RE-ISSUE

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To: NHS 111 Providers
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Regional NHS 111 Leads

Cc: NHS Trust Development Authority Delivery and Development Directors
Monitor Regional Directors
CCG Accountable Officers
NHS England Regional Directors
NHS England Regional Directors of Operations and Delivery

12 November 2013

Dear Colleague,

Re: NHS 111 Winter Preparedness

NHS 111 is now an important access point for patients into NHS services, providing health advice and helping to determine where patients receive treatment. It is therefore anticipated that the NHS 111 service will experience significant increases in demand during winter and particularly during the days over Christmas and New Year. This is the first winter where the NHS111 service will be operating with close to full national coverage and it is essential that the service performs well so that patients receive the best support possible.

I wrote to you on 25 October 2013 with regard to arrangements for daily SITREP reporting for NHS 111 providers and I promised further communications detailing the processes for accessing the national winter contingency capacity, national oversight of the NHS 111 system and escalation procedures and responsibilities when there are systems outages. It is the hope that this letter will provide the relevant information in regards to these areas.

Winter Planning

In October this year the NHS 111 Winter Pressures Guidance Document (Annex A) was published; this was commissioned in order to support all NHS 111 providers and lead commissioners in their planning for winter. Lead CCGs should ensure that Urgent Care Working Groups (UCWGs) are aware of, and considering, the arrangements that NHS 111 providers have in place, and should take ownership in working with them to provide the UCWGs with local assurance.

Annex B provides a summary of the Winter Planning returns received from health economies in relation to the NHS 111 assurance aspect, and is based on the last formal position submitted by regional tripartite panels. We are conscious that plans will have continued to be developed since this information was submitted, which may now address the NHS 111 arrangements fully. For easy reference we have attached the 18 areas that stated plans either did not include, or only partially included NHS 111, and UCWGs should use this information to check that all local provision of services are part of the health economy's plans for winter.

Providers and commissioners should also take note that NHS 111 performance data will be published weekly as part of the NHS England's Winter Health Check.

National Winter Contingency Capacity and Access Process

£15m has been provided to support NHS 111 over this winter period, as part of the £250m winter funding from the DH, and NHS England has put in place additional national NHS 111 call capacity which will be provided by a national Winter Contingency Service (WCS), a stand-alone service which will provide latent call capacity ready to be used only if there is a failure in the delivery of local contingency arrangements.

The WCS will operate from 27th November 2013 to 31st March 2014, but with a very limited capacity in March. Initially the WCS will deal with all NHS 111 calls for which the call location is unidentified, as currently these calls are distributed among all providers. This will relieve providers of these calls thus creating additional local capacity and will give the additional benefit of being able to get a central oversight of Directory of Service issues which these calls often highlight**.** Commissioners need to ensure that providers always staff their rotas to cover the possibility that these calls may be returned to them with very little or even no notice. This will only happen if the national contingency capacity utilised for these calls is required elsewhere.

In addition to dealing with no-location calls, the WCS will have latent capacity available to NHS111 providers who experience significant and unresolvable problems. This may be due to staffing issues, technical failures or other reasons. The WCS is limited and is not a substitute for local winter contingency arrangements. All areas are expected to provide their own additional local capacity based around realistic assumptions of 'maximum' demand likely to be experienced and modelled hour-by-hour throughout the winter period. Local commissioners should also ensure that there is appropriate additional local contingency arrangements, designed to cope with unanticipated demands caused by circumstances such as those listed above. This is in line with normal

winter planning assumptions. Local contingency arrangements should always be instigated first, and use of the WCS should only be considered once local arrangements have been exhausted and have failed to resolve issues.

In the event of catastrophic failure during this period there is the possibility for areas to be supported by the NHS Direct 0845 service that continues to run for a small number of areas till the end of February 2014. This would involve re-routing 111 calls to the 0845 service, which would result in a non-NHS 111 service being provided to patients. Due to the many issues surrounding this, the 0845 contingency arrangement would only be invoked for severe events when the WCS capacity has been exhausted and for a limited period to safeguard patient safety.

