**
  A larger volume and range of calls will allow for an expanded clinical assessment service. A wider range of clinicians will be able to deal with a broader range of calls and prevent the need for a physical response. For example, by utilising midwives it is expected that approximately a third of maternity calls could be initially handled remotely with up to 80% being resolve through 'hear and treat'.

- **Integration of 111 and 999 calls providing most appropriate triage**
  Our clinical leads suggest there could be a significant reduction in ambulance dispatches for Category 4 incidents through improved remote care (hear and treat). An example of this opportunity is the proportion of 111 transfers that are categorised as Category 4 is lower than the overall 999 incidents population, when you would expect calls coming from 111 to be of lower acuity. This suggests the effectiveness of dealing with lower acuity calls is improved in the 111 process. The difference in current proportions accounts for over £11m in ambulance dispatches. Utilising additional methods such as re-triaging and accessing triage systems more effectively for urgent as opposed to emergency care could target these differences.

Using data to improve performance

- **Inform analytically driven decisions**
  Capturing further data will improve prescriptive and predictive analytical abilities to maintain and improve performance across the service.

Optimising initial contact handling

- **Artificial intelligence improving triage**
  Trials across England for the NHS online app have shown the feasibility of utilising artificial intelligence to partially or fully automate initial triage. Initial trials have shown that this can reduce onward referrals on to a primary care professional by 30%, and that up to 20% of contacts can be handled automatically.

  By making best use of, and building on, automated triage systems and utilising artificial intelligence the efficiency of calls handlers will improve and ensure that their skills are being focused on the most vital calls. An example of where this might be effective would be the 6,000 calls to 999 in 2017 which were classed as 'enquiry only'.

  The potential effectiveness of these systems can be seen from NHS Digital 111 online trials, which shows ambulance dispatches reducing from 23% to 20% and primary care referrals reducing from 59% to 40%.

- **Providing optimal response to contact**
  Integrated call handling will allow us to determine the urgency and categorisation of calls more efficiently, saving resource by reducing the level of unnecessary handovers, and increasing the chance of using a non-physical response where appropriate.

Supporting physical response performance

- **Treating more patients remotely**
  By increasing the number of 'hear and treat' responses this would decrease the number of 'see and treat' responses required. Improving patient quality, but also improving response time performance as more vehicles become available. As described in Section 2.2.4, South East London 111, which we run, shows a consistently low level of ambulance dispatches in comparison to other London 111 services. By adopting best practise across 111 services, this would save over 25,000 ambulances per year, worth over £2m per year, assuming 'hear and treat' rather than 'see and treat' costs.

Increasing workforce utilisation

- **Call Handlers**
  Having all 111 calls handled by a single workforce would significantly improve utilisation. An example of this efficiency shows that while 550,000 calls (size of North East London 111) would require 21 call handlers, 1.44m calls (call offered across all London 111) would require only 40 call handlers. This could offer the system a conservative saving of up to £1.4m per year using North East London utilisation, but the saving could be larger as most London 111 services are smaller than North East London.

- **Clinicians**
  Similarly to call handlers (above), we have estimated there is a conservative total opportunity to improve utilisation of clinical advisors of up to £3.9m per year. This increasing utilisation with scale is highlighted above in Figure 16.

Table 5: Detailing the benefits up to where we have been able to quantify the benefits above in more detail. Some of the benefits are only possible with scale. [a]

Beneficiary	Benefit area	Source of benefit	Potential costs avoided with 1 STP area (£m)	Potential costs avoided with 3 STP areas (£m)[d]	Pan-London potential avoided cost (£m)
London Ambulance Service	Ambulance dispatches	Avoided ambulance dispatches (999)	0.0[c]	11.6[c]	11.6[c]
		Avoided ambulance dispatches (111)	0.4	1.1	2.8
	Utilisation	Improved utilisation of call handlers	0.0	1.2	3.0
		Improved utilisation of clinical advisors	0.0	0.9	3.6
Total[b]			**0.4**	**14.8**	**21.0**

Notes to table:

a. To be quantified in further work as we develop the operating model for iCAT London

b. Implementation costs, including the costs of new technology and change management, have not been quantified

c. Dependent on how successfully category 4 calls can be targeted using 111 triage, minimum is set at £0.0m to account for the potential unviability of fully integrating both triage services for a single 111 service, but assumed achievable with 3 STP areas.

d. 3 STPs costed are NEL values and 2 averaged values taken from the NHS 111 Minimum Dataset

5 Strategic theme 2: A world class urgent and emergency response with enhanced treatment at scene and for critically ill patients a faster conveyance to hospital

Meeting the challenges of improving London's urgent and emergency care requires an ambulance service which places a clear emphasis on assessment and enhanced treatment at scene and in community settings, with transport to alternative care settings where required to access established pathways of care. Transport to hospital should be used for those patients who require the assessment and treatment skills and equipment available only within an emergency department.

We will continue to provide high quality care to all patients, especially those most critically ill and injured. Providing enhanced treatment at scene will enable us to use our staff and vehicles in the most effective way, preventing escalation and helping to manage demand on the system as a whole.

5.1 Innovating for our most critically ill patients

We will continue to ensure that our patients with the most serious or life-threatening conditions receive appropriate pre-hospital assessment and treatment in centres with the right facilities and clinical expertise in order to maximise their chances of a good recovery. While a relatively small proportion of the patients we treat (just 8.7% of 999 incidents are Category 1), the care of patients with life-threatening and life-changing emergencies remains a core priority for us.

There are a number of principles that are consistent and key to reducing death and long-term disability that we will focus on in the coming years:

- Rapid recognition of critical illness or injury at the point of first contact with iCAT London
- Timely response by appropriately trained and skilled clinicians including continued development of the paramedic clinical team leader and advanced paramedic practitioner (critical care) roles
- Prioritisation of lifesaving interventions over non-essential activities
- Support, where needed, by clinicians with enhanced skills and additional experience, either in person or through iCAT London, utilising technology including video calls
- Minimising time spent on-scene for time-dependent clinical conditions
- Transport to definitive care, with a pre-alert call to activate an appropriate response
- Direct transfer to tertiary care centres for specific conditions, including stroke, heart attack and major trauma

As a major incident Category 1 responder, we have a statutory obligation to be prepared to deal with serious and major incidents of all types and sizes. Our incident response plan has been prepared in light of guidance from the Department of Health, Home Office and builds on the Civil Contingencies Act 2004 guidance, lessons identified by the London Ambulance Service itself, Coroner's inquests and subsequent 'prevention of future death' reports.

The start of 2017/18 was dominated by the four major incidents that we responded to:

- Westminster attack on 22 March 2017
- London Bridge attack on 3 June 2017
- Grenfell Tower fire on 14 June 2017
- Finsbury Park Mosque attack on 19 June 2017

Over 1,000 people across the organisation were involved in some way in responding to one or more of these major incidents, responding professionally and working exceptionally hard in extraordinarily challenging circumstances. Responding to these tragedies not only demonstrated the resilience of our staff, but also the resilience that we have as an organisation. While our staff, whether out on the road, in our control room or in a support function were responding to these incidents, we were still able to provide high quality services across the capital to ill or injured people who needed our care.

We are committed to continued engagement with our partner agencies and with the local and regional resilience forums to ensure joined up multi-agency emergency preparedness and resilience which ensures a rapid response, with appropriately skilled clinicians to ensure the best clinical outcomes for the patients affected.

5.1.1   Major trauma

London has a world-class major trauma system that consistently now sees patients survive major trauma that would not have done 5–10 years ago. Early identification of these patients and direct transfer to major trauma centres play a very important role in both improving survival and minimising long-term disability.

Over the past five years it has become clear that the face of major trauma has changed. While sadly, penetrating injury (e.g. knife wounds) in young people is still common, the major trauma population in the UK is becoming more elderly. While major trauma makes one think of major accidents, the most common cause of major trauma is a fall of less than 2 meters. It is therefore not surprising that the current average age of major trauma cases is 60, and with an ageing population, it is predicted that within the next few years the over 75s will be the single largest cohort suffering major trauma.

Our priorities:

- Enhance the education for 999 and 111 emergency medical dispatchers to ensure that they have the underpinning knowledge to recognise mechanisms which may indicate a more serious injury
- Use video technology on the 999 clinical hub to help in the remote triage and assessment of trauma patients
- Deploy, where appropriate, advanced paramedic practitioners to support crews in managing complex scenes and patients, and ensure that the APP skillset meets the needs of this cohort of patients

Improving response times for major trauma patients

We work in collaboration with London's Air Ambulance to treat some of the most serious major traumas in London. The air ambulance service is funded through charitable donations and operates a helicopter during the day and a fast response vehicle at night.

We have a formal service level agreement with London's Air Ambulance and second our paramedics to their service for nine month rotations, which includes shifts in the helicopter or on the car; as well as dispatching the air ambulance service from our control room. This secondment includes advanced training on the additional equipment and drugs that the air ambulance service carries and enables our paramedics to learn and consolidate new skills through this partnership.

By working in partnership with the air ambulance service we are able to identify the patients most in need of more advanced, lifesaving, clinical interventions than they would otherwise be able to receive. For example, the London air ambulance service performed the world's first pre-hospital REBOA (resuscitative endovascular balloon occlusion of the aorta) which is a pioneering technique to prevent major trauma patients bleeding to death very quickly.

5.1.2   Cardiac arrest

Ensuring that patients who suffer from a cardiac arrest get the right treatment quickly is vital for their survival and longer term clinical outcomes and quality of life. Over the last decade, we have been at

the forefront of developing care for this cohort of patients and have seen a steady rise in survival from out-of-hospital cardiac arrest, consistently reporting some of the best outcomes amongst UK ambulance services. We recognise that improving the care that patients in cardiac arrest get before the ambulance arrives is central to improving survival. Over the last year we have worked closely with the Metropolitan Police Service and the London Fire Brigade to develop co-responder schemes, and have continued our development of Community First Responder networks around London to ensure early defibrillation.

Our priorities:

- Work with the community and partner agencies to increase the number of public access defibrillators across London, targeting schools, sports clubs, transport hubs, shopping centres, large businesses and industrial complexes

- Use technology, such as the GoodSAM app and automated external defibrillator (AED) locators to improve community response to cardiac arrest

- Continue to roll-out mechanical chest compression devices to support the management of cardiac arrest on scene and en-route to hospital where appropriate, and increase the role of clinical team leaders in the management of these patients

- Ensure that effective leadership on scene of these calls is provided through key staff having regular exposure to this cohort of patients ensuring the patient is consistently managed in the optimum way every time

- Participate in further high quality pre-hospital care research, for example multi-centre randomised control trials to establish the role of adrenaline in the management of pre-hospital cardiac arrest

5.1.3   Heart attacks and cardiac arrhythmias

We are committed to ensuring that patients suffering a heart attack are recognised promptly and treated with all clinically appropriate tools we have at our disposal before being transferred for assessment and specialist treatment in heart attack centres without delay.

We have agreed pathways for patients with cardiac arrhythmias which allows direct access for some conditions – this has shown improved outcome for these patients, however further collaboration is required.

Our priorities:

- Work closely with the London cardiovascular networks to continually review services and improve timely access to specialist facilities for our patients

- Continue to improve and audit the outcome for patients conveyed to specialist centres with other cardiac conditions e.g. cardiac arrhythmia and Kawasaki disease

- Through involvement in research, develop further appropriate care pathways for a wider cohort of cardiac patients to ensure they are taken to the right hospital to manage their condition.

5.1.4   Stroke

Stroke remains a significant cause of morbidity and mortality across the UK, accounting for 11% of all deaths and affecting 230 people per 100,000. London already has a world-class stroke service in which all patients with a new-onset stroke have direct access to hyperacute care, 24 hours a day. We convey approximately 1,000 patients directly to a hyperacute stroke unit every month.

Our priorities:

- Ensure early identification of a stroke by our 999 and 111 emergency medical dispatchers including those with atypical presentation e.g. speech deficit or loss of balance

- Work with hyper acute stroke units (HASUs) to minimise the 'door to needle' time for patients undergoing thrombolysis

- Work with the London HASUs to establish network arrangements for interventional neuroradiology and thrombectomy, and explore ways of identifying the patients that are most likely to benefit from this procedure

5.1.5　Sepsis

Sepsis is a time-critical condition that can lead to organ damage, multi-organ failure, septic shock and eventually death. It is caused by the body's immune response to a bacterial or fungal infection commonly originating from the urinary tract, respiratory tract or skin. We have an important role to play in recognising the signs and symptoms of potential sepsis both at call handling (999 and 111), and during the face-to-face assessment. Early recognition of sepsis and prompt management saves lives and improves the long-term outcome for patients.

Our priorities:

- Continue to improve the recognition of potential sepsis at call-handling (999 and 111) to ensure early dispatch of an appropriate vehicle to convey the patient to definitive care
- Use screening tools to improve recognition of sepsis and identify 'red flag' sepsis, where there is a high risk of death and a requirement for urgent treatment
- Ensure that patients with red flag sepsis are rapidly treated in the pre hospital environment and transported to a hospital with the appropriate facilities to provide their onward care
- Explore the use of point-of-care testing by appropriate clinicians to guide management of patients with specific infections, administering antibiotics where indicated, and referring the patient to appropriate community services.

5.1.6　Vascular disease

As with many life-threatening emergencies, timely delivery of definitive care in a specialist centre is vital in reducing mortality from vascular emergencies such as a ruptured abdominal aortic aneurysm (AAA) or vascular compromise in limbs. It is important that the services required to treat these patients are located in centres that have the skill and expertise and are accessible to the ambulance service directly. There is an evolving network of vascular centres in London, in which surgical expertise is available 24/7.

Our priorities:

- Support the transfer of patients with a suspected leaking aortic aneurysm from local hospitals to tertiary facilities, providing a high priority response for the most at-risk patients
- Work with the appropriate units to ensure that these patients are rapidly identified and that a transfer arrangement is made to the best unit that can provide care
- Work with vascular centres to study and understand how best to recognise and triage patients with a possible leaking aneurysm, shortening the time to definitive care
- Continue to work with NHS England (London) to develop vascular network and bypass arrangements for both aortic aneurysms and other vascular emergencies e.g. acute vascular compromise in limbs.

5.1.7　Sickle cell disorders

Sickle cell disorders are a group of inherited conditions that affect the red blood cells. The most serious type is called sickle cell anaemia. Sickle cell disorders mainly affects people of African, Caribbean, Middle Eastern, Eastern Mediterranean and Asian origin. In the UK, they are particularly common in people with an African or Caribbean family background. Because of the diversity of its

population, London has over 70% of the UK's sickle cell hospital admissions[17]. Sickle cell disorders are serious and lifelong conditions, although long-term treatment can help manage many of the problems associated with it.

We have been working closely with the London Sickle Cell Community and are committed to continuing this engagement, using lived experience to shape our services and have a number of developments focussed on this area of care. We will continue to work with groups across the London community, to share developments, ensure there is meaningful and ongoing engagement between our staff and those with lived experience and that all of our staff are sickle cell competent – in the control room and on response vehicles – providing the highest quality care to any individual experiencing a sickle cell crisis.

Our main priority is the provision of further training to our staff on the care and treatment required to support someone experiencing a sickle cell crisis, including:

- Handling 999 calls from patients
- Paediatric pain management and patient assessment
- The importance of care planning

5.2   Introduction to our pioneer services

In order to meet the challenges of increased demand for urgent and emergency care and improve outcomes for patients, we now need to go further and provide a more specialised response to a greater proportion of our patients. We have selected five patient cohorts for whom changing the way we respond will deliver a significant improvement in quality of care and patient experience and reduce unnecessary conveyance to an emergency department.

- Urgent care response
- Mental health
- End of life
- Falls
- Maternity

We have called the services we propose to provide to these cohorts our 'pioneer services'. They are intended to provide a more tailored emergency response when people dial 999, as an alternative to conveying a patient to an emergency department. They are not intended to duplicate (or replace) existing primary care, community prevention or lower acuity response services. Close working with community services will be essential if we are to send an appropriate specialist to 'see and treat' and refer without conveyance. While we would hope to do this in the majority of cases, our staff would attend in vehicles capable of conveying.

5.2.1   How we propose to change services

In order to improve the care we provide for all of our patients, we need to:

- **Treat more people on-scene and in the community closer to home** – by providing a tailored response, patients that are currently taken to an emergency department would have rapid access to alternative pathways of care:
  - A wider 'hear and treat' offering, via iCAT London
  - A more comprehensive on-scene 'see and treat' offering
  - Referral and potentially transfer to an urgent care centre/integrated care centre rather than an emergency department
- **Deploy a wider mix of skills and professions** – deploying paramedics and other professionals with varying skills, for example:

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[17] Journal of Public Health, March 2013; Trends in hospital admissions for sickle cell disease in England, Ghuda AlJuburi, Azeem Majeed

- Advanced paramedic practitioners with an enhanced scope of practice to manage patients with urgent care needs
- Paramedics with further training in assessment and management of falls
- Mental health professionals to those with mental health crises
- Midwives, when we are called to a birth or obstetric emergency and there isn't already a midwife on-scene

- **Use a wider range of response vehicles** – by better matching the vehicle to the incident, a more targeted response could be offered that improves patient outcomes and/or reduces conveyances:
  - Rebalancing between bicycles, motor bikes, fast response units and standard double-crewed ambulances (DCAs)
  - Vehicles with different staffing and equipment with a greater focus on chronic conditions, mental health and older adults, for example mobile assessment vehicles where clinicians can sit and assess patients

Greater career progression opportunities for our clinical staff will support continued improvement in staff turnover rate with opportunities to work in specialist areas, and advanced paramedic practitioners being placed at a higher pay grade.

Changing the way we deliver services will require us to change the way we work with partners. We will need access to expert clinical advice in order to triage patients and we want to work with partners to be creative in how we resource clinical staff. For example, it may be possible to offer rotations for midwives and mental health nurses onto our pioneer services rather than employing them directly.

5.2.2   How we have identified suitable patient cohorts

Figure 7 in Section 2.2.4 shows the case mix of 999 incidents for the top 20 advanced medical priority dispatch system (AMPDS) codes. We have used these codes to identify the cohorts of patients who may be suitable to receive a pioneer service.

Table 6: Mapping of pioneer services to advanced medical priority dispatch system (AMPDS) codes

Pioneer service	Identification by AMPDS code	Comment
Urgent care response	Various	Advanced paramedic practitioners for urgent care response (APP-UCs) are deployed across a large range of incidents covering many AMPDS codes.
Falls	Falls	Serious falls such as falls from heights would not be included in pioneer response.
Mental health	Psychiatric, abnormal behaviour, suicide attempt	Includes incidents where a physical trauma is registered as primary caused but described as mental health in the incident description.
Maternity	Pregnancy, childbirth, miscarriage	Maternity incidents are sometimes flagged under other incident codes and we have adjusted for this.
End of life	Palliative care	The current system does not provide comprehensive identification of end of life care and so will be identified under many AMPDS codes, such as breathing problems. Identification of the range of incidents will take place as part of the pilot. For the purposes of modelling a cohort, we have used the 'palliative care' code and conveyances to hospices.

We describe in the subsections below how we propose to respond differently to the patients.

This is the first tranche of pioneer services that we are proposing. Once these have been piloted, the benefits demonstrated and the clinical model finalised, we hope they will become part of our core business of responding to emergency calls, subject to alignment and agreement with STPs and

commissioners. We would then seek to develop a second tranche of pioneer services. Staff have identified children (paediatrics) and incidents involving substance abuse as areas to explore.

We will continue to work with STPs to identify other opportunities for better managing demand that we can act upon locally or across London.

5.3   Urgent care response pioneer service

Aim: to be able to appropriately treat more patients at the scene of an incident ('see, treat and discharge') meaning that fewer patients need to be conveyed to an emergency department.

The London Ambulance Service will always be the first port of call for people who are experiencing or witnessing potentially life threatening or life changing emergency situations. However, more and more, the public and NHS expectations are changing and our responses to 'urgent care' patients now makes up the majority of our workload. Our urgent care patients are not experiencing life threatening or changing events, but they may still be in a great deal of distress or pain.

In 2017 we launched an urgent care pilot in Croydon where advanced paramedic practitioners for urgent care (APP-UCs), who had received additional training, were dispatched to a targeted cohort of lower acuity urgent care patients. APP-UCs are able to perform enhanced clinical assessments and manage lower acuity injuries and illnesses in patients' homes. This provides a better quality of service to patients and reduces the need to convey these patients to hospital. This has system wide benefits in providing prompt treatment to patients, reducing multiple hand-offs between clinicians, and reducing unnecessary hospital admission.

The pilot has been extremely successful and has demonstrated that there are significant benefits to patients, our organisation and the sector as a whole for an expansion of this role across London. Overall, the APP-UCs managed approximately 63% of identified patients without the need to convey them to hospital. This compares favourably against an average for London of 36.6%.

5.3.1   Service summary

Our urgent care response service is focussed on lower acuity patients with complex needs, and manages more patients in their own home using additional tests and treatments. This service will be delivered both by urgent care advanced paramedic practitioners (APP-UC) as well as paramedic practitioners, providing another enhancement to our clinical career pathway. All clinicians delivering this service will receive a significant amount of additional specialist training to develop their skills in assessment, clinical decision-making and managing patients with urgent care needs.

5.3.2   Service model

Our service model was developed by our clinical experts, drawing on expertise from across the London Ambulance Service. We held a number of workshops attended by external clinical experts, who helped to shape the service model and ensure that it would be appropriate for patients in London.

The service has three components:

Hear and treat/ dispatch	• An APP-UC in the control room will be specifically looking to identify the calls that would be most suitable for the operational APP-UCs to attend
See and treat	• An APP-UC, with additional training, will attend patients who have been identified as requiring urgent care and may be suitable for treatment at scene
Referrals and additional care	• Direct referral to hospital specialties, reducing delays where patients require hospital • Direct access to tertiary facilities such as medical assessment units

The people, process and infrastructure implications are as follows:

	Hear and treat/dispatch	See and treat
People	• APP-UC identifying calls	• Advance paramedic practitioner and paramedic practitioner response
Process	• Process of identifying calls which should be routed straight through to the new service • Process of dispatching the right vehicle for a 'see and treat'	
Infrastructure		• Mobile device to provide access to summary care records • Fast response car with standard paramedic equipment • Range of additional diagnostic tools such as point of care testing, ophthalmoscope and otoscope • Additional drugs such as pain relief, steroids, antibiotics and anti-sickness medication

5.3.3　Summary of potential benefits

Table 7 shows the potential benefits resulting from a single example of our modelled scenarios for the patient cohort we have identified could receive this pioneer service, based on the incident profile seen in the pilot. The table describes the maximum benefit to patients and healthcare systems in London. We describe in Section 7 our assumptions about how much of this is achievable and the associated economic benefits.

Table 7:　Urgent care response pioneer service – summary of potential benefits for a scenario balancing reduced conveyance and LAS and wider NHS economic impact

Quantitative benefits (projected for 2023)	Qualitative benefits
213,000 patients could benefit from this service (based on incident profile seen in pilot), of which: • 76,900 (36.1%) would receive 'see and treat'/be referred • 136,100 (63.9%) would be conveyed • 77,500 (36.4%) would be conveyed to emergency department **Performance** A reduction in emergency department conveyance rate from 57.0% to 36.4% for a selected cohort	• Our urgent care paramedics are able to treat patients on scene and in their own homes, avoiding the need to convey them to hospital and potentially waiting for a significant amount of time before they are able to be treated. • Our staff want more options to develop their clinical practice, to become more skilled clinicians. In the past there have been very limited options for paramedics, but our two advanced paramedic practitioners (critical care and urgent care) and clinical team leader roles provide additional routes of progression for our staff.

5.3.4   Neil's story – an urgent care case study

Neil is a 38 year old father of two – Aisha 6 and Rizwan 4. Whilst cycling in the park Aisha falls off her bike into a patch of stinging nettles and is badly stung. When Neil gets home he is a bit worried as Aisha has come up in a rash over her legs where she fell into the nettles, so he goes on to the iCAT London online symptom checker.

Self-Care

Neil checks Aisha s symptoms with an automated symptom checker on line. Based on the answers that Neil provides, he is then put through to a clinician for video triage and films Aisha on his tablet computer.

Assessment

Neil is put through to Judy, a nurse on the Clinical Assessment Service. Judy connects to Neil s tablet and asks him to confirm what happened. Judy then has a look at the Aisha s rash and identifies that she has come up in an allergic rash to the nettles.

Treatment

Judy reassures Neil and Aisha that, whilst the rash looks serious, it is a fairly common reaction and nothing serious. Judy does say that Aisha should take a dose of antihistamines to alleviate the symptoms. Judy speaks to Louise, the pharmacist in the Clinical Assessment Service and then takes Neil s e-mail address so that he can be sent an electronic prescription which would be available for him to collect from his local pharmacy within the next two hours.

Neil's story

"It's always worst when it's your kids. We'd gone to the park and Aisha was riding her new bike and lost control and ended up in some stinging nettles. She was wearing a dress so her little legs were all exposed and came up in a really horrible rash – much worse than I would have expected just from some stinging nettles. I was quite worried she was having an allergic reaction so I loaded up the iCAT London symptom checker to get a bit of advice. I thought that I was going to be told to take Aisha in to hospital, or to make a GP appointment, so I couldn't believe it when I was put through to a nurse on video chat. It was brilliant that I could show Judy Aisha s legs and she was able to tell me that it wasn't anything serious. I didn't even realise it was possible to get electronic prescriptions, so to have that sent to my local pharmacy meant that I didn't need to book a GP appointment and could get something to treat Aisha s rash really quickly."

5.4   Falls pioneer service

Aim: to provide a quicker response to patients who have fallen, to safely help them up from the floor, assess their physical condition and identify the reason for their fall. This pioneer service will provide effective assessment and timely referrals to community services and falls prevention services to support the patient's wellbeing and reduce the risk of further falls.

We are often called by patients, their family or carers, where a fall has occurred. Falls account for around 11% of our total calls each year. When we attend these patients, we conduct a physical assessment to see whether they have any injuries and try to identify why they might have fallen. One of the key activities that we undertake is to safely assist these patients up from the floor and then to determine whether the patient needs further treatment in hospital. While the majority of fallers are over the age of 65, we also attend patients with physical disabilities or long-term conditions, such as multiple sclerosis, that mean they are at higher risk of experiencing a fall.

Elderly patients that fall are a high risk cohort of patients and we know that they can experience particularly poor outcomes if they remain on the floor for long periods of time. People over the age of 65 have the highest risk of falling, with over 50% of people aged over 80 years falling at least once per year. The ageing population means that falls are one of the most common reasons for calls to the ambulance service and we expect this number to increase to around 133,400 by 2023 (10% increase from 2017/18).

Falls are often an indicator of underlying complex illness, general health decline or acute illness. It is recognised that falls in older people, or patients with underlying health problems, are linked to a significant increase in morbidity and mortality, but that, with careful assessment and preventative measures put in place, many of these patients can have their needs met by care in the community. Falls are one of the most common reasons for patients becoming frequent 999 callers. Addressing patients' needs holistically, and dealing with the reasons for falling, will be of significant benefit to both patients and the service in reducing the likelihood of them falling again.

5.4.1   Service summary

Currently, we send two members of staff in an ambulance to patients who have fallen as they need to assist them up from the floor and, more often than not, convey these patients to hospital. This pioneer service will target fallers who we think are less likely to need conveying to hospitals and a specialist falls paramedic, supported by an assistant practitioner, will be dispatched. By targeting this dedicated falls pioneer service we can increase the effectiveness of our response and reach fallers more quickly.

Our falls pioneer service will see a paramedic who has received additional specialist falls training, paired with an assistant practitioner, attend patients who have fallen and while not seriously injured, may not be able to get up off the floor on their own.

5.4.2   Service model

Our service model was developed by our clinical experts, drawing on expertise from across the London Ambulance Service. We held a number of workshops attended by external clinical experts, who helped to shape the service model and ensure that it would be appropriate for patients in London.

The service breaks into three components:

Hear and treat/ dispatch	• The control room specifically looking to identify calls that would be suitable for the falls pioneer service • Occupational therapy and physiotherapy specialists in iCAT London to provide telephone advice to patients and support crews • Specialist roles will also provide expert advice to the organisation, supporting the design of the service and building levels of expertise across the organisation
See and treat	• A falls specialist paramedic (band 6) will be accompanied by an assistant practitioner (band 3) who would be a non-clinical member of staff with blue-light driving training. This assistant would allow the paramedic to work as efficiently and effectively as possible • The assistant practitioner would receive training to assist the clinician with some tasks such as manual handling and recording observations

Referrals and additional care	• The falls specialist paramedic will be able to make appropriate referrals to or links with further care or support networks, to enable the patient to remain in their own home. These referral options could include:
	  – Occupational therapy
	  – Rapid response teams
	  – Social care
	  – Falls prevention services
	  – Charity support networks e.g. Age UK

The people, process and infrastructure implications are as follows:

	Hear and treat/dispatch	**See and treat**
People		• Solo falls specialist paramedic (band 6) will be accompanied by a blue light driver, to allow the clinician to undertake the role more quickly and work while traveling between patients (band 3) • The driver could assist with other tasks such as manual handling
Process	• Process of identifying calls which should be routed straight through to the new specialist falls service • Process of dispatching the right specialist with a driver for a 'see and treat' • Process of dispatching the right vehicle for a 'see and treat'	
Infrastructure		• Mobile device to provide access to summary care records • Response vehicle will have the capability to convey patients, if needed, who are able to sit up for the journey • Suitable equipment for assisting fallers off of the floor

5.4.3   Summary of potential benefits

Table 8 shows the potential benefits resulting from a single example of our modelled scenarios for the patient cohort we have identified could receive this pioneer service, based on figures from 2017 incident data classification. The table describes the maximum benefit to patients and healthcare systems in London. We describe in Section 7 our assumptions about how much of this is achievable and the associated economic benefits.

Table 8:   Falls pioneer service – summary of potential benefits for a scenario balancing reduced conveyance and LAS and wider NHS economic impact

Quantitative benefits (projected for 2023)	Qualitative benefits
94,700 patients could benefit from this service (based on figures from 2017 incident data classification), of which: • 39,800 (42%) would receive 'see and treat'/be referred • 54,900 (58%) would be conveyed • 44,400 (46.9%) would be conveyed to emergency department **Performance** A reduction in emergency department conveyance rate from 52.8% to 46.9% for a selected cohort	• A quicker response to patients who have fallen, to safely help them up from the floor, assess their physical condition and identify the reason for their fall. • Enhanced referrals to an expanded range of community services, occupational therapy, rapid response teams, social care, falls prevention services and provide wider health promotion to help facilitate a patient's full recovery from their fall and help them remain in their own home rather than needing to go to hospital for treatment.

5.4.4 Enid's story – a falls case study

Enid is 87 and lives with her husband George, who is 92 and has difficulty walking. Enid has been having a few dizzy spells recently and on the way to the kitchen trips. She doesn't feel seriously hurt but has grazed her knee and cannot get up without help. George calls 999 and explains what has happened.

Control room

The 999 emergency medical dispatcher speaks to George and identifies that Enid has fallen, does not appear to be seriously hurt, but cannot get up off of the floor. The pioneer service specialist in the control room identifies Enid as a suitable patient for the falls response service and a falls specialist paramedic is dispatched to Enid.

Assessment and clinical intervention

Helen is a paramedic with additional training to assess and support falls patients. She arrives with a specialist lifting chair and after confirming that Enid has not seriously injured herself, quickly gets Enid up and comfortable before conducting a full physical and environmental assessment.

Helen's assessment includes dressing the small wound on Enid's leg, making sure there are no other injuries, conducting cardiorespiratory and neurological assessments including acquiring and interpreting a 12 lead electrocardiograph. Helen then goes on to have an in-depth conversation with Enid and George looking at Enid's medical history, their home environment and wider issues. From this Helen identifies:

- Today's fall was caused by a loose carpet between the kitchen and living room, but it's not the first time Enid has fallen this month.
- Enid is taking a range of medication for a number of long-term conditions including a new drug she started 3 weeks ago.
- With George's difficulty walking and Enid's recent dizzy spells they have been reluctant to go out and feel increasingly isolated.

Referrals and further care

Helen uses her digital tablet to find what local community healthcare services are available and gets Enid registered with the local falls prevention service. They arrange for the council's maintenance service to visit the next day to fix the carpet and identify other improvements that might help. An occupational therapist will also visit Enid and George the next day. As part of being registered with the community falls prevention service Enid will get a medication review to check if the mix of medicines she uses could be causing the dizziness. Enid and George are also put in touch with a local charity who send volunteers in to carry out exercises with elderly fallers to increase their strength and build their confidence so they can get out and about more often.

Enid's story

"Helen was lovely and got me up and comfortable straight away. She sat with us and listened to everything we had to say – including us nattering on about the grandchildren. Helen spotted that my dizziness might be due to all the pills I'm taking and a pharmacist later confirmed that was right. I've changed pills now and the dizziness has gone. We've also had the carpet fixed, handrails put in and I've got a new arm chair that's much easier for me to get up from. George and I feel so much happier now we have had some more support including help with some exercises to keep our strength up. I was really worried that I would end up being admitted to hospital so was so thankful when Helen said that I didn't even have to go to an emergency department at all after my fall."

5.5   Mental health pioneer service

Aim: to provide an appropriate emergency response to patients who experience a mental health crisis. Our aim is for patients to receive a higher level of care from all paramedics, and appropriate triage, assessment and referral where appropriate by qualified mental health nurses.

999 and NHS 111 are often the first point of care for patients experiencing a mental health crisis. We have a crucial role in risk assessment, and in signposting patients to the most appropriate point of care or service. These calls are often complex, and take time and specialist expertise to manage effectively. Patients experiencing a mental health crisis may also be suffering from substance misuse which compounds the challenges faced by staff in carrying out a full assessment of the patients presenting condition and needs.

We have greatly improved the quality and quantity of mental health training over the past few years and have employed mental health nurses on our clinical hub to provide telephone advice to patients. Our crews sometimes have difficulty accessing appropriate care pathways for patients experiencing a mental health crisis. This is especially true 'out of hours' and often leads to patients being conveyed to an emergency department, which is rarely the correct environment for their effective assessment, management and a positive experience of care, and is often associated with extremely long lengths of stay and escalation of their presenting condition. In 2017/18, 54.3% of our mental health patients were conveyed to an emergency department.

We ran a set of workshops with service users, who identified that they would most value being able to access a specialist mental health clinician at the point of their crisis. Patients experiencing a mental health crisis should have parity of esteem with patients experiencing physical health conditions and should therefore have access to suitable mental health crisis services twenty four hours a day, seven days a week, including appropriate places of safety.

5.5.1   Service summary

Our mental health pioneer service will see a registered mental health nurse (RMN), paired with another ambulance clinician respond to patients who have been identified as experiencing a mental health crisis, or requiring a specialist mental health response.

A registered mental health nurse (RMN) would be able to provide specialist care and support to patients experiencing a mental health crisis. They would also be able to navigate the appropriate mental health pathways, especially out of hours, and would have the skills and knowledge to discuss risk assessments, recommended management plans and presenting condition with approved medical practitioners and mental health units. An RMN providing specialist assessment details can effectively access a wide range of appropriate care pathways. There is the potential to increase the range of medicines available to support safer care and an enhanced patient experience. This will all mean that patients are able to be treated in the most appropriate way to meet their needs.

5.5.2   Service model

Our service model was developed by our clinical experts, drawing on expertise from across the London Ambulance Service. We held a number of workshops attended by external clinical experts, who helped to shape the service model and ensure that it would be appropriate for patients in London.

The service breaks into three components:

Hear and treat/ dispatch	• We will continue to have mental health nurses working in our clinical hub providing telephone advice to patients as well as assisting crews but increasing their numbers and coverage to ensure we maximise hear and treat where appropriate • The mental health nurses will also look to identify calls that would be suitable for the mental health pioneer response • The mental health nurses will also support calls from crews on scene and support call handlers with complex 999 calls from patients experiencing a mental health crisis
See and treat	• A registered mental health nurse (RMN) would be paired with an ambulance service clinician • The RMN would be able to provide a specialist assessment of the patient's mental health needs • Patients in mental health crisis may have also sustained a physical injury and the clinician would be able to provide the appropriate care for any physical injuries or illnesses • The RMNs will also have an essential role in delivering training to front-line staff both in the control rooms and on the road
Referrals and additional care	• We will, where possible refer patients to their local mental health trusts to ensure continuity of care • The RMN will have knowledge of, and access to all of the local mental health crisis services in order to ensure that the patient receives the most appropriate care for their needs • The mental health pioneer response will links with community organisations or charities that can provide additional ongoing support such as the Samaritans

The people, process and infrastructure implications are as follows:

	Hear and treat/dispatch	**See and treat**
People	• New role of a mental health nurse would be added in the control room. This would be a Band 6 or 7 mental health specialist who would have contacts transferred through to them for specialist triage/assessment	• A mental health nurse in a response car accompanied by a paramedic to be able to assess and treat a range of mental and physical health needs
Process	• Process of identifying calls which should be routed through to a mental health nurse • Process of dispatching the right specialist or combination of specialists for a 'see and treat' • Process of dispatching the right vehicle for a 'see and treat'	
Infrastructure	• Ability to warm transfer to a specialist triage/mental health single point of access	• Mobile device to provide access to summary care records and up to date information on which mental health pathways are open and available for their patients • Response vehicle will have the capability to convey patients, if needed, who are able to sit up for the journey, and provide a safe and private space to safely assess a patient

A crucial element of our work to improve outcomes and experiences for our mental health patients is by working closely with mental health trusts across London to strengthen links with their crisis services, single points of access, places of safety and new services such as crisis cafes and clinical decision units as well as their local mental health and crisis teams. While we are building our mental health expertise within our organisation, wherever possible we want to ensure that those patients

already known to mental health services are linked back to their mental health trust supporting their care to ensure their ongoing needs are met.

5.5.3   Summary of potential benefits

Table 9 shows the potential benefits resulting from a single example of our modelled scenarios for the patient cohort we have identified could receive this pioneer service, based on figures from 2017 incident data classification. The table describes the maximum benefit to patients and healthcare systems in London. We describe in Section 7 our assumptions about how much of this is achievable and the associated economic benefits.

Table 9:   Mental health pioneer service – summary of potential benefits

Quantitative benefits (projected for 2023)	Qualitative benefits
84,600 patients could benefit from this service (based on figures from 2017 incident data classification), of which: • 1,900 (2.2%) would receive 'hear and treat' discharge (over current) • 56,300 (66.5%) would receive 'see and treat'/be referred • 26,400 (31.2%) would be conveyed • 20,200 (23.9%) would be conveyed to emergency department **Performance** A reduction in emergency department conveyance rate from 54.3% to 23.9% for a selected cohort	• Specialist mental health response consistently seven days a week • A wider range of responses available to patients who need one such as face to face assessments, in the same way that we provide a specialist response for those with physical health needs • Patients less likely to be conveyed unnecessarily to an acute hospital when that is not the best place to meet their needs • Better referral to appropriate mental health pathways

5.5.4   Robert's story – a mental health case study

Robert is a 45-year-old IT specialist with a history of personality disorder. Unfortunately, he's just been fired following a long-running disciplinary and has met with his old friend Anna on Saturday evening for a drink. Anna quickly realises that Robert is struggling to cope and acting strangely. She calls 111 for advice.

Control room

The call handler listens to the problem and quickly transfers the call to Louise, a mental health nurse in iCAT London. Louise asks Anna some questions and quickly identifies that Robert is experiencing a mental health crisis. Louise dispatches the mental health pioneer service and gives Anna advice on how to make sure that Robert remains calm and safe. Louise finds Robert's summary care record which she sends electronically to the crew's tablet so that they can see Robert's mental health history.

Assessment and clinical intervention

Monique and John, the mental health nurse and another London Ambulance Service clinician, arrive on scene and assess both his mental and physical condition. Robert has a minor cut on his hand from breaking a glass, which John treats, while Monique starts talking to Robert and assessing his mental health needs. Monique is able to use her advanced skills as an experienced mental health nurse to carry out a full mental state examination, risk assessment and use brief psychological interventions. Robert is very anxious about going to hospital, but Monique reassures him that following her assessment that he is safe to stay in his own home.

Referrals and further care

Monique phones the local mental healthcare provider and agrees with them that they will arrange a follow up with Robert within 24 hours. Monique explains this to Robert and discusses a range of services available to him prior to that follow up, or in the future, should he find himself in a similar situation. Monique leaves a pack of information including details of the local crisis café, mental health crisis line phone numbers and charities such as the Samaritans.

Monique makes a note of the support they've provided in Robert's summary care record, so his mental health team and GP will be able to see it later.

Robert's story

"It's not the first time I've got myself into a state of panic in public; but it's the first time a mental health nurse has come out to me. I was so grateful that Monique really understood me and the problems I was having. She helped me there and then, and she spoke to my mental health team on my behalf to arrange a follow up for the next day. I've been taken to an emergency department in the past, and on a Saturday night it's not a particularly great place for someone in mental health crisis. I was so glad Monique and John helped me in the way they did."

5.6   Maternity pioneer service

Aim: we want to provide a higher quality of care for patients by using multi professional teams with dedicated expertise to provide more specific gynaecological and maternity specific care.

For the vast majority of women, pregnancy and birth are normal life events, however, occasionally emergencies can occur when birth occurs unexpectedly. Emergencies either before, during, or after birth need to be managed quickly and responsively to ensure the safety of both mother and her baby. We often send a large number of ambulance clinicians to maternity patients due to the complexity of the situation and the need to be able to treat a mother and her baby.

In 2017 we responded to around 2,250 birth imminent calls and delivered around 800 babies, where the mother was not able to get to an appropriate maternity facility and/or where a midwife was unable to attend. Our staff attend a range of birth emergencies including birth of twins, babies born in the "bottom first" position (breech birth), and those where the birth requires further support to enable a safe outcome.

For this pioneer service we are trialling an innovative method of service user and staff engagement: 'Whose Shoes'. This method of engagement is designed to explore patient and staff experiences, so that we 'walk in the shoes' of the people we serve and those who will deliver the service[18].

5.6.1   Service summary

A two person response in a rapid response vehicle, consisting of a registered midwife and an appropriately skilled clinician, would be able to provide advanced midwifery care including new-born life support. We will also have midwives in the control room to provide expert telephone advice to callers.

We are the only ambulance service in the UK that employs a consultant midwife and we are therefore in a unique position to influence the care provided to pregnant women. We are already recruiting two practice development midwives to start further building the level of skill and expertise in the organisation of providing safe and high quality care to women at this important time of their life. These practice development midwives will be crucial in setting up the maternity pioneer service.

5.6.2   Service model

Our service model was developed by our clinical experts, drawing on expertise from across the London Ambulance Service. We held a number of workshops attended by external clinical experts, who helped to shape the service model and ensure that it would be appropriate for patients in London.