Escalation Procedures and Systems Outage

An escalation process has been designed which will enable providers, with their commissioners, to gain access to the WCS in the event that they require support after meeting certain criteria. This process is outlined in the flowchart and supporting narrative in Annex C. Following escalation of service failure by the provider to the commissioner on-call, if it is determined that all local contingency arrangements have been exhausted, local commissioners will be able to initiate a request for access to the WCS via the Area and Regional Team on-call structure. There are a number of steps which lead to a regional level Contingency Capacity Teleconference, at which it will be decided what level of support can be offered and for how long.

Providers should fully inform their commissioners of their current performance levels, call demand and the amount of support they feel they need. The reason for the performance failure will also need to be explained. In the event of multi-regional issues in the NHS 111 system a national level teleconference will be convened. Prior to triggering a regional or national level teleconference, please be aware that there is also a daily national NHS 111 teleconference at 4pm Monday to Friday, at which issues can be discussed and decisions made.

The amount of capacity available from the WCS will vary from day to day and will depend upon how many requests for support are received. All requests for support will be considered in the context of the overall situation at the time; a high level summary of the estimated national contingency capacity which will be in place can be found at Annex D.

In the event of service failure due to a systems outage, clear processes, roles and responsibilities are detailed in the NHS 111 Systems Outage Resolution Overview (Annex E). Commissioners should ensure they are aware of the actions that providers should take and the incident reports they should expect to receive after the event. A summary table has also been attached to the escalation and deployment process in Annex C for ease of reference for on call managers.

Can I ask that NHS 111 Regional, Area and CCG Leads take responsibility for cascading these processes to relevant on call managers and providers to ensure

that they are aware of the action that needs to be taken in the event of an NHS 111 service failure at any time.

All Year Round Business Continuity

All NHS 111 providers are required to have in place robust arrangements for both business continuity and disaster recovery to ensure that the NHS 111 service is available at all times throughout the year. These requirements are set out in local contracts and are evaluated and tested prior to the launch of the 111 service in a local area. Can I take this opportunity to stress the importance of full business continuity arrangements being in place at all times, especially during the winter period, to ensure the system is able to respond to unforeseen surges of activity or system failure.

Urgent Care Working Groups must be aware of the business continuity plans that NHS 111 providers have in place, with NHS England Area Teams responsible for providing the assurance that this is the case and plans are actively being tested in addition to any separate plans for management over the Winter period.

The NHS 111 Central Support Team will shortly be publishing a NHS 111 National Business Continuity Escalation Policy for use all year round, as it is possible through the national NHS 111 telephony infrastructure to introduce an additional level of resilience (National Business Continuity) whereby calls to an area with catastrophic failure could be re-routed at a national level and shared amongst providers that are not affected. This would only be used in exceptional circumstances for a short period of time until local continuity provision is arranged. National Business Continuity does not replace local plans or requirements.

Thank you for your continued work and support.

Yours sincerely,

Sarah Pinto-Duschinsky
Director of Operations and Delivery

Annexes:

A. NHS 111 Winter Pressures Guidance Document [p5]
B. National Winter Planning submission summary [p27]
C. NHS 111 Service Failure Escalation and Contingency Deployment Process [p28]
D. NHS 111 National Contingency Call Capacity high level summary (inc. 0845) [p39]
E. NHS 111 Systems Outage Resolution Overview [p40 front page only, please see separate file attached]