The service breaks into three components:

Hear and treat/ dispatch	• We will have midwives in our control room to provide specialist advice over the phone • The midwifes in the control room will be able to advise and reassure women who do not need an emergency response • They will also be able to guide and reassure women while an emergency response in on its way
See and treat	• A registered midwife would be paired with an ambulance clinician with additional maternity specific training
Referrals and additional care	• The maternity pioneer response will have access to local maternity care providers and community midwifery services so that, if the woman does not need to be taken into hospital, they can arrange for a community midwife to visit in an appropriate time

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[18] When we have used this method for our maternity pioneer service, we will look to roll out similar approaches for the other pioneers

	• The midwife will be able to directly refer the woman to her chosen unit ensuring follow up assessment	

The people, process and infrastructure implications are as follows:

	Hear and treat/dispatch	See and treat
People	• A registered midwife • Call handling training • Potentially a gynaecology nurse also in the hub to assess bleeding	• A midwife responder consisting of a registered midwife (band 7) • An ambulance clinician (band 6)
Process	• Process of assessing categorisation of calls • Process of accessing the right specialist in the clinical hub	• Process of being able to register the birth so that the trust is eligible for payment of the births which it delivers • Process of dispatching the right specialist for a 'see and treat'
Infrastructure	• Access to summary care records	• Mobile device to provide access to summary care records • A vehicle equipped to keep both mother and baby warm and will have the capacity to convey patients if needed • Enhanced maternity and new-born equipment including additional warming facilities for new-born babies

5.6.3   Summary of potential benefits

Table 10 shows the potential benefits from a single example of our modelled scenarios for the patient cohort that could receive this pioneer service, based on figures from 2017. The table describes the maximum benefit to patients and healthcare systems in London. We describe in Section 7 our assumptions about how much of this is achievable and the associated economic benefits.

Table 10:   Maternity pioneer service – summary of potential benefits for a scenario balancing reduced conveyance and LAS and wider NHS economic impact

Quantitative benefits (projected for 2023)	Qualitative benefits
10,700 patients could benefit from this service (based on figures from 2017 incident data classification), of which: • 2,200 (20.6%) would receive 'hear and treat' discharge (over current) • 2,700 (26.2%) would receive 'see and treat'/be referred • 5,800 (54.2%) would be conveyed • 1,900 (17.8%) would be conveyed to emergency department **Performance** A reduction in emergency department conveyance rate from 21.5% to 17.8% for a selected cohort	• Specialist midwifery advice through iCAT London will enable patients to have assurance and confidence about their symptoms when it is not an emergency requiring a face to face response • Where a response is necessary, a skilled and experienced midwife will be able to provide more advanced care for mothers and their baby before, during or after the birth • A midwife on scene will reduce the need for such a large number of other staff to attend and they will also be able to provide additional assurance and confidence to the mother and the maternity team

5.6.4 Nylah's story – a maternity case study

Nylah is 33 and pregnant with her second child. One week from her due date she suddenly goes into labour at 4am and progresses quickly with contractions getting closer and closer. Her husband is working a night shift over an hour away and she doesn't think she can get to hospital on her own in time. She calls 999 for help.

Control room

The call handler identifies Nylah as needing urgent support from maternity specialists, the call is put through to Ruth, a midwife in iCAT London. Ruth speaks to Nylah and talks her through the next contraction. It's clear the baby is very close so Ruth dispatches the maternity pioneer service to help Nylah.

Assessment and clinical intervention

Meera, a midwife, and Spencer, an ambulance clinician, arrive at Nylah's house. While Spencer brings the necessary equipment into the house, Meera starts to assess Nylah and recognises that the birth is about to happen. Meera and Spencer agree that no additional ambulance assistance is required and are able to cancel the additional ambulance that had been requested.

Meera and Spencer support Nylah during the birth of a healthy baby boy. Following a thorough assessment, Meera talks to Nylah about her options to remain at home after the birth or to transfer her care into her chosen maternity unit. Nylah wishes to remain at home, and has an ongoing plan for support. Meera can register the birth before she leaves Nylah's home and ensure that all the necessary paperwork is completed including contact numbers for further advice until the local community midwife visits.

Referrals and further care

Meera contacts the local community midwifery service to confirm the birth has all gone well and arrange for a community midwife to visit later that day. All care delivered is shared with the local community midwifery service.

Nylah's story

"It was quite a shock how quickly it all happened. My first child took 18 hours! I had visions of being rushed to hospital and giving birth in the ambulance with blue lights flashing and sirens. When Meera said she could support me with the birth at home it was such a relief. Meera and Spencer were great, and they had all the kit Rahul and I needed. They stayed until we were comfortable and made sure I had an appointment booked with the local midwife, I knew who to call for advice once they both left our home."

5.7   End of life pioneer service

Aim: to improve the care we are able to provide to patients in the last phase of life though enhanced skills and knowledge of staff, improved pathways to support patients with a plan of care to receive their care at home or in a community setting to avoid conveyance to hospital and to improve access to at home medications and specialist teams to help support symptom management.

We are often called to patients in the last stages of their life, when their symptoms have become unmanageable, for example following a sudden crisis, deterioration or worsening symptoms when emergency pharmacological support is required such as pain relief. Ambulance clinicians may be presented with situations in which they have to make decisions about starting a resuscitation attempt and whether it would be appropriate and in the patient's best interests. These decisions may need to be made on the basis of limited information and in the context of distressed friends and family.

In end of life care situations, the priority is commonly palliative symptom control, ensuring that patients are comfortable and not in any avoidable distress. Common symptoms resulting in an ambulance being called relate to pain, secretions, breathlessness and nausea. Increasingly patients coming towards the end of their life have been suffering from a chronic condition and have made a decision about where they want to die. As the very last wish for these patients, it is crucial that we help this to happen wherever possible. When we are attending end of life patients, we need to ensure that we are not only taking care of the patient, but giving consideration to their families who are saying goodbye to loved ones.

5.7.1   Service summary

We will enhance our education and training for all front-line staff to improve the skills, knowledge and confidence of all staff in providing end of life care to patients. We will also develop stronger links with hospices and end of life care pathways across London and review our range of pharmacology available to our clinicians. The ultimate aim of this service is to reduce unnecessary resuscitation attempts and conveyances for patients at the end of their lives and to make the final stages of life as comfortable, pain free and dignified for them and their families as possible.

We will invest in education and training around end of life care, ensuring that our crews have a clear understanding of trust policy and the legal and ethical basis of decisions made in these circumstances, and that crews understand how and when to use prescribed anticipatory care medications.

Additional pharmacology would allow for enhanced pain relief and treatment for excessive secretions and breathlessness which may include alterations to prescribed usage for drugs already carried by registered clinicians. Training in both the pharmacology of administration of anticipatory medicines alongside developing enhanced skills in difficult conversation management will be central to the training provided.

We will also improve integration with, and access to specific Coordinate My Care end of life plans so that ambulance clinicians have early access to these care plans to support decision-making and ensure the patient receives the right level of care, in the right place.

The cohort for this pioneer service is not well defined, but expected to be larger than the modelling size which is based on palliative care incidents.

5.7.2   Service model

Our service model was developed by our clinical experts, drawing on expertise from across the London Ambulance Service. We held a number of workshops attended by external clinical experts, who helped to shape the service model and ensure that it would be appropriate for patients in London.

The service breaks into three components:

Hear and treat/ dispatch	• All of our control room staff will receive additional training to improve their skills in identifying calls where crews might be attending end of life care patients • We will have a specialist in the clinical assessment service (CAS) with advanced end of life care training who can provide advice to callers and can also assist crews • We will have a pharmacist in the CAS who will be able to advise crews on appropriate drug use
See and treat	• All of our front-line crews will receive additional training to improve their skills and confidence in treating patients in the last phase of their life
Referrals and additional care	• We will work to forge strong working relationships with hospices, palliative care teams and charity organisations • We will work with these organisations to agree consistent pathways, identifying which patients could be referred to other services and at which point in the care pathway

The people, process and infrastructure implications are as follows:

	Hear and treat/dispatch	See and treat	Referrals and additional care
People	• Training for all call handlers on the signs to look for with end of life patients and the referral options available pan-London	• Training for all responders on end of life patients and the referral options available pan-London • Further education and support will be provided to all front-line clinicians from a dedicated end of life care specialist	• Enhanced pathway understanding across teams in contact handling and response
Process	• Process of identifying contacts which should be directed to specialists in the CAS • Process of identifying calls which should be routed to other referral points pan-London	• Introduction of Schwartz Rounds® to support staff wellbeing	• Additional pathways will be further developed and audited with palliative care teams, hospices and third parties
Infrastructure	• Having the right data available to ensure that all staff have the knowledge of the patient and referral points available to them when they need it	• Mobile device to provide access to end of life care records • We will review the medications that our clinicians have at their disposal to treat end of life care patients and the symptoms that they can experience which cause pain and distress	

5.7.3   Summary of potential benefits

Table 11 shows the potential benefits from a single example of our modelled scenarios for the patient cohort that could receive this pioneer service. This cohort is not well defined, and is expected to be larger than the modelling size which is based on palliative care incidents. The table describes the maximum benefit to patients and healthcare systems in London. We describe in Section 7 our assumptions about how much of this is achievable and the associated economic benefits.

Table 11: *End of life pioneer service – summary of potential benefits for a scenario balancing reduced conveyance and LAS and wider NHS economic impact*

Quantitative benefits (projected for 2023)	Qualitative benefits
4,400 patients could benefit from this service (based on palliative care incidents only), of which: • 4,000 (90.9%) will receive 'see and treat'/be referred • 400 (11.4%) will be conveyed • 200 (4.5%) will be conveyed to emergency department **Performance** A reduction in emergency department conveyance rate from 19.6% to 4.5% for a selected cohort	• We will review the range of drugs that our crews are able to administer in these situations to enable them to treat patients more effectively. • Specialist palliative support beyond the emergency episode through development of effective, consistent pathways that we can refer to with community and palliative care providers. • Improved skills and confidence for our whole front-line workforce in dealing with end of life patients, including training on resuscitation guidance and associated documentation to ensure that staff are fully aware of and confident with the relevant documents and their impact on decision-making.

5.7.4   Margaret's story – an end of life care case study

Margaret is 87 and terminally ill with lung cancer, she has a range of care in place through her local district nursing team but her condition deteriorates rapidly late on a Friday night and she is in severe pain and struggling with breathing. The district nursing team is not available at that time so Emily, Margaret's daughter, calls 999.

Control room

Jason, the emergency medical dispatcher, speaks to Emily and identifies that Margaret is in considerable distress and dispatches an ambulance crew. While the crew are on their way, Jason locates Margaret's Coordinate My Care record and sends it through to the crew's tablet so they can see her end of life care plan, including the details of the medication she is on and her 'do not resuscitate' request.

Assessment and clinical intervention

Arriving at Margaret's home, paramedics James and Leanne find her in a weakened and distressed state. After an initial assessment James is able to give Margaret an increased dose of pain relief and anti-secretion drugs to help with her breathing.

Leanne contacts Shveta, an experienced end of life care nurse in the local hospice, to update on Margaret's condition and get further advice; she also invites Emily to join the conversation. Together they discuss that Margaret does not want lots of clinical interventions and wants to die comfortably in her own home. Shveta offers further clinical advice to Leanne and then speaks directly to Emily about next steps. James and Leanne stay for a further 30 minutes until they are happy Margaret is comfortable.

Referrals and further care

Shveta explains to Emily that she will update the Co-ordinate My Care record and that the medicine that the crew have given to her mother should make her comfortable overnight. Shveta advises that Emily should contact Margaret's palliative care team in the morning to come and review her medication.

Emily's story

"Mum's lived in this house for 50 years and is adamant that she wants to die here. But she was in so much pain that I thought the ambulance would have to take her into hospital. James and Leanne were so helpful and compassionate; and being able to speak to Shveta on the phone was fantastic. We had a visit from mum's palliative care nurse the next day who changed her medication and mum is much more comfortable now."

5.8   Summary of potential benefits for all pioneer services

Our five proposed pioneer services focus on delivering care closer to home through 'hear and treat' and 'see and treat', which will reduce both the number of incidents we attend and the number of people we convey to emergency departments. This will release capacity within the London Ambulance Service and emergency departments within London to treat patients with higher acuity illnesses and injuries.

In developing each pioneer service, we have run a series of workshops attended by the clinical leads for each of our pioneer services, senior clinical staff, front-line staff, and representatives from the wider system. These workshops were used to generate assumptions about the volume and type of incidents appropriate for a pioneer dispatch and the likely change in conveyance rate. These assumptions have been further informed by historical incident data and the findings of our advanced paramedic practitioner for urgent care (APP-UC) pilot. The modelling using these assumptions highlights trade-offs between staffing for the pioneer services and reducing the conveyance rate: as we increase the number of staff, the conveyance rate falls but so does utilisation of those staff. We have modelled a number of scenarios to understand how the increase in staffing would improve the conveyance rate.

It is noted that these models will develop through running pilots to more accurately understand the impact of any pioneer service and define the correct operating model and scale at which to roll out. We present a scenario range below that optimises the overall benefit to the London region health economy. These scenarios would capture between 73% (lower incident capture) and 86% (higher incident capture) of incidents suitable for a pioneer response, which is between 25% and 29% of total incidents attended by 2023. Figures are built from the scenario maximising avoided cost for both LAS resources and avoided ED treatment and admission.

5.8.1   Patient Benefits

Table 12:   Overview of potential activity and consequent performance benefits for pioneer services (2023) for a scenario balancing reduced conveyance and LAS and wider NHS economic impact

	Urgent care response	Falls	Mental health	Maternity	End of life[a]
Total incidents classed within incident group	439,100[b]	133,400[c]	101,500[c]	14,400[c]	5,100
Current total conveyance rate for incident group	313,400 71.4%	92,000 69.0%	69,600 68.6%	13,100 91.0%	3,300 64.7%
Current emergency department conveyance rate for incident group	250,500 57.0%	70,400 52.8%	55,100 54.3%	3,100 21.5%	1,000 19.6%
Estimate of suitable incidents for pioneer service, of which:	213,000 48.5%	94,700 71.0%	84,600 83.3%	10,700 74.3%	4,400 86.3%
• Would receive 'hear and treat' discharge (over current)	–	–	1,900 2.2%	2,200 20.6%	–
• Would receive 'see and treat'/be referred	76,900 36.1%	39,800 42.0%	56,300 66.5%	2,700 26.2%	4,000 90.9%
• Would be conveyed	136,100 63.9%	54,900 58.0%	26,400 31.2%	5,800 54.2%	400 11.4%
• Would be conveyed to emergency department	77,500 36.4%	44,400 46.9%	20,200 23.9%	1,700 15.9%	200 4.5%

Notes to table:

a. This cohort is not well defined, but expected to be larger than the modelling size which is based on palliative care incidents
b. Based on incident profile seen in pilot
c. Based on figures from 2017 incident data classification

5.8.2 System Benefits

The key performance benefits of the pioneer services are:

- **84,000 to 95,000 fewer patient conveyances** to emergency departments in 2023 compared to current forecasts

- **99,000 to 112,000 fewer patient conveyances** (to all destinations) in 2023 compared to current forecasts, with 33,000 to 45,000 fewer patient conveyances (to all destinations) compared to 2017 figures. As well as relieving pressure on the wider system this improves LAS productivity as job cycle times are 30% lower where a patient is not conveyed

- **260,000 to 330,000 fewer double crewed ambulance (DCA) hours per year,** equivalent to an average of 35 ambulances running 24/7, replaced with a pioneer response emphasising 'see and treat'

- Assuming low-end tariffs of £91 for an emergency department, and £262 for a non-elective admission, this could help London's five STPs to avoid costs of between **£7.6m to £8.6m in attendances** and around a further **£2m in non-elective admissions**.

Table 13: Pioneer services – summary of potential economic benefits (revenue) from 2023

Beneficiary	Benefit area	Source of benefit	Lower incident capture avoided cost up to (£m)	Upper incident capture avoided cost up to (£m)
London region	Reduction in number of hospital contacts	Avoided ED attendances	7.6	8.6
		Avoided non-elective admissions	1.8	2.2
Total			**9.4**	**10.8**

There is potential for expansion of scope of two pioneer services as they are developed and piloted:

- Urgent care response: within our modelling we have only assigned advanced paramedic practitioners to category 3 and 4 incidents. However, we know that APP-UCs also attend category 1 and 2 incidents so this impact will need to be examined further

- End of life: current data for incidents classified as end of life is limited and a minimal number of flagged incidents have been used as a baseline (palliative care only), but clinical experience indicates a significantly larger proportion of all work.

Figure 17: Shows the profile of incidents for the optimal scenario point, highlighting the reduction in emergency department (63% to 55%) and overall conveyance (73% to 63%) attributable to the pioneer services compared to 2017 figures
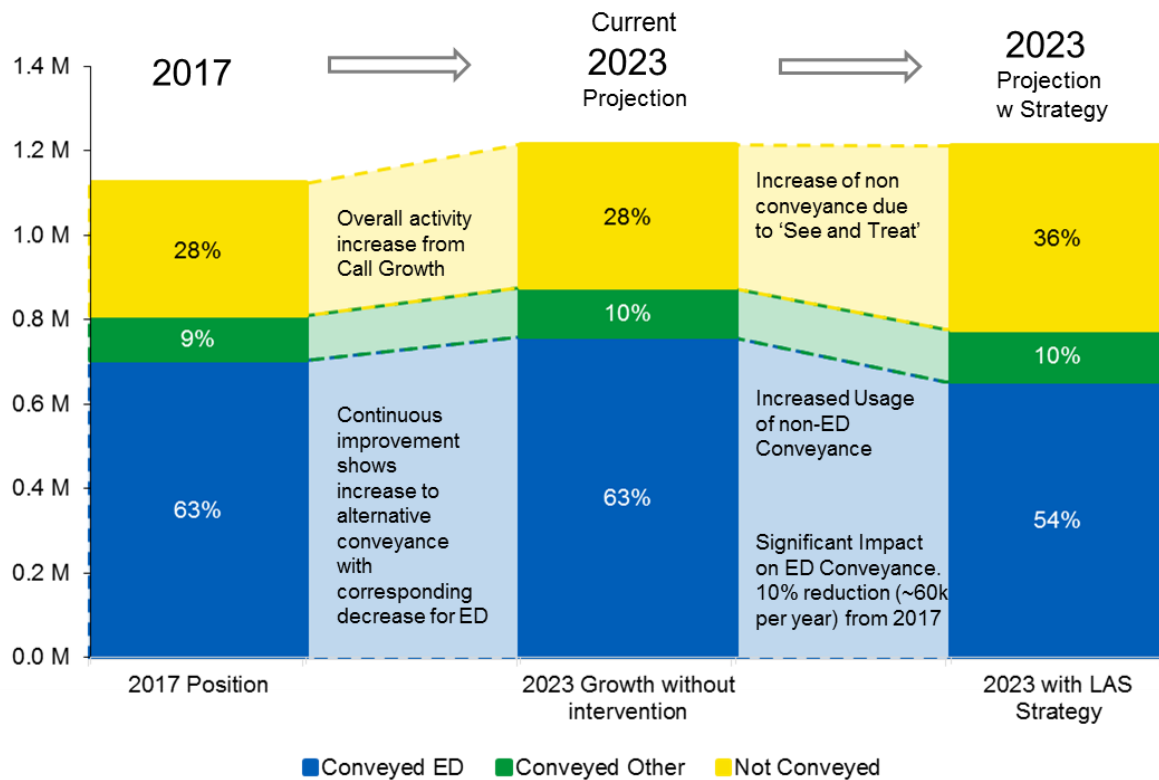
5.8.3   Economic Benefits

Productivity

Clinician productivity (the number of calls that a clinician would be able to respond to on a given shift) is a key factor in the viability of our pioneer services. There are two key drivers. One is the improved confidence and decision-making of staff to deal with incidents and discharge patients at scene rather than convey them. The second is ensuring that specialist staff would have a sufficient stream of calls to respond to (either as 'see and treat' or 'hear and treat') to ensure they are fully utilised on a shift.

We have modelled likely productivity levels to understand the impact on resource requirements. Our resource model assumes increased productivity of our clinical experts, which is supported by evidence from our advanced paramedic practitioner for urgent care (APP-UC) pilot. To understand the likely distribution of incidents for pioneer services, we have used historical incident data at an STP level and run a Monte Carlo simulation[19] to model the likely utilisation for different staffing levels. Our modelling partially accounts for the fact that we could (while still meeting performance targets) delay some lower acuity responses in order to provide an appropriate pioneer service, but the impact of this will be further explored in pilots.

Staff and Vehicle Benefits

Our modelling shows that we would need between 100 and 150 clinicians and 70 to 95 vehicles dedicated to pioneer services at any one time. This modelling will be refined as we pilot the pioneer

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[19] https://www.investopedia.com/terms/m/montecarlosimulation.asp

services, and different rostering and scheduling options can be considered. The pioneer services would cost between £5.2m to £7.1m less to deploy than resources used for the current service.

The pioneer services aim to change the incident outcome primarily for Category 3 and 4 incidents where there is opportunity to avoid dispatch of a vehicle, or resolve an incident without need for conveyance. Our modelling also accounts for occasions when we might send a member of staff allocated to a pioneer service to a higher acuity call in a double-crewed ambulance (DCA) when this would improve the quality of our response to a patient. A good example of this would be an emergency response to a birth complication when we might send a midwife along with the ambulance crew.

There will also be a level of investment that will be required to launch our pioneer services. These transition costs will include pioneer vehicle procurement costs and training costs.

Table 14: Pioneer services – net cost avoided by LAS from 2023 (analysis of staff and vehicle requirement)

Financial impact	Lower incident capture (£m)	Upper incident capture (£m)
Cost of existing services	36.4	41.1
Cost of pioneer services	29.6	36.3
Average investment per year	5.1	5.1
Net cost avoided by LAS up to	**2.0**	**0.1**

6   Strategic theme 3: Collaborating with NHS, emergency services and London system partners to provide more consistent, efficient and equitable

We will develop collaboration, partnership and innovation across the full range of public services in London and will support all opportunities to improve patient outcomes and experiences and improve public value.

As the only pan-London NHS provider, we have unique insight into the care that patients have available to them across London. We can help NHS England and the sustainability and transformation partnerships (STPs) identify the services that are best able to manage demand, where there are inconsistencies and where changes to service delivery would provide benefits to patients and the urgent and emergency care sector as a whole.

We are also fully committed to collaborating with the emergency services and wider London stakeholder community and have signed up to the joint intent of "making London the safest global city".

6.1   Collaborating with health and social care partners

6.1.1   The strategy, design and development of urgent and emergency care in London

As the only pan-London NHS provider trust, we can add demonstrable value to strategy and service development across the capital. We have not done this as effectively as we could have done in the past, but, working in conjunction with each of the London's five STPs, our new strategy aims to change this. Alongside the STPs and acute, mental health, community, social care and other providers, we want to be an integral partner in the development of the urgent and emergency care sector in London.

Led by the STPs, the urgent and emergency care sector is continually evolving and developing, and there are hugely exciting initiatives that are aiming to improve patient outcomes and experiences. However, not all care pathways and services are consistent across London. There is of course a place for local variation to meet the different needs of the different populations across London, but increased consistency would provide a better patient experience and support our staff in providing patients with the most appropriate care. The increasing volume of short operating hours or small footprint pathways and protocols, mean that patients may get different types of care in different parts of London; and our staff must spend time learning what is available and where.

We will assess urgent and emergency care pathways which we interact with, working with partners to identify whether they provide the best patient outcomes and optimise efficiency for us and for the system. We can contribute our experience and evidence base about what works best and help STPs to design local pathways that are most effective and provide best value for money.

By working with system partners, using our data and analytics, in the design and development of urgent and emergency care in London, we aim to:

- Simplify and ensure consistency between unplanned care pathways – providing consistency of experience and outcomes for patients; and reducing complexity for paramedics
- Develop and implement our pioneer services – ensuring that they work well across London

- As a provider of both 111 and 999 calls, release additional value through ensuring proper use of non-emergency care pathways, helping to ease the pressures on hospital emergency department services

6.1.2   A consistent approach to appropriate care pathways

While we recognise that there will always be differences in locally-commissioned services, it is our intention to work with London's five STPs to support the development of an agreed set of minimum standards for appropriate care pathways across London.

We know that by developing appropriate care pathways, that are consistent across London, we can better meet the needs of particular cohorts of patients and ensure that patients are taken to the most appropriate treatment centre for their presenting condition. Over 60% of incidents that we respond to currently result in conveyance, the majority of these to an emergency department. We are already seeing a gradual shift to appropriate care pathways as more consistent options, along with greater visibility of these, are becoming available to our staff.

In line with our clinical strategy, we are working with London's five STPs to ensure that all appropriate care pathways have a minimum set of common conditions that they will see and that these are available consistently. We have now provided all of our front-line staff with tablets so that they can look up the appropriate setting for their patient before either taking them there or arranging suitable transport. We will work with STPs and provider organisations to make sure that this information is consistently updated for our staff to use.

It is important to realise that 'consistent' does not mean 'one size fits all' but rather means that each pathway enables a common set of patients to be seen by that facility consistently. This will therefore provide confidence for our staff that they can refer the patient to the right facility first time, every time.

Patients and our staff will have the following benefits from improved consistency and availability of pathways:

- Improved clinical outcomes for life threatening conditions, including by reducing on-scene time for time-dependent clinical conditions

- Reduction in the variability in response to both critical and non-critical patients across London

- Increase the range of specialist skills in our clinical hub to provide expert advice to staff and better care to patients

- Staff will have better access to up to date information when with a patient to enable appropriate decisions to be made about a patient's care and where that is best provided

- Patients will receive care closer to home, for example from an advanced paramedic practitioner who can prescribe medications allowing that patients to be managed at home where appropriate.

6.2   Collaborating with emergency services partners

We work closely with other emergency services to keep Londoners safe and enable us to work efficiently and effectively. With the duty to collaborate with other emergency services now established by the Policing and Crime Act 2017, we are working with the London Fire Brigade (LFB) and Metropolitan Police Service (MPS) to make London the safest global city.

As a Category 1 responder, we have a statutory obligation to be prepared to deal with serious and major incidents of all types and sizes. Our incident response plan has been prepared in light of guidance from the Department of Health, Home Office and builds on the Civil Contingencies Act 2004 guidance, lessons identified by the London Ambulance Service, Coroner's inquests and subsequent 'prevention of future death' reports.

We are committed to continued engagement with our partner agencies and with the local and regional resilience forums to ensure joined up multi-agency emergency preparedness and resilience which

ensures a rapid response, with appropriately skilled clinicians to ensure the best clinical outcomes for the most patients affected.

Some of the main ways in which we already collaborate with the other emergency services are:

- Joint responding with the Metropolitan Police Service
- Joint training exercises with the London Fire Brigade
- We share estates with both LFB and MPS
- Joint working on major events and incidents
- Defibrillators on police vehicles
- Joint publicity campaigns
- The Joint Emergency Services Interoperability Programme (JESIP)

6.2.1   A joint strategic intent between the three emergency services

The three emergency services have agreed a joint statement of strategic intent which sets out our combined vision to partnership, collaboration, innovation and co-operation.

Building on existing collaboration in a number of critical areas, the three services now want to work together to go further to provide a world-class service that ensures a lasting legacy for the people of London. Together we will:

- Share a common vision of 'making London the safest global city'
- Deliver a world class emergency service to the people of London
- Ensure collaboration is at the heart of everything we do

There are six thematic areas of joint working between the emergency services, each with a range of options for how we can work better together:

Figure 18: Six thematic areas of joint working between the emergency services

Prevention	Potential areas include: • Community response teams • Safe and well visits • Intervention schemes: referral and delivery • Education teams • Central prevention strategy team • Director of Prevention for London • Information sharing • Fire as a health asset	Control rooms	Potential areas include: • Single control room service for London • Co-location of control rooms • Horizon scanning to include NHS 111, GP out of hours and 101 police non-emergency numbers • Signposting services for users/patients • Integrated technology where possible • Shared resilience
Response	Potential areas include: • Co-responding (MPS/LFB) • Joint response units (MPS/LAS) • Defibrillators in public access buildings network • Police assistance to LAS when forced entry is required • Specialist assets and services • Joint command units	Infrastructure	Potential areas include: • Estates: a shared vision/plan of London's 999 footprint • Fuel bunkers • IM&T: software licensing for common applications, contracts • Shared technology where possible

Inclusion	Potential areas include: • Cadets and apprenticeships • Volunteers • Recruitment • Career development • Staff associations e.g. LGBT groups • Development of inclusion strategies • Staff side representative bodies	Support services	Potential areas include: • Fleet • Procurement • Logistics • HR and payroll • Uniform/personal protective equipment (PPE) e.g. servicing of chemical, biological, radiological, nuclear, and explosive PPE • Legal services • Training (blue light driving) • Shared standards

6.2.2   Existing collaboration

While Figure 18 provides the themes and agreed areas of potential collaboration, some projects are already underway. These are explained below.

Control rooms

We have worked with the Metropolitan Police Service and the London Fire Brigade to secure funding from the Home Office Transformation Fund to investigate the potential benefits that could be achieved through shared control room functions. We are at an important and exciting juncture in London, with the opportunity to fundamentally redesign and think boldly and creatively about the longer term ambition for how London's emergency services control rooms are delivered, configured and operated.

This exploratory work could identify a range of different options from sharing space to full integration. The effectiveness of the control rooms will be a key consideration but so will be reducing the duplication of expenditure across the emergency services. Each service spends a significant amount on telephony, computer aided dispatch software, radio and data provisions. Integration or joint procurement exercises will be an aspect of this investigative work.

Estates

We already share space with the London Fire Brigade at their headquarters in Southwark. We also continually look for estates collaboration that will save tax payers money. For instance, we have an agreement with LFB to park certain vehicles in central London, saving the NHS £400,000 in 2017/18 alone.

Defibrillators

We have been working with the Metropolitan Police Service to place 700 defibrillators on police vehicles across London. This has led to several successful resuscitations of patients that the police managed to reach before an ambulance. This scheme has also saved the lives of a number of police officers who have had cardiac arrests on duty.

Prevention

We have submitted a joint business case that will see the formation of a tri-service team that will deliver preventative messages to schools in London. This service will aim to reach out to over 1,800 children in its first six months of operation.

6.3   Analytics to drive improvement and integration

We have a unique view of the urgent and emergency system. We have been evolving our business intelligence and analytical modelling skills for a number of years, and are well practiced in gaining insights through sophisticated modelling approaches and crafting and communicating a story from

qualitative and quantitative information. This means we are well-placed to be able to share our learning and experience with other organisations.

A variety of daily decisions are already enabled by the wide availability of our data and due to the work we do with other non-technical teams to facilitate the interpretation of the wealth of this data. With automated access to more external data sources through new shared technology platforms (for example 111 activity data and hospital admission data), we will be able to understand the impact of care throughout the urgent and emergency care system and provide further evidence for interventions that would improve the effectiveness or efficiency of care.

In order to gain the maximum benefit from our data, we need to develop:

- Our analytics capability
- Relationships with other health and social care analytical teams across London
- Information technology to enable automated information sharing and analysis

6.3.1   Our analytics capability

As we become London's primary integrator of access to urgent and emergency care we will need to strengthen our analytics capability to bring together intelligence from across London to enable us to inform system-wide policy, strategy and operations. Our ultimate goal will be to monitor the full patient pathway, supporting the needs of London's five STPs in population health management to:

- Gain insights from data and identifying trends
- Manage care delivery in near real time
- Develop evidence-based recommendations to drive improvements in the effectiveness or efficiency of care
- Shape the design of future services

The core analytical capabilities fundamental to achieving these goals are shown in Figure 19.

Figure 19:   Core analytical capabilities fundamental to achieving our goals

Benchmarking   Horizon scanning   Intelligence, reporting   Performance
                                              and predictive   and demand
                                                 modelling   management
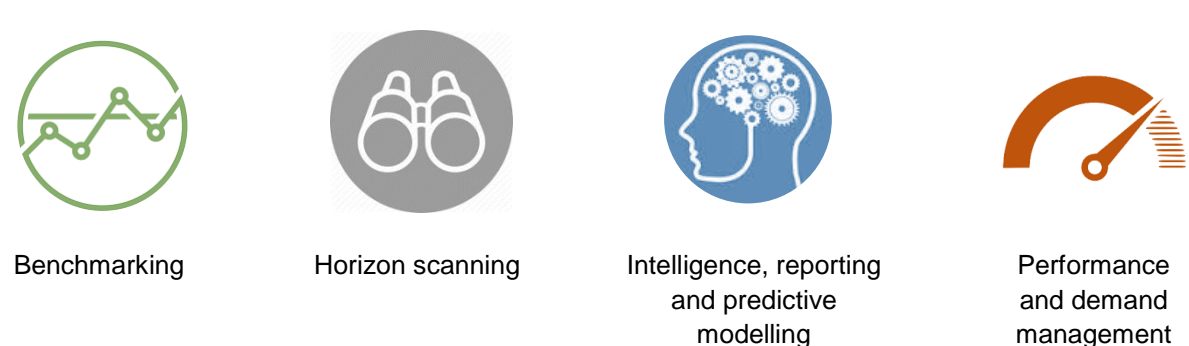
We already have a well-established and trusted analytics team, who ensure an efficient flow of data insight, and support decision makers with reliable evidence-based intelligence. Our business intelligence analysts and data scientists are able to understand the impact of interventions on the system, use statistical and mathematical modelling to make predictions, determine relationships between system elements or services, and model "what if" type scenarios. The strength of such a team is that the models built can be designed to be generic and reusable – bringing efficiencies and cost savings, compared to ad-hoc pieces of analysis being carried out across London.

We are expanding our internal capabilities to service all operational and corporate functions within the London Ambulance Service, to continue to support CCGs, and potentially to build up to a position where we can also supply partners with intelligence about their individual operational services which integrate with ours. This will reveal the interplay of services and their components, but will also provide transparent horizon scanning in terms of wider healthcare system forecasting.

6.3.2   Relationships with other health and social care analytical teams across London

We have not only built up partnerships with commissioners and other providers, but also have forged partnerships with academic institutions. This gives us access to cutting-edge research with a broader application than could be achieved alone in-house, extra scope and capacity for innovative projects, and appreciation of best practice analytics in other fields and industries. These benefits are applicable more widely than the London Ambulance Service, and often the appeal for universities to work with us is the quantity and richness of our data, as well as the ability to gain pan-London insight from such information. The benefits for patients would be enhanced through more integrated working across London.

There is much that can be learned from industry leaders in the analytics arena, from financial to retail sectors. Some examples of service and service-user improvements achieved from analytical insight which are applicable in a healthcare setting are shown in Figure 20.

Figure 20:   Areas where analytics could be applied to improve patient care and provide more efficient insight for staff

Demand management
Disney is a pioneer of customer satisfaction and demand management, monitoring demand in real time and dynamically deploying resources where they are needed to manage the customer experience. Disney also use this insight strategically to forecast for the future and to determine capacity. The transferable learnings apply not only to our mission of being a high quality service provider, but in understanding the pathway and full system experience of our patients, incorporating real-time information (e.g. weather) and social contexts (e.g. tourism, demographics and economy).

Performance management
Many household-name supermarkets and retailers have experience in performance management and understanding the equity of their service provision. They make use of innovative analytical techniques to monitor data and recommend improvements in specific areas. It is important to us that new models of care are equitable and managed effectively to provide the best care to patients across London. Intelligence and insight will be produced by our in-house business intelligence and data science teams.

Service-user satisfaction
Businesses such as British Airways and John Lewis are renowned for their customer satisfaction scores and service quality. Analytics are a pivotal part of informing business strategies in these companies. As an emergency care provider, we support and serve the population of London in their greatest moment of need. We can use insight from the evaluation of patient and staff satisfaction to recommend ways to improve. This branch of analytics is essential for helping us to understand which efforts lead to positive service experiences.

Personalised service
In the finance sector many companies generate marketing based on intelligence from customer data and target specific individuals with products and services they believe will be most useful/relevant. Applied to healthcare, this means ensuring that we: understand our patients' needs by using business intelligence and analytics to make accurate predictions; and respond to patients in the most appropriate way, referring them to the right care pathways. It can also mean creating more effective media campaigns to inform the public, and evaluating their impact.

Centralised intelligence
The Ministry of Justice has a Data Lab that generates evidence for change. The Department of Health provides guidelines for employing analytics and making use of insight and expertise. And NHS Digital has established a centre of excellence in big data and data science. We aim to enhance our own in-house capabilities, from what is already a sound base, to increase the value that we add from analytics and statistical modelling to support our staff, our commissioners, and other providers of emergency care across London to care for patients.

We should all aim to use analytics and technology hand in hand to better integrate with other public services, ensuring patient care is well-coordinated, equitable and consistent. Creating sustainable,

automated and near real-time links with external data sources and partner intelligence will be key to the delivery. Partnerships with other organisations, where analytical investigations using shared data are conducted to benefit all parties, will also reduce commonly seen issues around data accessibility, transfer and interpretation.

Pan-London data sharing agreements have already been discussed and need to be progressed to completion.

6.3.3   Information technology to enable automated information sharing and analysis

Developing the analytics capability we describe above depends on having joined up data and common patient records. We describe in Section 8.4.1 how we intend to become a fully digital organisation. With available and planned technology to be deliver over the lifetime of our strategy, the following will become possible:

- Linking of emergency, urgent and hospital admission data will allow us to model and interpret full pathways to understand the flow of our patients and impact of response and pathway on patient outcomes for both emergency and non-emergency patients.

- Seeking to work with Transport for London to gain a real-time understanding of traffic flows in London to make better dispatch choices; additionally to help planning by understanding where demand might arise based on historic travel patterns and commuter routes.

- Deep data insights around demography, weather, transport and infrastructure required to enable us to better predict demand. It is important to also understand the equity in the services provided throughout London and perhaps the impact on patient outcome in different areas. This can be done within our existing capabilities, but requires additional capacity to fulfil the investigation.

- Tracking of the NHS workforce across London. For example, looking at trends in paramedics within the education system, those likely coming into local recruitment populations, the existing paramedic cohort, and those retiring. Such staff grouping information would allow us to model the full workforce pathway, and horizon scan for imbalances in supply and demand of specific skills across emergency and urgent care services across London.

- Automated, interactive dashboards, available to our partners for viewing and exploring data.

6.4   Summary of potential benefits

6.4.1   Promoting best practise across London in conveyance rates

Close collaboration with our partners will expand the benefits delivered in our strategy. One clear element of this is how partner organisations will support improvements in emergency department conveyance through provision of alternatives conveyance locations. Our aim is to work with health and social care, emergency services and London system partners to identify opportunities to make further improvements to the consistency, efficiency and equitability of services.

There is currently a significant difference in conveyance rates to non-emergency department locations (alternative location conveyance rate). For example, the alternative location conveyance rate in North Central London is 7.4% compared to 10.7% in South East London, This equates to 17,000 additional people going to alternative conveyance locations in SEL than would occur if NCL rates were used.

Table 15: Additional pioneer services benefit through collaboration – summary of potential economic benefits (revenue) from 2023

Beneficiary	Benefit area	Source of benefit	Lower incident capture avoided cost up to (£m)	Upper incident capture avoided cost up to (£m)
London region	Reduction in number of hospital contacts	Avoided ED attendances	1.7	2.1
		Avoided non-elective admissions	0.5	0.6
Total			**2.2**	**2.7**

In section 7, we show how theme 3 can support the further reduction of conveyance to ED from 55%, as shown in section 5, to 53% through provision of equal standards of services across London. We also hope to reduce re-contact rates through closer ties into appropriate local pathways. We will test this during the pioneer pilots.

7   Estimating the impact of our strategy

Our strategy will have direct clinical benefits for patients by providing more clinical care remotely by 'hear and treat' and by increasing, to over a quarter, the proportion of our patients who receive a pioneer response, discharging them on scene where possible by 'see and treat'. A reduced conveyance rate to emergency departments will mean that hospitals will deal with fewer patients who could have their needs met at home or in the community, which has both operational and economic benefits.

We have discussed qualitatively the potential benefits that we expect our strategy to deliver by theme in sections 4, 5 and 6. In this section we discuss the impact that we hope to deliver for our own organisation and for London's five health economies/sustainability and transformation partnerships (STPs) and how these benefits might interact. This will be refined as we develop the operational model for iCAT London and pilot the falls, mental health, maternity and end of life pioneer services, incorporating the results to update projections.

7.1   Overall impact of strategy

We have assessed the economic benefit of each of our three strategic themes separately, highlighting areas of anticipated quantitative and qualitative benefits.

Whilst we implement our three strategic themes, we will need to be aware of and monitor any potential overlap in benefits between iCAT London and the pioneer services. Our focus is on providing definitive care to patients as soon as possible after contact, which will reduce the need for provision of care at later stages of the urgent and emergency care pathway.

We will design our pilots to understand these synergies and how they impact upon projected volumes of activity. Figure 17 shows how the overall impact on activity and conveyance will increase when combining themes 2 and 3. The combination of theme 2 and theme 3 **reduce ED conveyances by 106,000 to 122,000** in 2023 from current forecasts.