NHS 111 Winter Pressures

Guidance document

December 2013

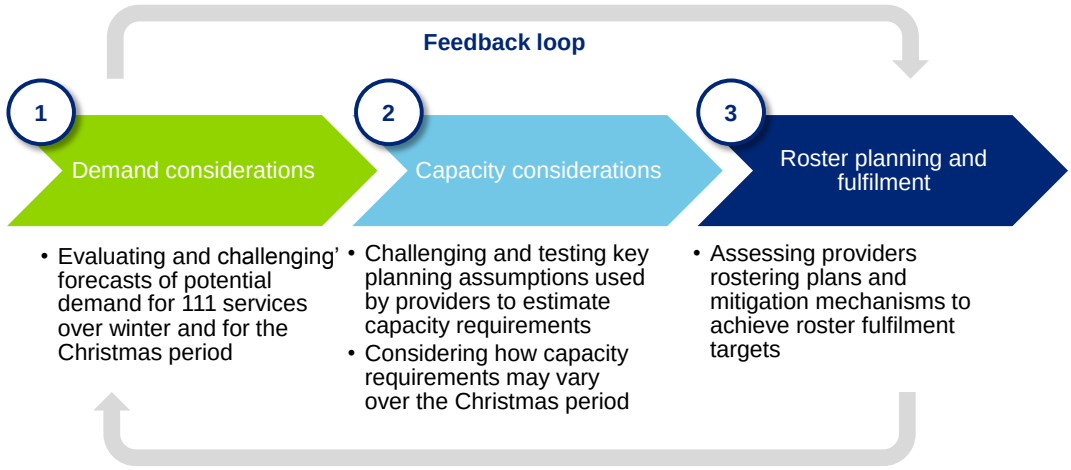
1 Background

This document has been prepared by NHS England to provide high level guidance to Area Teams (ATs) and Clinical Commissioning Groups (CCGs) for NHS 111 winter planning. Specifically, this document should support conversations between ATs, CCGs and providers about the capacity and contingency planning required to meet the higher demand for 111 services during winter.

This document is intended to be a helpful guide to support winter planning and inform the assumptions being used. It is fully acknowledged that NHS 111 providers are at different stage of maturity with varied levels of experience and historical demand data. Equally, ATs and CCGs have different levels of understanding of these issues and therefore, it is expected that readers may be less or more familiar with the issues discussed.

This guidance document is structured around three core areas: demand, capacity and roster planning/fulfilment. The three areas are summarised in Figure 1.

Figure 1: Overview of the guidance structure



It is important that winter planning is not seen as being a static one off task. Moreover, winter planning needs to involve a feedback mechanism whereby the situation on the ground is used to inform improved planning; ultimately supporting better service delivery as the winter progresses. This feedback loop needs to include all parties including providers, CCGs and ATs.

Throughout this guidance, examples and analysis are presented to illustrate the potential winter impacts. It is important that these are not seen as definitive, as providers need to inform winter planning using their own data and assumptions.

A technical appendix to this document is provided outlining the basis of the estimated winter impacts.

2 Demand considerations

This section addresses the key issues in relation to provider demand forecasting during the winter period. These are summarised in Table 1, in the form of questions, and are further discussed below.

Table 1: Demand key issues

No.	Question
2.1	What is the month-of-the-year percentage uplift that has been allowed for the winter months (e.g. December 2013, January and February, 2014)?
2.2	What is the contingency plan in case actual call volume is greater than projected volume?
2.3	How has the severity and duration of winter been taken into account when projecting call volumes?
2.4	What is the day-of-the-week percentage uplift that has been allowed over the Christmas peak period (e.g. 19th of December, 2013 to 7th of January, 2014)?
2.5	What is the time-of-the-day percentage profile that has been allowed over a typical weekday, a typical weekend, and on Christmas day, Boxing day and New Year's Eve?
2.6	What account has been taken of a potential increase in call volumes due to an increase in awareness of NHS 111?

CCGs and ATs will need to review provider demand forecasts in each of these key areas.

Question 2.1: What is the month-of-the-year percentage uplift that has been allowed for the winter months (e.g. December 2013, January and February, 2014)?

Consideration 2.1.1: Historically, the winter months of December, January and February exhibit a surge in 111 call volume activity. Table 2 represents the uplift experienced by the four pilot[1] sites in 2012 over the winter months. The values correspond to the average percentage increase observed in the winter months (e.g. December, January and February) over the average monthly call volumes in summer (July and August). As shown, the uplifts range between 11% and 77% and are around 45% on average.[2] However, these uplifts may overstate the winter pressures given they also incorporate a potential increase in population awareness of 111 services between the summer and winter months of 2012.