Figure 21: Builds on Figure 17 combining the impact of strategic themes 2 and 3 to show the profile of incidents for the optimal scenario point, highlighting the reduction in emergency department (63% to 53%) and overall conveyance (73% to 63%) attributable to the pioneer services compared to 2017 figures. The decrease in ED conveyance comes from collaboration to establish further alternative conveyance locations in line with best practise of other STP areas.
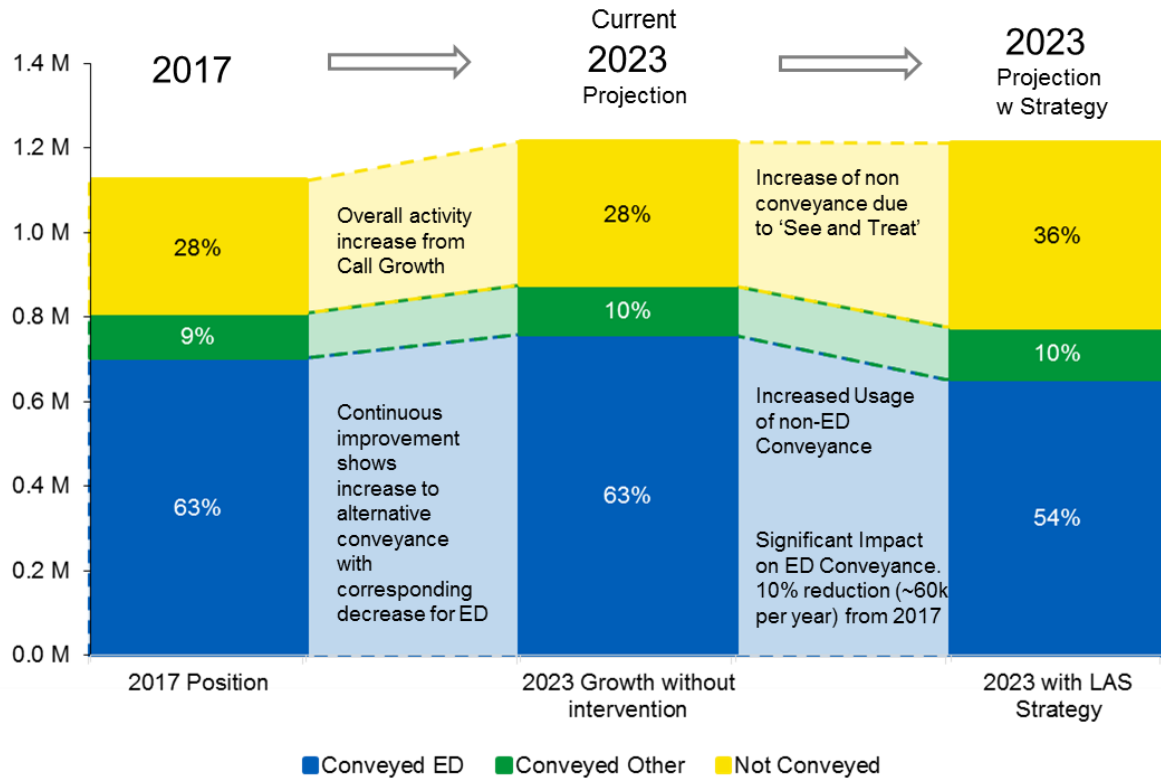
Table 16 provides the benefits that we could achieve through implementation of our strategy. The ranges ensure that we do not overstate potentially overlapping benefits. For example: iCAT London could reduce mental health calls becoming incidents that require physical resources, this would then lower the volume of mental health vehicle responses required.

A detailed assessment process of the iCAT London implementation will inform the optimal resource levels for the pioneer services. Capturing further data from the lower acuity calls handled in iCAT London, where a physical response is still required, will help us to identify possible future pioneer services.

There are also a number of unquantified potential benefits, as outlined in section 4.3.2 which could increase the total benefits achieved through full implementation of our strategy.

Table 16:   List of quantified benefits by priority of implementation for earliest resolution to provide greatest system benefit.

Strategy Theme	Benefit area	Source of benefit	Cost avoided up to dependent on scenario (£m)
iCAT London	Ambulance dispatches	Avoided ambulance dispatches (999)	0.0 – 11.6
		Avoided ambulance dispatches (111)	0.4 – 2.8
	Utilisation	Improved utilisation of call handlers	0.0 – 3.0
		Improved utilisation of clinical advisors	0.0 – 3.6
	Total		**0.4 – 21.0**[a]
Pioneer Services	Staffing and vehicles	Net cost avoided by pioneer staff deployment minus investment in training, vehicles and project costs	5.2 – 7.1
	Investment cost	Average investment cost per year over the 5 year strategy	(5.1)
	Reduction in number of hospital contacts	Avoided ED attendances	7.6 – 8.6
		Avoided Non-elective admissions	1.8 – 2.2
	Total		**9.5 – 12.8**
Collaboration	Reduction in number of hospital contacts	Avoided ED attendances	1.7 – 2.1
		Avoided non-elective admissions	0.5 – 0.6
	Total		**2.2 – 2.7**
Total potential savings through implementation of our three strategic themes			**12.1 – 36.5**

8   Delivering our strategy

Delivering our strategy will require us to deliver fundamental changes to our organisational structure, culture, capabilities and infrastructure. Our blueprint will be enacted through a strategic framework of detailed and interconnected enabling strategies which will specify, function by function, the plans that we will deliver over the lifespan of this strategy.

This section details the changes that we need to make to achieve our new organisational blueprint, as well as how we identified what those changes are and how we will deliver them. We also set out a number of dependencies with commissioners, partners and national bodies for successful delivery of our strategy.

8.1   A blueprint for our future organisation

We have used a business design approach to articulate the new organisational blueprint that demonstrates how our new strategic themes come together. This approach helps us to ensure that the design for our future organisation is:

- Driven by a clearly articulated strategic vision that has been developed collaboratively by affected stakeholders
- Founded on a solid understanding of the underlying capabilities needed to be successful
- Integrated, with seamless connections between components such as people, processes, systems and data

The first stage in developing our blueprint has been to identify a set of core design principles that will guide all changes and improvements that we are going to make to enable us to achieve our vision and implement our strategy.

Table 17:   Blueprint design principles

	Design principle *The design must...*	Rationale *… in order to…*	Potential operating model improvements *… and may feature…*
1.	Deliver a better and more consistent and equitable patient experience	• Ensure each patient can access the service in the way that they choose and receive the most appropriate response for their needs, regardless of their point of access • Ensure a fair and equitable response to the patient from a quality and safety perspective	• Improving access through a broad mix of multichannel options • Integration of urgent and emergency care contact handling, initial triage and one clinical hub
2.	Ensure organisational flexibility and adaptability	• Be able to better react to changes in patterns of demand, e.g. due to seasonality	• Flexible approaches to sourcing the skills we need as an organisation e.g. contracted resource • Multiskilling staff to cover a range of clinical requirements • Integrating/creating flexible resource pools

Design principle *The design must...*	Rationale *… in order to…*	Potential operating model improvements *… and may feature…*
3. Optimise the efficiency and effectiveness of contact handling and initial triage	• Provide better assessment and improved resolution of patients concerns and conditions through one point of contact • Reduce human effort required to handle low acuity contacts in order to increase focus on developing complex triage and resolution capability	• Alternative options for delivery including better use of technology to enable self-service, lower cost locations/lower cost providers
4. Ensure fewer patients are conveyed to hospital	• Get the right clinical response that is most appropriate for the patient and most cost effective for the system	• Better complex clinical triage • Increasing the range of skills in the clinical hub to provide expert advice to staff and better care to patients • Improving links into other services outside in the wider system
5. Exploit new technology to help make lower acuity contacts more efficient and improve the effectiveness of clinical assessments	• To improve patient experience and efficiency of delivery across our service	• Alternative ways to access the organisation, increased use of automation for less urgent contacts and enabling staff to use technology to work virtually e.g. 'see and treat' without needing to be on the scene
6. Enable consistent interfaces and agreed minimum standards across London	• Better meet the needs of patients across London through more consistent care pathways	• Increase the focus on pan-London care pathways and working with the wider system to ensure that a set of minimum care standards are in place and adhered to by the London Ambulance Service • Clear referral options from the clinical assessment service to the right place in the system
7. Ensure compliance with NHS England's integrated urgent care specification	• To ensure that we are compliant, while remaining in control of the design and ensuring it is aligned with the wider organisational strategy	• Adherence to the guidelines but ensuring that our strategy is reflected in the design through areas such as the pioneer services
8. Balance short term requirements with longer term strategic ambition	• To ensure design supports the short term priorities for the North East London and South East London contracts/bids as well as the strategic intent of covering the whole of London	• Prioritisation of critical resources which are specified by contracts in the short term while building wider capability for the long term
9. Ensure organisational scalability	• To be able to absorb additional demand from expansion across other geographies	• Considering alternative sourcing options to cope with potential future demand • Using technology to manage demand in a more efficient and effective way

Our proposed blueprint describes the functional elements of our future organisation, which will have multichannel access to a single contact handling and initial triage team and a single clinical assessment service. It delivers a series of key enhancements which will transform delivery of our services in the future.

The blueprint includes a range of improvements to the operating model including the key changes below:

- Truly multichannel access to iCAT London
- Better information and artificial intelligence to support self-care or direct patients to appropriate services
- Combined initial contact handling across urgent and emergency contact (999 and 111)
- Automated triage for lower acuity incidents
- Combined clinical assessment with an enhanced range of clinical skills, including GPs, mental health nurses and dental nurses
- An enhanced range of skills and vehicle options for front-line crews including pioneer field operations options (e.g. falls specialists, mental health nurses, midwives)

Figure 22 below shows the key changes to our operating model that will be necessary to implement iCAT London.

Figure 22: Key changes to our operating model (highlighted in yellow)
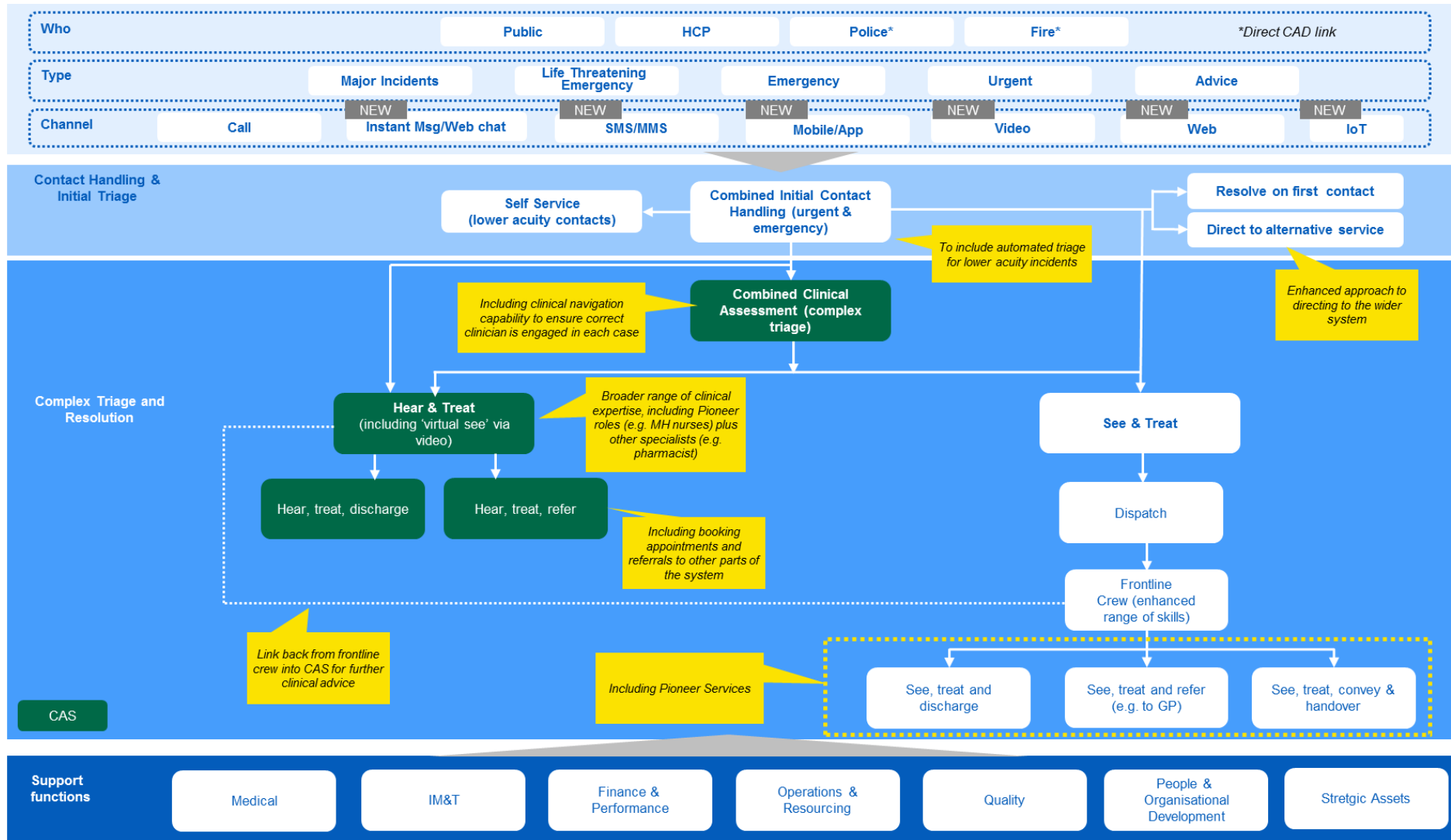
8.1.1   New organisational structure

As our organisation evolves and develops, so must our structure. We have historically had a very hierarchical 'command and control' structure where decision-making was predominantly made at senior manager levels. This is neither modern nor efficient and we are proactively looking to change this structure as we modernise our organisation.

One of the key principles of our new structure is to be 'flatter', with fewer layers of management. The shorter the chain of command, the quicker decision-making can be and the more tendency there is to break free from working in silos[20].

As we develop our new structure, there are a number of principles that we will seek to achieve:

- A 'flatter' structure, with fewer layers of management, empowering people at all levels of the organisation to make appropriate decisions
- Creating a more agile, flexible and joined up organisation
- Improving collaboration, developing trust and our ability to work and learn from others
- Implementing flexible 'matrix' management approaches
- Implementing business partner models in People & Organisational Development, Finance and IM&T to support operational delivery.

Ensuring accountability from Board to front-line, while we work together across the organisation to enhance collaboration across directorates.

Our organisational structure is not simply the technical specification for how our organisation is organised and how management responsibilities are planned. Our organisational structure is a key enabler to achieving our vision and encouraging our staff to display the behaviours that we want them to demonstrate. Section 8.2 identifies our values and behaviours which will be supported by our new organisational structure.

8.1.2   Changes in workforce skill-mix

The future system of integrated urgent and emergency care requires an ambulance service that places a clear emphasis on assessment and enhanced treatment at scene and in community settings, with transport to alternative care settings, where required. Transport to hospital should be for those patients who require the level of assessment and treatment available only within an emergency department.

New models of care require flexible, multi-disciplinary working across organisational boundaries, supported by enhanced educational programmes and workforce development to support this. Developing a sense of a 'single clinical team' will require a shift in our culture and our governance. We will work with our feeder universities and Health Education England to influence the curriculum to ensure that there is sufficient coverage, specifically on urgent as well as emergency care.

Our new strategy depends on being able to deploy professionals with different skills, for example:

- Mental health professionals to those with mental health crises
- Midwives, when we are called to a birth and there isn't already a midwife on-scene

We need to have a broader range of skills available to help patients in order to provide the right care at the right time, first time. Multi-disciplinary working will also provide opportunities for our staff to learn new approaches to dealing with different situations and helping patients in different ways.

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[20] Smart Design for Performance, A new approach to organizational design, Boston Consulting Group, 2016

8.2   Our organisational culture

Culture is the way we do things around here. It is the norms, rituals, expected behaviours and unwritten rules within a work organisation. Culture is vital because it shapes our behaviour and values at work

Having a strong organisational culture which supports staff is crucial in our ability to implement our strategy. Not only do we need the buy in from our staff in implementing the changes that we need to make, but we need them to be our champions. We need our staff to be the advocates of the changes that we are making, with each other and with other people from the wider NHS system who they work with and speak to on a regular basis. This will only happen if the culture of our organisation supports this.

8.2.1   How we identified our desired future organisational culture

We have carried out a key piece of analysis to review and understand our current organisational culture, as well as determine our desired culture. This analysis was undertaken using the King's Fund[21] and NHS Improvement[22] toolkits, with the support of NHS Elect.

We worked directly with staff across the organisation in a number of ways on this piece of work:

- Tier 1 management sessions (top 60 managers meeting)
- 1-2-1 interviews facilitated by NHS Elect with our Executive Leadership Team
- An 'organisational climate check' on our intranet
- CEO roadshow feedback
- Staff engagement event
- 2017 staff survey results

Through these elements of staff engagement and the work supported by NHS Elect, we identified the elements of our desired culture which have been translated into our new organisational values and behaviours described previously in 3.2.

8.3   Developing capabilities for delivery

As well as having the right culture, having the right organisational capabilities will enable us to implement our strategy and support our vision to be a world class ambulance service for a world class city. In this section we focus on a core number of these capabilities that we will need to strengthen over the coming years:

- Training and educating our workforce
- Operating as an agile commercial organisation
- Innovating for continuous improvement
- Involving the public in our work: our volunteer community

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[21] Improving NHS culture, the King's Fund

[22] Create a culture and leadership programme, NHS Improvement, 2016

8.3.1 Training and educating our workforce

Our leadership development pathway for all staff

Delivering world class training and education is not only a capability on its own, but is the tool by which we ensure our staff have the capabilities that they need in order to carry out their jobs to the highest possible standards.

We have developed a leadership development programme to offer a range of training and education opportunities for our staff across all functions of the organisation. The leadership pathway is offered across five key areas:

- **Leaders of Tomorrow** for aspiring leaders to support skills development and progression of our identified future leaders
- **Management Essentials** is for bands 4–6 and as refresher sessions for all leaders and will form part of a management induction programme
- **The Engaging Leader** intended for bands 6–8
- **The Visible Leader** intended for bands 8–9
- **The Transformational Leader** intended for 'very senior manager'/executive leaders.

Each of the levels have been designed to allow us to develop and map skills and knowledge alongside the trust's values and behaviours. We will use our leadership development pathway to identify the training needs of our staff that we can support in order for them to develop their skills and competencies to lead our organisation now and in the future. The figure below identifies how our leadership pathway will be available to and targeted for all of our people, no matter whether they are apprentices or our most senior managers.

We also want to make sure that our leadership development pathway supports our desire to ensure that our workforce is more representative of the people that we serve, particularly within leadership positions. **Sponsorship Mentoring for BAME Staff** is a leadership development and inclusion programme designed to enable greater access for BAME (black, Asian and minority ethnic) staff at bands 2–7 to more senior roles across the organisation with the support of a sponsorship mentor. This will be piloted and evaluated between May 2018 and September 2019.

Similarly, we will pilot a scheme for 'reverse mentoring'; another leadership development and inclusion initiative. Through a paired relationship of a senior member of staff with a more junior member of staff within the BAME workforce it seeks to enable opportunities to "walk in the shoes" of BAME colleagues and identify some of the barriers that may exist in the organisation which prevent BAME staff from progressing through the organisation. This model could also be rolled out more widely so that a more junior member of staff mentors a senior member of staff to support sharing mutual knowledge and experience and improving service performance and staff morale as a result.

Figure 23: Leadership development pathway

Aligned to NHS Leadership Academy Healthcare Leadership Model	LAS Leaders of Tomorrow *Talent Management Programme*	**Leadership Essentials** *Essential*	**The Engaging Leader** *Proficient*	**The Visible Leader** *Strong*	**The Transformational Leader** *Exemplary*
Banding					
VSM					To be designed in collaboration with the CEOs office
9					
8d					
8c					
8b				The LAS Visible Leader is aimed at Bands 8b/c* across the organisation. It builds on embedding skills and developing strategic focus and could be facilitated by NHS Elect as part of our membership. *Could include some Band 8d dependant on development needs/experience Modules are:- Understanding the Policy Context & Strategic Planning / Leading Effective Teams / Coaching Skills for Leaders / Leading Change & The Fundamentals of Negotiation and Influence	
8a					
7	Aspirational Programme targetting high performing staff through VIP Awards, PDR or nominations. Run annually building an alumni. Evidencing vidence movement into or upward Leadership roles as well as being part of a "Growing our Own" culture	A Leadership Toolkit aimed at Bands 6/7 and anyone new to an LAS Leadership Role (Inc. new leaders joining the Trust who would also be expected to complete some modules of the Toolkit. Modules to include:- Unconscious Bias / Finance for Managers / Disciplinary & Grievance / PDR Skills / Giving & Receiving	The LAS Engaging Leader is aimed at Bands 7-8a/b* across the organisation. It builds on the Essentials Programme embedding skills and could be supported by the inhouse Leadership Academy Mary Seacole Programme being delivered by senior leaders across the Trust. *Could include some Band 8c dependant on development		
6					
5					
4					
3					
2					
Apprentices					
General	NHS Employers / Zeal Solutions - Supportive Leadership & Management Behaviours which could also incorporate the LAS Behaviour Model going forward to help engage and embed it across the organisation				

World class clinical education

In order to deliver on the objectives outlined in our clinical strategy, one of the enabling strategies to this strategy, it is vital that our operational staff, both in the control centres and out on the road, receive high quality training and education throughout their careers with the London Ambulance Service. We are going to improve the training and education that our staff receive by changing the construct of our education centres, improving access to electronic and mobile learning and by increasing the amount of dedicated time that our operational staff have for training and education.

As our workforce becomes more multidisciplinary, so will our training. Through our plans for our integrated clinical assessment and triage service (iCAT London) and our new pioneer services, we will have a much broader range of skills within our organisation. Our training and education will reflect this, through embedding human factors principles into our programs and bringing together different groups of staff where possible in order to generate a greater understanding of the specific challenges faced and specialist skills each role brings to our organisation.

Training and education centres

In order to provide the highest quality education for our staff we will be consolidating our six main education sites to two new centres. These two sites will be contemporary places of learning with state of the art facilities to enable us to use the most appropriate and effective teaching methods with our staff. Some of the facilities and teaching methods that we will be able to utilise in our centres of excellence are:

- Simulation labs
- Digital enhanced spaces
- Immersive suites
- Large auditoriums
- Break out rooms

- Skills labs
- Driving simulators
- Video analysis of scenarios
- Quiet study areas
- Augmented reality

These centres of excellence will also provide a better, more inclusive environment for our staff as well as an ability to streamline all administrative processes. For example our centres of excellence will include occupational health rooms, prayer spaces, uniform fitting rooms and e-learning facilities.

Consolidating our main programs to two sites will create an opportunity for team teaching and improved peer support, which will give the teaching staff the ability to specialise in areas of interest and develop the expertise to enhance the London Ambulance Service as a learning organisation.

High quality mobile training: Ed-u-Pod

Our centres of excellence will deliver all of our large group and classroom based training, however we have a mobile workforce and we therefore need mobile education and training. Our mobile classroom, the 'Ed-u-Pod' will bring training and education to staff at stations. This Ed-u-Pod will carry out small group meetings and training sessions without the need for our staff to travel to one of our centres of excellence for what would be a short session.

We know that there is no 'one-size-fits-all' for education and training. By introducing this mobile training facility, we can make sure that an element of the training we provide to our front-line staff is targeted to their locality. We can use this facility to make sure that crews know about the local innovations and different care pathways available to them when they are with patients, identifying which is the best place to take them to meet their specific needs.

A career with the London Ambulance Service

It is crucial that we provide a clear career development pathway through our organisation.

For a number of our staff, the prospect of a career with the London Ambulance Service starts at university. We have been working with universities for a number of years and will continue to do so to recruit high quality graduate paramedics. However, we are now working in a more targeted way, ensuring that our university partners are helping us to recruit a more diverse workforce, with different backgrounds so that we can better reflect the population that we serve.

We note that there is a high level of interest in working in a clinical role in the London Ambulance Service, and believe in supporting different routes into the trust, and enhanced clinical career pathways for our staff. We are working with the universities to develop a degree programme that will allow people with existing relevant degrees to convert to paramedicine. This will not only provide an additional avenue for recruitment, but broaden the skill sets of the people within our organisation. We are also formalising our clinical career pathways to allow transition across clinical roles and create a career structure. Where possible this will align with formal qualifications.

For those of our staff who are keen to progress to a more senior role, the career pathway will commence at point of entry and transition to more senior roles. Some of the key elements of our clinical career pathway are:

- Our Trainee Emergency Ambulance Crew (TEAC) program is accredited within a national framework, providing a Level 4 Associate Ambulance Practitioner course. This course is also offered as an apprenticeship
- The London Ambulance Service Academy has established a pathway for Emergency Ambulance Crews (EAC) and Emergency Medical Technicians (EMT) to transition to Paramedics, through a fully funded, 2 year internal course

- The Newly Qualified Paramedic (NQP) program was rolled out across the LAS, so that every new paramedic receives direct support and guidance while they develop expertise in practice.
- Through Health Education England our staff can access bursary funding to help access further education programmes
- We have also secured additional bursary funding for BAME, EAC and EMT staff to progress to becoming paramedics.

Figure 24:   Our clinical career pathway

Non-emergency ambulance crew

Emergency operations centre staff

Trainee emergency ambulance crew

Emergency ambulance crew

Newly qualified paramedic

Paramedic

Advanced paramedic practitioner

Education stream

Management stream
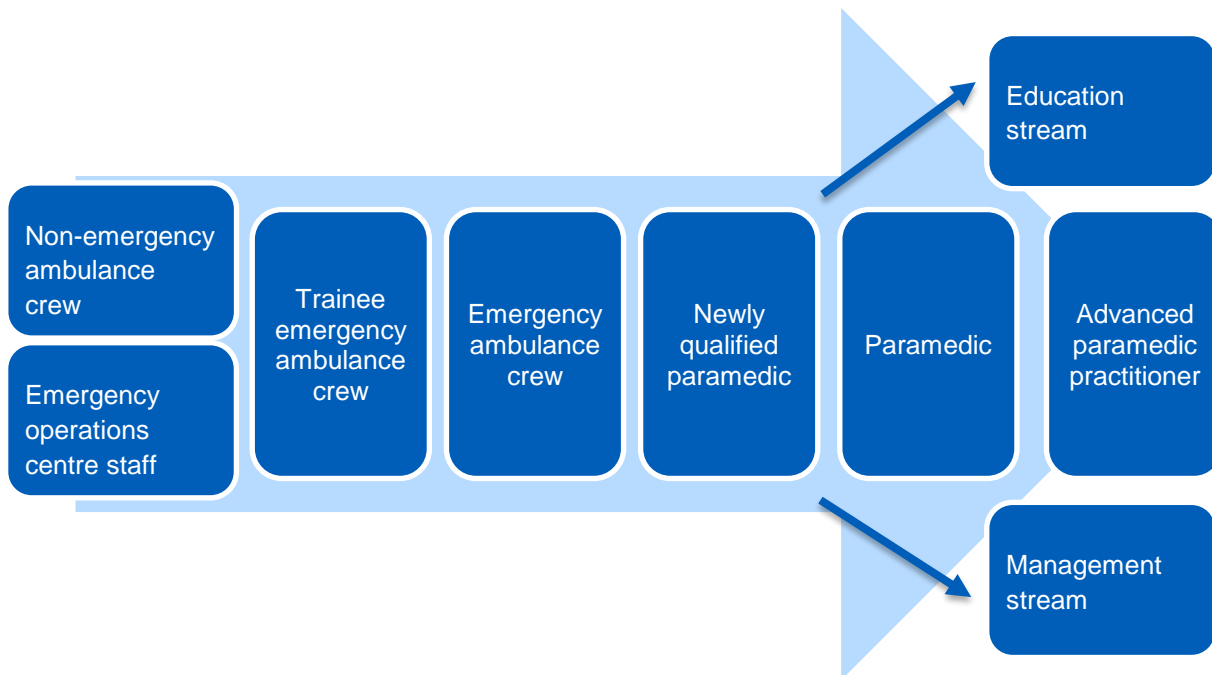
8.3.2   Operating as an agile commercial organisation

To achieve our aim of being London's primary integrator of access to urgent and emergency care, we need to develop and maintain ever more effective relationships with commissioners, partners and suppliers. While of course we already manage a broad range of relationships, we anticipate that delivery of our ambitious strategy will require a different level of capability in commercial processes.

In a thought piece entitled *Improving commercial ability helps us all*[23] (2017), Sir Jeremy Heywood, Cabinet Secretary and Head of the Civil Service, emphasises the importance of commercial skills in government and the public sector, noting that the best outcomes are achieved when the commercial requirements of strategic goals are understood from the outset. He recognises that good commercial outcomes result from the work of a wide range of staff but that, increasingly, some specialist skills are required. We need a more focussed capability to leverage the knowledge and skills of others in the organisation who are not commercial specialists, to ensure that we can make the most of commercial processes in delivering our strategy.

The range of commercial processes that we need to support includes responding to tenders, identifying beneficial partnership opportunities, and procurement and contracting; as well as the strategic review and planning required to identify and prioritise how these processes can best be used. We recognise that commercial processes make an important contribution to improving NHS services, for example by enabling positive service changes, emphasising and rewarding quality improvement, and supporting integration. Yet they can add complexity to arrangements and require access to a broad set of skills to manage them effectively. The National Audit Office has previously identified some

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[23] Improving commercial ability helps us all, Sir Jeremy Heywood, Civil Service Blog, 2017

of the skills required to manage more complex services, including financial and business analytical skills; evaluative and economic skills; insight and information skills; and commercial law skills.

As the King's Fund points out in *Leading across the health and care system*[24] (2017), "it can be tempting for organisations to look after their own interests and performance rather than to work in partnership with others, which is a major missed opportunity to transform delivery of care to meet the changing needs of the population". We want to use our unique position to act as a leader in the transformation of urgent and emergency care, and we want to make full use of opportunities to contract, partner and procure for the benefit of patients and the wider system in which we operate. We also want to do this in a way that enables the London Ambulance Service to meet the corporate and financial objectives expected by our regulators.

We have an executive leadership team with substantial commercial experience, enhanced through recent appointments. Our executive leadership team have a diverse range of experiences and backgrounds from the public and private sectors. Developing the commercial skills of the organisation will be a priority of our people and culture strategy.

8.3.3   Innovating for continuous improvement

We want to be a learning organisation, continually looking to identify risks or issues and prevent harm resulting from errors and adverse events. Increasingly, we are focusing more of our time and efforts on proactive rather than reactive learning. Learning organisations search for ever better ways of working toward and achieving results that improve the lives of patients, families, and staff.

An enormous amount of data and information is continuously generated at every level of the organisation and fed into reports that meet legal and regulatory requirements, but are often underutilised to effect real change and improvements at the point of care. Continuous learning requires feedback loops to provide data back into the various reporting systems to share information and generate insights to prompt action and learning.

Measurement and information are therefore crucial aspects of improvement, if we do not measure or use information effectively via our governance, assurance and performance monitoring systems then we will not know what impact our actions are having and also where other risks may be emerging.

Quality assurance framework

The overall aim of our quality assurance framework is to ensure that we provide high quality care to all patients and to develop a culture where our staff feel valued and engaged in improving that care.

The direct benefits for our patients are:

- Patients will work more closely with the trust in identifying where improvements need to be made
- Increased engagement in contributing to improvement activities
- Consistent themes that create risks to patients should be eliminated
- Improvements that affect them will be more rapid
- Variation in the care provided will be reduced
- Providing consistent and trust wide information to show the extent of improvements that the London Ambulance Service make will give them more confidence in the service.

The direct benefits for our staff are:

- Providing a place of work for our staff where they feel valued and engaged
- Staff will feel supported when things go wrong
- Staff will have input into making improvements that they identify on a day to day basis

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[24] Leading across the health and care system: lessons from experience, King's Fund, 2017

- Improvements can be made in a more timely way

- Integrating quality and safety better into existing meetings and teams, reducing the variation in care provision and best practice

- Reducing the likelihood of incidents and reducing potential for prosecution or other legal interventions

- Empowering staff through targeted training and competence activities

We will also continue to use 'deep dive programmes' to identify areas in which more in-depth review is required based on the risks to the organisation.

Quality improvement and service innovation

We use the Institute for Healthcare Improvement's (IHI) model for improvement[25]. The model, national and internationally accepted as best practice, combines three questions and a plan, do, study, act (PDSA) cycle for testing changes to assess whether or not they lead to improvement:

- Plan: plan the test or observation, including a plan for collecting data

- Do: try out the test of change (using various improvement methods)

- Study: analyse the data and study the results

- Act: refine the change, based on the learning from the test

In order to apply this model, our staff need to be trained in the various techniques and have the additional capabilities to drive this system of organisational improvement, which include:

- An understanding of human factors

- Concept of safety systems

- Driver diagram development

- Change management principles and techniques

- Measurement skills and knowledge

- Flow and service re-design management (using Lean principles, creative thinking etc.)

International evidence from IHI suggests that for an organisation of our size, a commitment to training 1% of the workforce in improvement methods is required for continuous improvement. A programme to identify and prioritise appropriate staff at all levels and utilisation of 'train the trainer' techniques will build the capacity required.

We have a 'business partner' model that aligns to the five sector teams to support the investigation of incidents and risk management. We work closely with our sector teams to share learning, increase capacity and capability and embed change through agreed sector quality improvement plans. The benefits of this model are:

- Improve and accelerate decisions making

- Implement solutions rapidly

- Deliver programmes with predictable consistency

- Provide transparent status reporting

- Improved accountability and responsibility

The support required for each project/programme will vary depending on the size and complexity of the change. At the start of any project we will clarify the conditions for change to ensure there is recognition of the costs both emotional/personal and financial to the staff and organisation. This assessment will provide a view of what is required to support the improvement to ensure success i.e. local team support or trust wide central programme and project management support.

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[25] Model for Improvement, Institute for Healthcare Improvement, 2009

Clinical audit and research

Clinical audit is a quality improvement process that systematically reviews the delivery of care and recommends changes to practice where the need is identified. We will continue to use a programme of clinical audit to ensure that we deliver the highest standard of care, improve clinical quality and patient outcomes and minimise clinical risk. Our clinical audit programme will focus on areas of care that are important to us as a trust, our staff and our patients. It will measure quality in a number of ways including adherence to clinical guidelines; health outcomes; appropriate transfer of care to another healthcare provider; speed of response, and patient satisfaction.

We are proud to be a leading pre-hospital research organisation. The large and diverse population we serve, with a variety of health needs, affords us the ability to have a wide ranging research portfolio. By developing and hosting research studies we contribute to an evidence base that informs and improves emergency medical care and outcomes in the UK and worldwide.

8.3.4   Involving the public in our work: our volunteer community

We already use volunteers effectively on the front-line to support our service. We have a well-established system of voluntary responders who are dispatched alongside our crews. This includes:

- **Community first responders (CFRs)** – we currently work in partnership with St John Ambulance on a scheme whereby volunteers respond from home in their own cars. Their role is to help provide basic interventions and provide appropriate care until the ambulance crew or first responders arrive to take over the management of the patient.
- **Emergency responders (ERs)** – the ER model is run solely by London Ambulance Service. These are uniformed volunteers (a variation on our standard uniform) and they sign on for shifts from a local ambulance station. They drive blue light vehicles and many have a background in the police force or military services.

Volunteer responders can assess the scene, administer care, calm the situation, take preliminary observations, and liaise with staff in our Emergency Operations Centre while waiting for the crew to arrive. For solo paramedics on scene, CFRs and ERs act as a second pair of hands which is particularly important when a patient has suffered a cardiac arrest. CFRs and ERs often arrive at incidents before ambulance crews which contributes to us being able to meet national targets.

The ER model was recently enhanced and the team has since seen a 76% improved output from the same number of volunteers.

'Life Changers': our volunteer community

The London Ambulance Service has identified an exciting opportunity to enhance our service by establishing a volunteering scheme. Our intention is that it will not only benefit us and our volunteers, but also contribute more widely by bringing clinical benefits for the health and social care sector and having a positive health impact for Londoners.

We know there is an appetite and enthusiasm amongst members of the public to volunteer and to give back to the community. Organisers of the London Olympics in 2012 created a highly effective volunteering scheme by signing up 'Games Makers' and 'Ambassadors'. We intend to be just as ambitious and to set up a community of 'Life Changers'. Some will have roles within the London Ambulance Service and others, such as trained first aiders, will play more of a role in the community.

In establishing our volunteer scheme, we will continue to work closely with third sector organisations, such as Age UK and Samaritans, on joint projects which use volunteers to achieve positive health outcomes. This will enable us to focus on certain patient cohorts, such as frequent fallers, by helping them get the right care in a proactive way rather than a reactive way. This should have a positive impact by reducing demand and making ambulance crews more readily available for patients with life-threatening injuries and illnesses who need a time-critical response.

In line with our aspiration to be a world-class service, we are ambitious in our plans and intend to sign up 1% of the London population in one way or another as a 'Life Changer'. While 1% does not sound a lot, with a population of 9m, by recruiting just under 100,000 new volunteers, we can make a huge impact on people's lives across London.

We will take the following steps in establishing a 'Life Changers' volunteering scheme:

- **Produce a volunteer strategy** – this will outline our strategic intentions for volunteering in order to achieve positive health outcomes. We will co-produce the strategy with volunteers, staff and patient groups. We have a growing number of dedicated staff who give up their own time to volunteer, either on behalf of the London Ambulance Service or for other causes they are passionate about. Our volunteer strategy will reflect this.

- **Create a volunteer charter** – this will describe a mutually beneficial and fair relationship between volunteers and the trust. It will summarise how we will support volunteers in their role and describe our expectations of the individuals who volunteer.

- **Set up a volunteering scheme** – we will develop the framework for the volunteering scheme, research best practice, explore partnership and sponsorship opportunities, taking into account governance and safeguarding matters. We will then begin implementation.

There are six key areas which we intend to develop as part of our volunteering scheme. As well as volunteer opportunities, this also includes other areas of interest which we believe compliment volunteering and will assist in our desire to create a community of 'Life Changers'.

Figure 25: 'Life Changers': our volunteer community
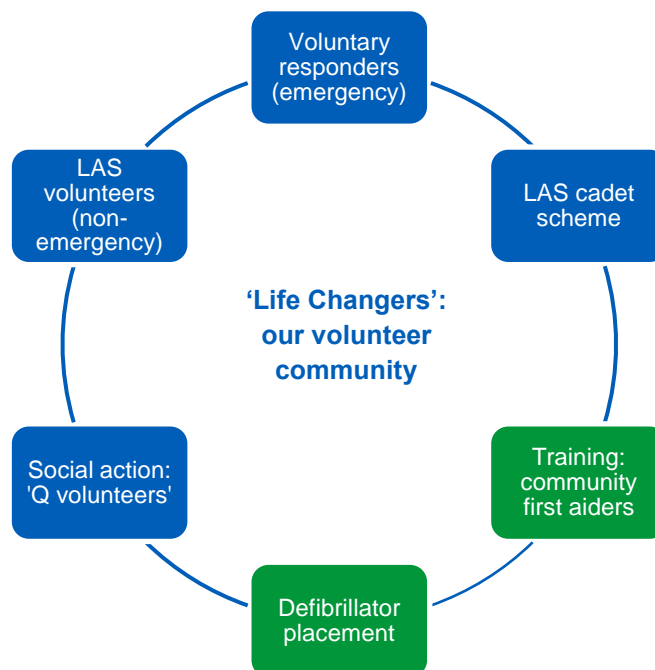
We have identified a number of opportunities within these areas. This involves building upon some of the excellent work that is already being carried out, but we are also keen to introduce a range of new volunteering opportunities.

Volunteers: non-emergency

We intend to expand our pool of volunteers by introducing a range of new roles whereby members of the public can get involved in what we do, learn about the ambulance service and help us to improve patient care for Londoners.

Our new volunteer strategy will outline these opportunities, which may include assisting us with infection prevention and control audits, volunteer drivers for non-emergency calls and helping at public

education events. We will explore the idea of having a role similar to Police special constables: a non-emergency responder in a public facing role. This might be to assist with intoxicated patients outside nightclubs or checking on frequent callers, allowing ambulances to be more readily available for patients with life-threatening illnesses or injuries.

We currently have two volunteer project managers; one who assists with our GoodSAM app (it alerts volunteers to a cardiac arrest and signposts to the nearest defibrillator) and the other delivers resuscitation training and is looking to develop new courses. They have particular 'life skills' which are invaluable to us. We will create similar office based roles and there will be opportunities for us to do some skill-matching.

We intend to understand best practice from other national and international ambulance services and there is also an opportunity for blue light collaboration with our fellow emergency services.

Case study: Volunteering at South Australia Ambulance Service

South Australia Ambulance Service (SAAS) has an extensive volunteer base with more than 1500 volunteers in over 80 volunteer teams. With such a large geographical area to cover, ambulance volunteers help the ambulance service provide professional emergency ambulance and patient transfer services within their communities.

Volunteers must be over the age of 18 and have a full driver's license. They volunteer at their local station as a 'volunteer ambulance officer' and attend emergency and non-emergency ambulance calls, as well as carrying out other duties as required. SAAS ran a targeted 'skills for life' campaign to attract recruits from all walks of life.

Cadet scheme

Our ambition is to set up a cadet scheme, giving young people an opportunity to volunteer with us. The trust will provide them with exciting learning opportunities such as spending time in the control room and receiving resuscitation training. They will also take part in community-focussed initiatives and we will look to recruit a diverse base of cadets.

The Police have volunteer cadets, for example junior cadets (13–15 year olds) and senior cadets (16–18 year olds). We will look to understand best practice from other emergency services that operate cadet schemes.

Our cadet scheme will be an ideal avenue for recruiting new staff once cadets are old enough to apply for apprenticeships or substantive roles.

Q volunteering: health connectors and community connectors

We plan to introduce 'Q volunteering', which is a social action scheme. The concept involves recruiting volunteers who will work alongside publicly-funded health and social care providers to help promote self-care.

'Q volunteers' will be trained to work in their communities helping to promote self-care with a focus on long-term health conditions such as cardio-vascular disease (CVD), diabetes, hypertension, stroke and COPD. Working with these communities will help encourage people to attend events about these conditions. This in turn will help contribute to the use of appropriate care pathways to support frequent callers to the ambulance service, and helping people find the appropriate help for their condition.

We are already actively engaged with numerous third sector partners. We focus on specific patient groups, e.g. mental health and end of life care, delivering joint training programmes with volunteers, and developing direct referral pathways or specific service developments.

> **Case study: The town that's found a potent cure for illness**
>
> Frome in Somerset has seen a dramatic fall in emergency hospital admissions since it began a collective project to combat isolation.
>
> With the help of the NHS group Health Connections Mendip and the town council, a GP practice set up a directory of agencies and community groups. This let them see where the gaps were, which they then filled with new groups for people with particular conditions. They employed "health connectors" to help people plan their care, and most interestingly trained voluntary "community connectors" to help their patients find the support they needed.
>
> Sometimes this meant handling debt or housing problems, sometimes joining choirs or lunch clubs, participating in exercise groups or writing workshops or 'men's sheds' groups (where men make and mend things together). The point was to break a familiar cycle of misery: illness reduces people's ability to socialise, which leads in turn to isolation and loneliness, which then exacerbates illness.
>
> Source: The Guardian, 21 February 2018

Defibrillators and GoodSAM

When someone suffers from a cardiac arrest, the longer they go without defibrillation, the poorer their chances of survival become. Whereas in the past it has only been the emergency services and clinical settings that had defibrillators, we now want to have static defibrillators in as many places across London as possible.

Defibrillators

The cardiac arrest survival rate in London is 9.5%. The survival rate for cardiac arrests that occur in close proximity to a static defibrillator site increases to 52%. We know from our defibrillator data that the number of out of hospital cardiac arrest survivors in London increases proportionately to the number of static defibrillators around London.