Table 2: Percentage uplift in winter 2012 experienced by the four pilot sites

Provider	Winter Pressures
Provider A	57%
Provider B	11%
Provider C	35%
Provider D	77%
Average	**45%**

Source: based on MDS actual call volume data, percentage uplift of 2012 winter volumes relative to 2012 summer call volume

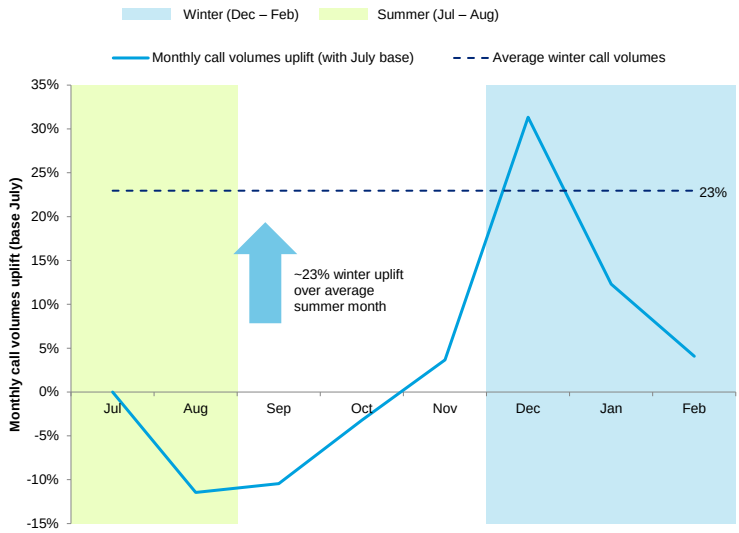
Consideration 2.1.2: Indicative statistical modelling by NHS England allows for better identification of the pure seasonal component; controlling for the impact of awareness and coverage on call volumes. This analysis estimates an overall average uplift relative to July-August of 23% due to winter pressures (see Figure 2).[3] Although the analysis of winter pressures concentrates on the December, January and February period, there is an observed small increase in November.

[1] Throughout this document the four pilot sites are: County Durham and Darlington, Luton, Lincolnshire and Nottingham City.

[2] Throughout this document uplift refers to $(\frac{Estimated\ future\ volume}{Volume\ of\ reference} - 1) \times 100$

[3] The modelling technique used has been described in detail in the technical appendix.

Figure 2: Estimated seasonal variation in call volumes for 2013/14 (monthly estimates)



Source: NHS England analysis, based on statistical analysis described in the technical appendix

Despite this analysis accounting for several factors, it does not vary by region, account for the severity of the winter and a number of other relevant drivers (such as the acuity of the flu season).

Question 2.2: What is the contingency plan in case actual call volume is greater than projected volume?

Consideration 2.2.1: Call volume projections might underestimate actual call volume due to a number of reasons including unexpected variation in the severity and duration of the winter, acuity of the flu season, and greater 111 public awareness.
Providers will need to plan for short-term unanticipated surges in demand, as well as more gradual or sustained increases in call volumes. The weekly/daily monitoring of actual call volumes versus projections is important.

Question 2.3: How has the severity and duration of winter been taken into account when projecting call volumes?

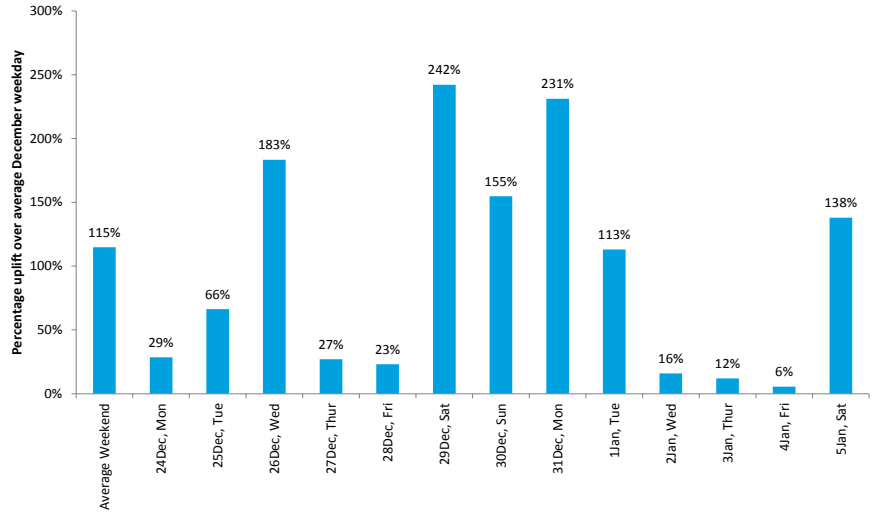
Consideration 2.3.1: Demand for services will depend on the severity and duration of the winter. For example, despite winter 2012/13 being relatively mild, some increased demand was experienced until March and this varied across regions. As such, the estimation process should be iterative and forecasts should be refined as winter approaches and providers are better informed about the potential winter pressures.