Since 2013, when we launched our 'Shockingly Easy' campaign, we have hugely increased the number of defibrillators in London from 995 to 4,486 by the end of 2016/17. This means that each year there are about 40 cardiac arrest survivors in London who would have been unlikely to have survived without a public access defibrillator. We have now reached a stage where defibrillators are commonplace across London and we believe that the right approach is to target specific types of places. The main types are:

- **Areas of high footfall**, e.g. shopping centres, community centres, train stations and night clubs
- **Areas of high risk**, e.g. GP surgeries, sports centres, gyms and care homes
- **Mobile defibrillators**, e.g. working with TfL to place defibrillators on London taxis, or with Uber to place defibrillators on their vehicles. This could also include specific training for their staff

If we were able to increase the number of defibrillators that we have across London, focussing our efforts on those three categories, we can further increase the number of people whose lives are saved by bystander defibrillator use. This will include identifying defibrillators that are already in the community, but not yet on our database.

We will launch a targeted defibrillator campaign, working with stakeholders in London to influence successful placements of defibrillators. Our Patients' Forum have been persistent in their campaign for shops in London to have defibrillators and we will work with them to campaign on this issue together.

GoodSAM

We were the first ambulance service in the UK to roll out a community emergency life support app: GoodSAM. GoodSAM allows us to notify up to three registered volunteer responders to cardiac arrests that they are nearby. Our ability to dispatch volunteers who are within 200m of the incident to the patient is crucial in improving outcomes for these patients.

Over the course of this strategy we will look into enhancing how we can use GoodSAM, including by enabling video calls which will be linked into iCAT London. This will allow our clinical hub clinicians to better provide expert guidance to those volunteers who are attending patients while they wait for an ambulance crew to arrive.

Training: first aiders in the community

We want to greatly increase the number of Londoners trained in resuscitation skills. For many years, we have delivered basic life support training, largely through the British Heart Foundation 'Heartstart' programme. We also moved from a position where we predominantly directly trained members of the public to a 'train the trainer' programme. This was hugely effective. As an example we trained a dentist who was a member of a Mosque, who then proceeded to train around 1000 members of his Mosque through a course of structured sessions.

However more recently our training rates have fallen due to other priorities. We want to reverse this trend. As part of our 'Life Changers' scheme, we want to enhance the basic life support and defibrillator training across London. We will do this largely by returning to a 'train the trainer' programme and proactively targeting the sort of groups where the greatest benefits would be seen. These groups could include: religious groups, community groups, youth clubs and volunteer organisations.

We will also use our communication channels such as Twitter to target those who have already undertaken training; a 'call to action' asking for trained first aiders with resuscitation skills to contact us so that we have a large pool of volunteers in the community who can respond to our GoodSAM alerts. This will be a key contributor in helping us to sign up 1% of the London population as 'Life Changers'.

Future

- **Community first responder model** – we intend to create a bespoke CFR model which is run solely by the London Ambulance Service and would benefit from having a structure similar to the ER model.
- **CFR and ER recruitment** – we will look to recruit more widely from across all London boroughs, using communication channels such as our website and Twitter. Our desire is for the volunteer responders to reflect the diversity of the London population and to therefore have more impact on reaching communities with known health issues.
- **Voluntary responder group charity** – we will explore options for fundraising and sponsorship to be able to fund additional responder vehicles and training.

8.4 Our organisational infrastructure

In order to deliver the ambitious changes identified within this strategy, we need to make sure that our staff have the right high quality infrastructure to support them.

Through our estate and fleet we want to enable the efficient and timely deployment of the right mix of well-trained medical professionals in suitable, reliable, well-equipped and low emission vehicles from strategic locations to serve the whole of London.

The three key elements of our infrastructure that will go through transformational changes over the lifespan of this strategy are:

- Becoming a fully digital organisation
- Developing our estate
- Specifying future fleet and equipment

8.4.1   Becoming a fully digital organisation

Effective emergency and urgent care services must be supported by accurate real-time digital patient and management information that can be shared across providers. We are undergoing a transformation in digital capability focussed on five key elements:

- Patient facing digital platform
- Integrated management of urgent and emergency callers
- Connecting clinicians
- Interoperability
- Our approach to sourcing solutions

Patient facing digital platform

Our new patient facing digital platform is likely to be how patients will first engage with the outputs of our strategy. Patients increasingly want to communicate with us in different ways to access a range of services. Patients will be able to access our services via a unified platform across telephone, the web, apps, common text and video messaging. Putting patients at the centre of the way we design our services enables us, and the NHS providers we work with, to provide the most appropriate care to meet each individual patient needs. By introducing these methods we will enhance the service that we are able to provide as well as making our service more accessible to those with hearing or communication difficulties.

A key component of our digital platform will be a self-triage tool powered by artificial intelligence software. A number of apps for 111 services are already available in London. As we implement integrated urgent care (IUC) through iCAT London we want to extend this to all of our services. We know that around 20% of contacts made through the 'Babylon GP at Hand' platform are for information or self-triage through an app. Artificial intelligence will be an important part of providing efficient and affective IUC services in London.

Figure 26: A unified patient-facing digital platform will support iCAT London
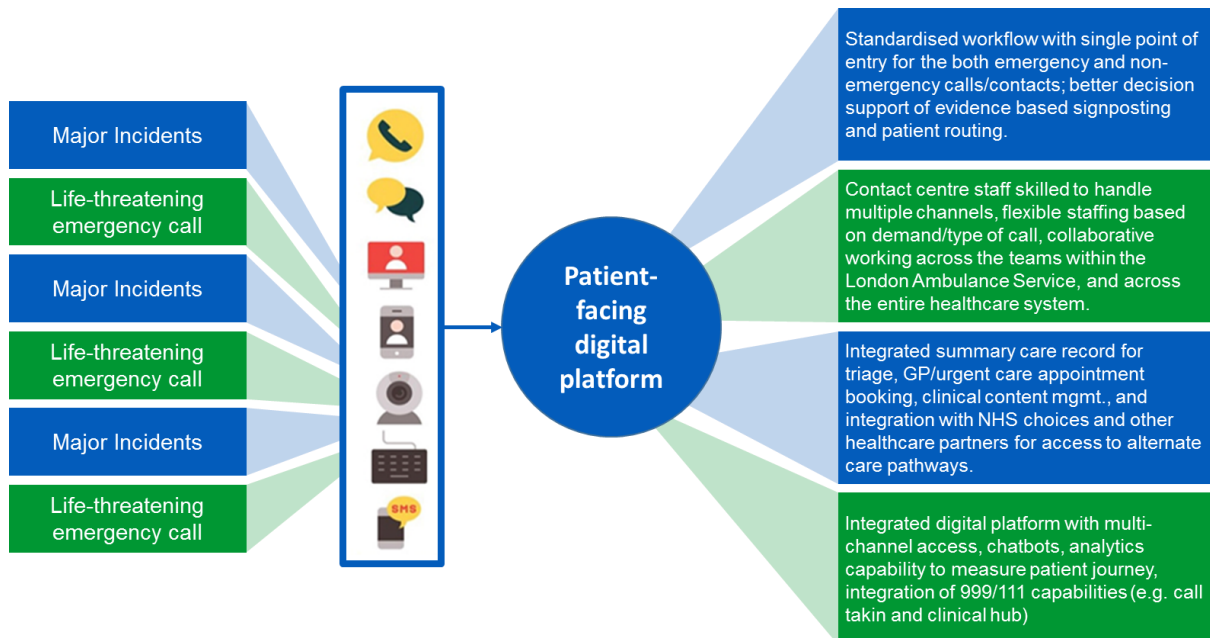
Integrated management of urgent and emergency callers

As the primary integrator of access to services, we must be able to prioritise all types of contact so that we can provide the right response to patients and clinicians. Having an integrated queue across 111 and 999 services is essential for us to maximise the clinical and economic benefits of managing urgent and emergency contacts together. 111 and 999, along with other contact channels, will give an indication of priority; and our call handlers will refine the prioritisation regardless of the method of contact. As mentioned in Section 2.2, 13% of our 999 calls are escalated from 111 providers in London.

We will commission an appropriate system that supports an integrated clinical queue for iCAT London and the Clinical Assessment Service (CAS) that provides patients and clinicians with clinical advice.

Connecting clinicians

More than for any other healthcare provider in London, our work depends on effective mobile technology. We are already investing in new technology infrastructure that will support our transformation as an organisation – both within our operations centres and within our vehicles. We are currently rolling out tablet computers to our front-line clinicians that will provide digital connectivity including location-aware directories of local pathways and access to e-learning.

Our 'connecting clinicians' programme brings huge benefits for our staff, for the London healthcare system and to patients. It is a complex multiyear programme that will transform how the London Ambulance Service, providers, commissioners and other key stakeholders, manage and share clinical information:

- We are migrating from paper to a digital clinical records system that integrates with the wider London healthcare system encompassing an electronic patient report form, access to the NHS spine, summary care records, special patient notes or 'Coordinate My Care' and seamless interoperability with the CAS

- Additional clinical decision-making support tools and better access to advice and support from the CAS will help our staff to provide better care at scene and prevent unnecessary conveyance to hospital

- We are also engaging with technologies that provide tools for healthcare professionals. These include the capacity to access other professionals' expertise, tools to prioritise and manage their clinical workload and tools to identify the patients at greatest risk.

Figure 27: Connecting clinicians

Today…

Collecting and recording patient data on paper. Information which is retrospectively scanned in as images, with some data entry. This is then stored and linked to the CAD call record in the data warehouse.

Executing manual paper based processes to manage and report on medicines usage and other assets adequately.

Protocols, pathway and other useful information used by paramedics to assess, refer and treat patients is largely paper based.

Risks related to the accuracy and intelligibility of hand written documents, the timeliness of information being provided to EDs and other care pathways in the patient journey, and the potential loss of paper clinical records.

Without linkage to outcome information, the Trust and local clinicians have great difficulty in monitoring their own clinical performance.

Introduction mobile e-PRF technology to digitise patient record processes, with front line staff using integrated mobile devices to verify patient and record.

Clinicians collecting information electronically, laying the foundation for the future to access and view (with appropriate security controls) a broader set of clinical statistics, with benefits to the quality of clinical decision making.

Identifying patients at first point of contact by adopting the use of the NHS number as the key patient identifier. Moreover, insight into the health record (as well as data showing historic interactions with LAS) enables better pathway signposting.

Paramedics can access up-to-date patient information, with real time awareness of other NHS services available to them. They can share information with other care agencies and contribute patient data back into urgent and emergency care records.

By providing hospitals with patient information and treatment provided in advance of reaching there, the probability of bottlenecks in the patient journey is lowered.

More information about the patient leads to better matching of demand to the right staff and equipment, potentially reducing time on scene. More appropriate vehicles can also reduce the time to hospital.

Interoperability

There is a clear need for more effective information sharing between care settings, organisations and geographies, as well as between professionals and citizens, to optimise patient outcomes and quality of care. This is reliant on the ability of IM&T systems across health and care to be interoperable with one another, and is key to the delivery of the future vision of care in England[26].

If we are to enable our clinicians to access summary care records, share information with colleagues and provide records of treatment to hospitals and GPs, our systems in London must be interoperable. It will also be essential for effective population health management – both on a STP and pan-London basis.

In London, we are collaborating with regional health and care partners to become a Local Integrated Care Record Exemplar. This means that London will be one of the first regions in the country to benefit from full interoperability. Table 18 details the potential benefits from a local integrated care record.

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[26] Personalised health and care 2020: a framework for action, National Information Board, 2014

Table 18:   Benefits of a local integrated care record

Clinical quality and effectiveness	Performance and efficiency
• Helping providers more effectively diagnose patients, reduce medical errors, and provide safer care • Safer and timely medicines management and effective electronic prescribing • Key information transferred between teams in a structured way which survives stress/time constraints/distractions • Comprehensive access to local clinical pathways • Improved patient experience as there is a seamless transfer of information • Digital handover reduces adverse incidents in some settings • Promotes structure through checklist format – reduced reliance on memory • Improved linkage between the urgent and emergency care we provide and patient outcome information	• Improve ambulance turnaround times at EDs • Lower conveyance to EDs • Lower spend on paper stock, storage and transportation • Enabling providers to improve efficiency and meet their business goals • Improving the utilisation of resources to focus on patients • Support the availability of response vehicles
	Information assurance: the right information available to the right people at the right time
	• Securely sharing electronic information with patients and other clinicians • Enabling a consistent integrated digital record of care across London • Storage and protection of patient data • Secure from non-authorised users • Easy access to comprehensive information

Our approach to sourcing solutions

We have identified a number of design principles that will drive our technology and digital transformation:

1.   Evidence based design around patients and users

2.   Agile delivery and culture

3.   Design at the health system level – end to end pathways and experience

4.   Work with other organisations for mutual advantage

5.   Building in resilience: design for failure

6.   Automate, exploit machine learning and big data

7.   Cloud first

8.   Collaborate to reuse proven solutions

Through the refresh of our IM&T strategy, we will develop a detailed technology roadmap to support our organisational transformation, including both the big strategic themes and day to day IM&T services that support our stations and offices.

Our approach will be to support and influence NHS Digital's national urgent and emergency programme and to take nationally-developed solutions where they deliver the cost effective functionality that we require at the time that we will need it.

8.4.2   Developing our estate

Our estate is a key strategy enabler, we will transform our estate to better support our new operating model while also providing better working environments for our teams and reduced costs and improved environmental performance. The adoption of smart working principles across our different estate will aid us to use space and time efficiently, whether this be the effective deployment of ambulance crews, delivering state of the art training or in our management and leadership roles.

Our estate strategy involves:

- **A new model for our operational estate** – enabling rapid and efficient preparation and deployment of our medical teams while also providing the right facilities to support ambulance crews and others during their work

- **Innovative, state of the art, training and development facilities** – involving both dedicated training centres and mobile training provision that supports our people in locations that are right for them

- **Resilient, high quality, control centres** – providing effective environments with the necessary capacity and resilience to respond to events

- **Transformed corporate estate** – that provides a far better office environment that supports effective individual and team working while reducing costs by more efficient and better utilised office areas

Each element of our strategy is described further below, however, some of the common themes are:

- Providing the best possible working environment and reducing our running costs and environmental impact by using efficient and well managed buildings

- Effective integration with other services to support our new operating model. For example, our estate must support our IM&T strategy and also take advantage of the opportunities presented by the use of new technologies and information sharing platforms

- Use of smart working principles across the estate focusing on the more intensive use of better quality estate and providing our teams with greater flexibility about how they work

- Collaboration with partners with whom we can usefully share estate, improving its utilisation and creating benefits for all

- Focusing investment in the right locations that enable us to work efficiently and provide the best value for money

- Prioritising the provision of the best facilities for each of our distinctly different activities, recognising that they each have different requirements

We will continue to develop the detail of our new estate strategy during the first half of 2018 ensuring it reflects the new operating model and provides a sound, efficient and flexible platform for our activities.

Future operating model for operational estate

Our operational estate is at the heart of our service delivery. Our estates and fleet teams have made great progress in implementing the 'Make Ready' process across our operating locations, but we want to push this further and secure more benefits by placing it at the heart of our stations. We will be reviewing how our stations can best be designed to maximise their ability to support our staff and to efficiently deploy vehicles that are in excellent condition and fully stocked for the requirements of the shift.

This may involve freeing up space in some stations by relocation of activities (e.g. training) that could be delivered elsewhere, often more efficiently. In other instances stations may need to be rebuilt to maximise their potential. By focusing these key operational sites on their core functions of preparing and supporting our teams to serve their community we will be able to increase the reliability and resilience of the operational fleet, and reduce the time wasted by our medical teams at the start of their work. These efficient facilities will enable us to meet growing demand and respond to changes in the pattern of service delivery.

It is important that our staff have locations where they can rest and recuperate during their shifts, we will develop a network of locations where this can happen with the nature of the provision reflecting the varying opportunities and requirements across London. Our intention is to work with a range of partners to provide a flexible network of support points in addition to our own sites.

Innovative learning and development facilities

To support increased demand for training and to help maintain our enviable reputation for the quality of our development programmes, we will seek to consolidate our planned training into dedicated facilities. These include the use of shared services and training centres where our requirements are compatible with others.

As well as freeing-up valuable space in our stations, this change in delivery will help further improve our training activities by bringing together our training teams so they can work in a more co-ordinated fashion.

Much of our training activity comprises shorter refresher and update courses and onsite assessments. We will ensure that this is trainee centred and recognise that this may involve trainers visiting staff in locations that work for them. We are therefore scoping the delivery of a mobile training service where our tutors are able to rapidly visit trainees bringing with them all necessary resources. As well as enabling our training to be responsive and accessible it will ensure the availability of necessary training materials and reduce waste associated with the need to keep training resources across the estate.

Resilient, high quality, control centres

To support our iCAT London strategy we aim to enhance the effectiveness of all of our control centres by investing in improving the working environment and ensuring resilience in our capability to respond. We will be examining options to enhance the utilisation of our control centre locations without impacting their operations or their ability to respond to events.

Together with London's other blue light services we are examining varying approaches to sharing resources and investments in our centres.

Transformed corporate estate

Our headquarters and other corporate estate can be much more space efficient and effective in helping us work productively, and we will implement smart working practices across our estate. This new way of working will help us to work more efficiently, with greater flexibility and in the right places thereby minimising the costs of a central London location and giving our staff greater choice.

We will begin the transformation of our corporate estate by reducing the number of headquarters annex buildings we have by relocating teams into our core buildings. This will reduce costs and improve communications. Rather than seeking to squeeze desks together to accommodate more people, we are looking to open up cellular spaces, including our executive offices, creating flexible space while also increasing access to meeting rooms and other collaboration spaces. However, this is just the start of the process and our aim is to ensure that all our staff work in a high quality and productive environment and to provide a greater choice of working environments that are consistent with our operational needs.

Benefit for staff and patients

Our estate strategy will enable us to provide a firm platform for our new operational model underpinning our ability to provide the services patients need.

- All our staff will have high quality, safe and secure working environments
- Smart working will help our staff to work more effectively and flexibly improving their wellbeing and productivity
- Providing facilities that enhance our Make Ready service will reduce the waste of our medical professionals' time because vehicles are not ready for use
- Our training facilities and mobile training will help us deliver trainee focussed, state of the art training

- Our estate will provide the flexibility and capacity for our service to respond to future demand and our new response model

8.4.3   Specifying future fleet and equipment

Fleet and logistics functions are vital in enabling us to provide a mobile healthcare service every hour, of every day across the capital. We want our staff to be proud to work for us as a world class ambulance service and that means having a world class fleet with the right equipment to do their job. As we invest in and modernise our fleet we would expect to see increased job satisfaction as measured by the NHS staff survey or the staff 'Friends and Family' test.

Our patients will receive a better service from us, as we make sure our vehicles are well maintained and subsequently spend less time off the road, meaning that we will safeguard the number of vehicles we have available. By better matching the vehicle to the incident, a more targeted response can be offered that improves patient outcomes or reduces conveyances.

To respond to the needs of the 9 million people in London, the current fleet consists of more than 1000 vehicles comprising front-line double-crewed ambulances (DCAs), marked fast response units (FRUs), our non-emergency transport service, motorcycle response units, hazardous area response team, neonatal transport vehicles and other operational vehicles such as training, logistics, incident response vehicles.

Our fleet strategy will ensure that our staff have the right vehicles, that they are operationally and environmentally effective and efficient and that they are well maintained and provided clean and with all the necessary equipment and consumables. In so doing they will help our teams provide the best possible care for our patients; while reducing the impact of our carbon footprint on the environment.

Our fleet strategy is inextricably linked with our wider operating model which will influence the future of our vehicle mix and specification, and also our estate. Many of the benefits of our estate strategy, that further the effective implementation of the Make Ready process, are important in enabling the fleet to be effectively maintained and prepared for our medical teams.

Key components of our fleet strategy are:

- **Fleet composition and specification** – ensuring we have sufficient available capacity of the right vehicles in the right locations to meet our future operating requirements. Each will provide an effective working environment that supports staff and patient welfare while being easy to maintain and manage and reducing the environmental impact of our service
- **Fleet maintenance and management** – recognising our fleet and equipment are the key tools for delivering the service, we will use efficient processes and facilities to provide medical teams with clean, reliable, and fully equipped vehicles that can be used for a full shift without resupply or refuelling
- **Inventory specification, management and logistics** – through an enhanced Make Ready process we will be able to streamline the approach to equipment supply while also improving resilience and security. We will seek further benefits in each area by standardising specifications and layouts wherever appropriate and by using modern inventory tracking systems.

Each element of our fleet strategy is described further below, however, some of the common themes are:

- Enhancing staff and patient welfare. Beyond ensuring that vehicles are maintained to very high standards and fully supplied with the right equipment, this will also include reviewing designs to incorporate features that improve safety, infection control, comfort and usability. Introduction of in vehicle Wi-Fi and power points and enhanced space for storage of staff belongings will provide essential support to staff throughout their shift
- Standardisation of specifications and processes. Using common vehicles and equipment will deliver substantial savings in maintenance costs by introducing consistent maintenance processes, reducing equipment and parts inventory.

- Improved environmental performance, most directly through the use of lower emission vehicles, but also by ensuring the vehicles are operating efficiently and by reducing vehicle miles through increased use of 'hear and treat'.

- Minimising the time lost through unavailability of vehicles or equipment. By designing our processes around effective maintenance and preparation we will reduce lost operational hours.

Fleet composition and specification

Our response model is changing and this will impact on the demands on our fleet and its composition. We will continue to invest in improving the quality of our ambulance fleet and will respond to future requirements for different vehicle types. While ambulances will remain at the core of the fleet, we envisage the introduction of a wider range of other vehicle classes that are suitable for different types of care such as physiotherapy, mental health, midwifery or other support.

As we modernise the fleet, beginning with the oldest and least efficient vehicles, we will use the opportunity to implement new standards for the design and performance of our vehicles based on assessment of their whole life cost. We will move to progressively lower emission engines with new vehicles meeting London's ultra-low emission standards, with the aim of moving to hybrid and electric vehicles. A change in vehicle type is a major step for a fleet service, and especially for one where performance and ability to respond are key, therefore we will be trialling hybrid and fully electric vehicles so that we can learn how best to integrate them into our fleet and operational activities. Retro-fitting older vehicles with electric drives could be a staging post to our future fleet.

Our crews spend long periods of time in their ambulances and just as if they spent their time in an office, these staff deserve a high quality, comfortable and safe working environment. We will incorporate improved and more flexible internal layouts together with new technologies to make ambulances more comfortable and safer for staff and patients.

Our fleet will also be specified with ease of maintenance and preparation in mind. This will extend from seeking common standards across vehicle types for frequently replaced parts to design of interiors that are easier to access, clean and resupply.

Figure 28: Design concept for fully electric ambulance designed from the ground up around patient needs

Fleet maintenance and management

Further embedding the Make Ready process into our approach to deployment of operational vehicles will bring further savings. We will aim to refine our processes, maximising the utilisation of the space in stations, increasing the number of vehicles that can be prepared from each centre. Co-location of our workshop support with our Make Ready centres will help us deliver effective preventative maintenance and rapidly address issues with vehicles so that we increase the proportion of the fleet that is operational and reduce the downtime and consequential impact on services and costs of repairs.

We will work with our staff to design Make Ready Centres that work effectively for our people and provide a professional environment in which they can deliver a quality service. As we progressively introduce low emission vehicles to our fleet we will ensure that our stations have the capabilities to fuel, charge and maintain them effectively so that our medical teams can concentrate on their operational activities.

Inventory specification, management and logistics

By further developing our Make Ready process we will be able to meet our immediate equipment, consumables and medicines requirements from these sites with less frequent need for replenishment from centralised stores. We will also critically examine the scope of our logistical operations ensuring it is focussed on those activities that are specific to the needs of an ambulance service.

We will implement closer control of equipment and supplies using tools such as Radio Frequency ID (RFID) tags and barcoding/QR labelling so that we can manage and secure our inventory and effectively control stock levels.

8.5   Dependencies

Successful delivery of our strategy will have several key dependencies relating to commissioners' support, closer working with partners, and the development of national digital solutions.

Table 19:   Dependencies

Strategic theme(s)				
1	2	3	Dependency	Description
●	●	●	Closer clinical working with partners	We need to develop closer clinical relationships with partner providers in London, and this underpins all of our strategic themes. For iCAT London we will need to be able to access specialist advice from staff at other providers; and for both iCAT London and our pioneer services we will need to be able to access shared care records and refer to local community teams in order to provide seamless care that avoids unnecessary attendances at emergency departments. We will also need to make sure that we and our partners populate shared care records.
●	●		Digital interoperability	The ability to access and share digital information seamlessly with our partners is a critical enabler for both iCAT London and our pioneer services. Our approach will be to support and influence NHS Digital's national urgent and emergency programme and to take nationally-developed solutions where they deliver the cost effective functionality that we require at the time that we will need it.
	●		Approach to commissioning	A key enabler for change will be ensuring we have the right incentives in place for the organisation through our contracts with our commissioners. The contract mechanisms and levers in place will need to be developed and agreed so that there is a tangible economic benefit to the wider system for London Ambulance Service performing against contract metrics agreed with commissioners. This is why our commissioners as well as system regulators will need to be closely involved with the implementation of our strategy and the design of the services which underpin that strategy.
	●		Funding from NHS commissioners	We are likely to need additional funding from commissioners to support the implementation of our pioneer services once they have been piloted and the clinical models finalised. These new emergency response services provide a net economic gain for local health economies.

8.6   Enabling Strategies

Our strategy will be supported by a number of enabling strategies that examine the implications for functional areas of our organisation. Each will have a delivery roadmap and will be published in due course.

- Clinical
- Clinical education and training
- Estates
- Fleet and equipment
- IM&T

- Partnerships
- People and culture
- Quality
- Volunteering
- Operational transformation plan

8.7   How we will monitor and deliver our strategy

8.7.1   Strategic programmes and projects

We will review our strategy on at least an annual basis. The Programme and Project Management Office (PPMO) will oversee the delivery of the strategy by ensuring that all programmes and projects are aligned and prioritised with sufficient resources to realise delivery of the desired benefits. The following programmes and projects have been identified:

Table 20:   Strategic programmes and projects

Strategic programmes		Projects
1.	Integrated clinical assessment and triage (iCAT London)	• SEL IT CQC requirements • SEL tender • NEL mobilisation • Integrated urgent care design, development and delivery • ELCHP/SEL 111 clinical assessment service design • Merge ELCHP/SEL 111 with 999 clinical hub • IUC/999 integrated contact handling and triage • Digital and technology
2.	Pioneer services	• Urgent care response • Falls • Mental health • Maternity • End of life
3.	Spatial development	• Developing a blueprint – operational estate • Smart working – corporate estate • Innovative learning & development – training estate • Building resilience – EOC/control rooms • EOC reconfiguration
4.	Connecting clinicians	• Electronic patient care records ePCR – end-to-end digitisation
5.	Ready, set, go (medicine management)	• Secure drugs room • Primary response bag • Vehicle based drugs pack • Internal order drug system • Kit prep/perfect ward enabling apps
6.	Payment approaches and contractual form	• Currency development • Tariff development • Service offer • Contractual form

8.7.2   Programme and Project Management Office

The Programme and Project Management Office (PPMO) will provide advice, support and quality assurance to all programmes and projects underway throughout the trust. Specifically, the PPMO will:

- Inform senior management decision-making on prioritisation, dependencies, risk management and deployment of resources to deliver strategic/business objectives and benefits
- Support delivery of programmes and projects within time, cost, quality and other constraints
- Underpin identification and realisation of outcomes and benefits via programmes and projects

This will in turn necessitate an approach focussed upon the following:
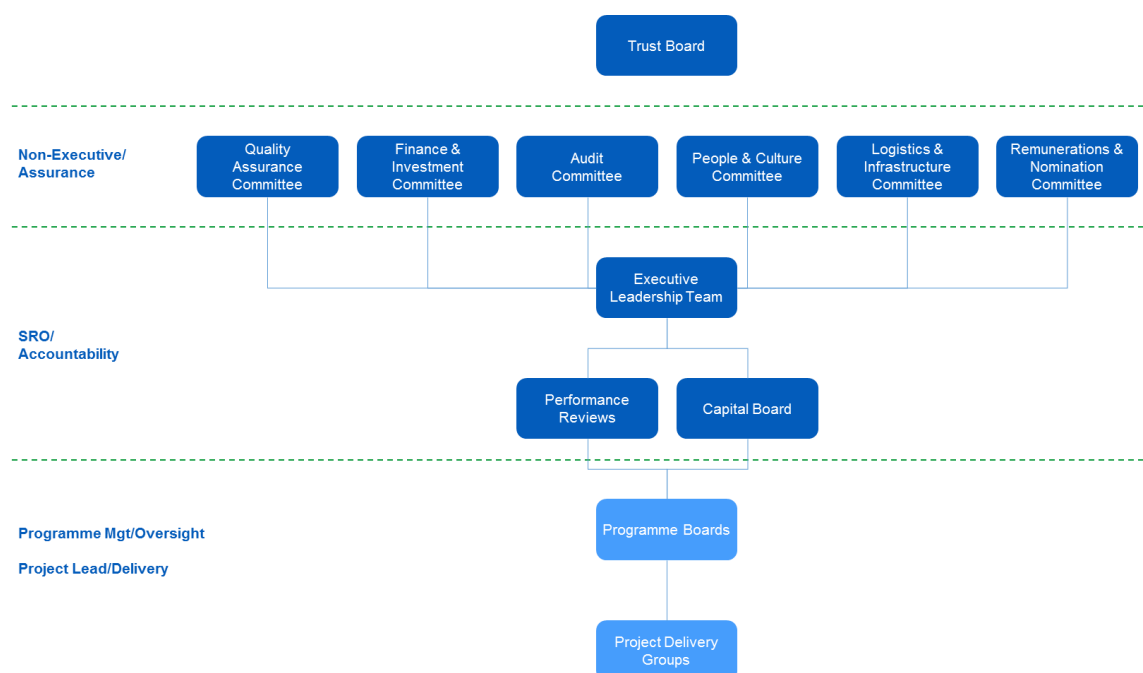
- **Portfolio management** – Provide the Executive Leadership Team with a clear line of sight about what is in the portfolio of change initiatives including what it is costing, what risks are faced, delivery status, the impact upon business as usual and contribution to the strategic objectives
- **Programme management** – Coordinated organisation, direction and implementation of a range of change initiatives to achieve outcomes and realise benefits that contribute to the strategy
- **Project management** – Delivery of one or more outputs that can be used by the organisation to support the realisation of the desired benefits that contribute towards the organisation's strategy

8.7.3   Programme governance

In parallel to the establishment of a PPMO the trust has initiated a governance structure to provide assurance of the management, delivery, oversight and governance arrangements in respect of all transformation. The governance structure detailed in Figure 29 below must achieve the following:

- Promote an open culture that supports transformation, and that emphasises financial awareness with focus on the development, training and knowledge of colleagues across the trust
- Understand who is responsible for the delivery of programmes and projects at director and manager level
- Be aware of the impact of any potential change upon quality, and be formally assured that all projects have been suitably assessed
- Be able to demonstrate that learning, experience and organisational memory about change delivery is suitably retained

Figure 29: Governance structure

Appendices

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A   Glossary

111	See 'NHS 111'
999	UK emergency telephone number
AAA	Abdominal aortic aneurysm
AACE	Association of Ambulance Chief Executives
AED	Automated external defibrillator
AMPDS	Advanced medical priority dispatch system
AI	Artificial intelligence
APP	Advanced paramedic practitioner
APP-UC	Advanced paramedic practitioner for urgent care
ARP	Ambulance response programme
BAME	Black, Asian and minority ethnic
Band x	Pay band x on the NHS 'Agenda for change' pay scale
CAS	Clinical assessment service
CCG	Clinical commissioning group
CEO	Chief executive officer
CFR	Community first responders
CSU	Clinical support unit
CVD	Cardiovascular disease
DCA	Double-crewed ambulance
EAC	Emergency ambulance crew
ED	Emergency department (A&E)
ELCHP	East London Care and Health Partnership
ELT	Executive leadership team
EMT	Emergency medical technician
EOC	Emergency operations centre
ePCR	Electronic patient care record
ER	Emergency responders
FRU	Fast response unit
HCP	Healthcare professional
HCPC	Health and Care Professions Council
HLP	Healthy London Partnership
iCAT London	London Ambulance Service's integrated clinical assessment and triage service
Incident	A 999 call we respond to physically by sending a clinician to the patient
IM&T	Information management and technology

|	
IoT	Internet of things – internet-enabled devices such as wearables, monitors and detectors
IUC	Integrated urgent care
JESIP	Joint emergency services interoperability programme
Job cycle time	A measure for the time from the start of a call-out until an ambulance is available to attend their next patient
LAS	London Ambulance Service
LFB	London Fire Brigade
MiDoS	The directory of services for our staff
MMS	Multimedia (photo) message
MPS	Metropolitan police service
NCL	North Central London STP
NEL	North East London STP
NHS 111	A non-emergency number for urgent healthcare in England
NQP	Newly qualified paramedic
NWL	North West London
PDSA	Plan, do, study, act cycle
PPMO	Programme and project management office
RMN	Registered mental health nurse
SEL	South East London
SMS	Short message service (text message)
STP	Sustainability and transformation partnership
SWL	South West London
TEAC	Trainee emergency ambulance crew

B   How we developed our strategy

We have followed established best practice in developing our strategy and have undertaken substantial engagement with our staff, patients and the public, partners and stakeholders throughout. This has ensured we have been able to benefit from the insight of those who deliver and those who experience our services when arriving at a view of how our organisation needs to change. It also means that these groups have invested in, and own, our strategy.

B.1   Strategy development approach

In writing this strategy we have ensured that we have reviewed best practice guidance and developed our strategy in accordance with those guidelines as well as the Care Quality Commission (CQC) expectations for strategy development. NHS Improvement's strategy development toolkit[27] identifies the seven stages of strategy development.

Figure 30: Overview of NHS Improvement strategy development toolkit
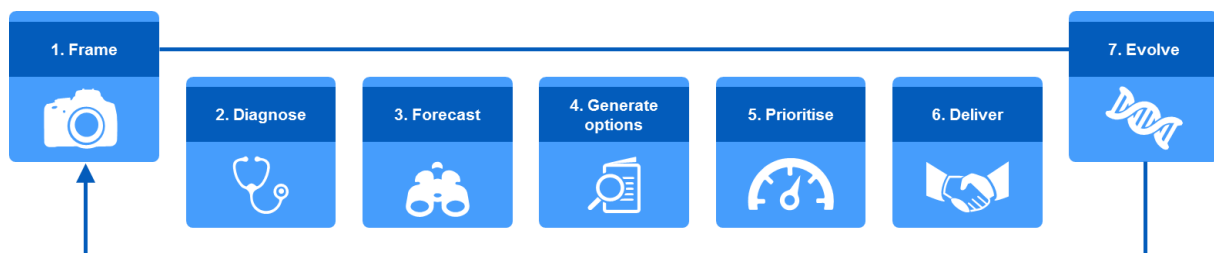
At the point in time that this strategy is being published, we have completed five out of the seven stages:

1. Frame – we have determined the important strategic decisions that need to be made, and the criteria and constraints for making them

2. Diagnose – we have established detailed insight on the trust's baseline position and the elements that determine performance

3. Forecast – we have created a clear view of the potential future in which our organisation will operate

4. Generate options – we have developed, explored and evaluated our strategic ideas and options for change

5. Prioritise – we have made choices about the strategic ideas for change and have built them into one single strategy

The two elements that we have not yet completed will take place following the publication of this strategy:

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[27] Strategy development: a toolkit for NHS providers, Monitor, 2015

6. Deliver – we will create a detailed programme, supported by comprehensive communications, that will deliver our strategy

7. Evolve – We will continually monitor the implication and impact of our strategy and refresh or recreate where situations, either internally or externally to our organisation, necessitate

B.2   Our strategic intent

Through the initial stages of strategy development, we produced *Our Strategic Intent*[28], which outlined our strategic thinking and our emerging strategic themes. We wanted to produce a fully formed document on which to base our engagement period so that our staff, patients and stakeholders could fully understand our direction of travel and could give us their views.

B.3   How we engaged on our strategy

In seven weeks, we conducted a wide ranging, extensive engagement exercise with our staff, patient representatives and key external stakeholders, the largest of its kind in our recent history. Our ambition was to ensure that our final strategy was co-designed with the people who use our service, the people who deliver our service and the people or organisations who commission, partner with or otherwise have an involvement in the delivery of our service. Our engagement approach was based on NHS Improvement's strategy development toolkit as well as on the Care Quality Commission's guidance.

We set out three key outcomes that we were looking to achieve:

- Understanding of our ambition and strategic intent
- Alignment with local, regional and national NHS strategy
- Co-designing our strategy, providing feedback and ideas on how we can improve our services for patients in the future

Throughout our engagement period, the different methods and forums that we used fitted into three categories:

- Informing, including CEO managers' briefings, CEO roadshows, information on our website and posters sent to all of our stations and corporate and support sites
- Seeking feedback and co-design, including engagement events with staff, union representatives, patients and stakeholders
- Detailed development, including detailed design workshops with staff and subject matter experts

B.3.1   Our engagement with patients

We held a number of meetings with the Patients' Forum, as the main representative of patient views for our organisation, to share our emerging vision. We found the Patients' Forum advice invaluable in ensuring that the document is accessible to the public and patient-centric.

We also were pleased to discuss our strategy with a number of patient representative and community groups at our main strategy engagement day. The groups that joined us at the event were:

- The Patients' Forum
- Healthwatch Enfield
- Healthwatch Barnet
- Healthwatch Harrow
- Alzheimer's Society
- Southwark Carers

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[28] Our Strategic Intent, London Ambulance Service NHS Trust, 2017

B.3.2 **Our engagement with staff**

We engaged extensively with our staff. We know that in order for our new strategy to be a success, it needs to be one that our staff have helped to develop, and has broad support across our workforce. With that in mind we worked extremely hard to engage with as many staff as possible. Across all aspects of our staff engagement we have had over 1,600 separate contacts with staff. This has only been possible by proactively seeking all opportunities to engage with staff across the organisation, at whatever location is suitable for the staff groups, this included:

- CEO roadshows
- Managers' briefings
- Team meetings

- Staff strategy survey
- LAS leadership event
- Union meetings

- Strategy engagement day
- Strategy design workshop
- Directorate away days

B.3.3 Our engagement with stakeholders

We have engaged with 25 separate organisations about our strategic intent. We initially held a sustainability and transformation partnership (STP) event on 1 November 2017 where we worked with STP leads to refine *Our Strategic Intent*. Table 21 below shows all the stakeholder organisations that we have engaged with:

Table 21:   Stakeholder organisations

Health and social care	Emergency services	London wide stakeholder community
• Barts Health NHS Trust • Brent CCG • Care Quality Commission • Central London Community Healthcare • Hammersmith and Fulham CCG • Healthy London Partnerships • London Air Ambulance • London North West London Community Healthcare • NHS Digital • NHS England • NHS Improvement • North Central London STP • North East London CSU • North East London STP • North West London STP • Public Health, Kingston • Royal College of Paramedics • South East London STP • South West London STP • Southwark CCG • St John Ambulance	• London Fire Brigade • Metropolitan Police Service	• Greater London Authority • Mayor's Office • Transport for London

B.3.4 Our strategy engagement day

The most significant event of the engagement period was our strategy engagement day, which took place on 7 December 2017. This day comprised of three separate engagement events, the first with patient representatives, the second with staff and the third was with stakeholders. At each event working sessions took place, targeted to the specific audience, so that we could use the expertise in the room to help shape our strategy.

B.4   Key themes from our engagement

This feedback that we received from our patients, staff and stakeholders through our engagement has been directly incorporated into this strategy. The key themes are discussed below.

B.4.1   Collaborating with partners

- We can play a crucial role in identifying where there are inconsistencies and working alongside STPs and providers to improve this

- It is crucial that we engage consistently and at the appropriate levels with each of London's five STPs. Every new service offering we are developing should be done in conjunction with STPs to ensure no duplication and alignment with other services in development

- We should use our unique position as a pan-London provider and the 'helicopter view' that provides us to play a critical role in providing the evidence that is needed for pathway development. We should also be proactive in identifying and sharing best practice across London

- MiDoS (the directory of services for our staff) is crucial for our staff across London in avoiding unnecessary hospital admissions, and we should work with all providers to ensure that it is kept up to date at all times

- Mental Health pathways were consistently cited as the most problematic, in particular out of hours. This should be a key focus of our work with partners and providers

- Urgent care centres were also a key theme from feedback. There would be great value in a greater level of consistency of what they will and won't accept across the different areas of London

B.4.2   Patient access to the urgent and emergency care system across London

- Patients often find the urgent and emergency care system confusing and we should look to make it as simple as possible

- We should bring 999 and 111 together across London as far as possible

- We should utilise technology to improve the service we can offer patients, in particular using video calls

- We should, supported by NHS England, embark on a wide ranging communication and public education campaign if we materially change the way we respond to patients, including offering more ways to get in touch

- An Integrated Clinical Assessment and Triage service needs to be linked in with the rest of the health system, so we can access patient records and inform GPs when their patients have contacted us

B.4.3   Our clinical response to patients

- There is consensus that we should bring in more healthcare professionals and staff are excited about learning by working alongside them

- However, staff are anxious about whether this will lead to de-skilling our current front-line workforce if only specialists are sent to these patient groups

- Some staff commented that *Our Strategic Intent* does not adequately reflect the dedication and experience of our current skilled clinical workforce

- *Our Strategic Intent* does not include reference to our advanced paramedic practitioner for urgent care (APP-UC) pilot. This has been very successful and should be rolled out more widely

- All of our pioneer services are reliant on the right pathways being available at the right time

- We need to make sure that we are working at STP level in the development of these services to ensure alignment with other initiatives and to avoid any duplication

B.4.4   Clinical responses to specific patient groups

- Any falls service should include elderly fallers as well as other physical conditions including multiple sclerosis, epilepsy and physical disabilities

- GPs need to be made aware of when their patients fall, especially when they do so repeatedly

- Staff would see any falls service as a high risk one so will need to be staffed by experienced clinicians

- We need to work with mental health trusts and tie in with their 24/7 crisis lines before recreating anything similar ourselves

- There is huge positivity about bringing in more mental health professionals, and providing a different response for patients with mental health needs

- Staff felt that they would like more mental health training, which would help them provide a parity of service to patients with physical needs

- We should use midwives to attend non-complicated births to reduce the number of women that are automatically conveyed to hospital

- More midwives in the clinical hub could provide the greatest benefit, with a service like a 'labour line' preventing the need for dispatching crews unnecessarily

- It is vital that any end of life care service ties in with local services such as district nursing, hospices and support organisations such as Macmillan and Age UK

- We should investigate whether paramedics could provide stronger pain relief than they currently do for end of life care patients, which would enable patients to remain in their chosen place of care

- Staff should have access to end of life care specialists, whether directly in our control rooms, or through dedicated lines to other organisations

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