Question 2.4: What is the day-of-the-week percentage uplift that has been allowed over the Christmas peak period (e.g. 19th of December, 2013 to 7th of January, 2014)?

Consideration 2.4.1: The Christmas peak period has historically observed significant uplifts in call volumes, over the monthly seasonal uplift, in particular, on Boxing Day and New Year's Eve. It is important that providers plan adequately to meet peaks in demand during this period. Provider expectations regarding the demand for 111 services will be important when considering contingent capacity planning and roster fulfilment.

Consideration 2.4.2: Figure 3 presents the percentage uplift over the average December weekday that was observed across the four pilot sites, over the Christmas period in 2012. Uplifts are the most significant for the weekend following Boxing Day and also for New Year's Eve, which is a Monday.

Figure 3: Percentage uplift over average December weekday from the four pilot sites for 2012/13



Source: NHS England actual call volume data

Consideration 2.4.3: Variation in call volumes observed across the pilots can inform estimates on the potential uplifts for Christmas period 2013/14. However, the uplifts in demand observed will vary depending on when Christmas falls and a number of other factors. For instance, uncertainty regarding opening hours in GP services can impact volumes. Despite Figure 3 indicating a relatively small increase in demand on December 27th, anecdotal evidence from 2012 non-pilot providers suggests that specific providers experienced a much higher increase in demand on this day.

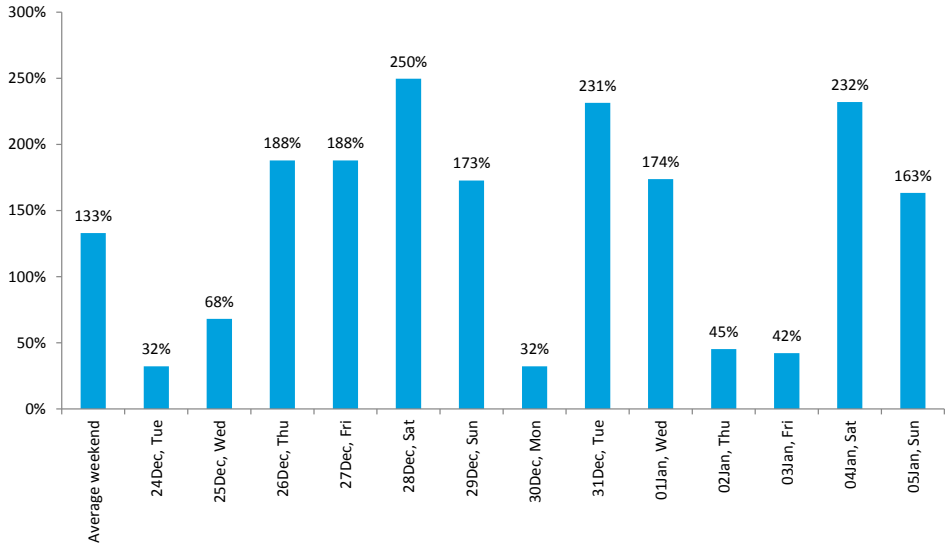
Consideration 2.4.4: Figure 4 provides a summary of the days during the Christmas period 2013/14 and the potential level of increase in demand that could be experienced. Red represents the most significant expected uplifts in call volumes, which can be greater than 100% relative to a typical week day. Amber represents potential call volumes that are higher than usual, but no more than 100% greater than a typical weekday. These observations are based on discussions with providers and the NHS 111 Central Team.

Figure 4: Description of key days during Christmas period

Date	Day	Comments	Bank Holiday	Expect level of increase
24 Dec 2013	Tuesday	Christmas eve call volumes are likely to be higher than the average weekday in December. However, discussions with providers indicate that there is likely to be a dip in call volumes in the evening.	No	
25 Dec 2013	Wednesday	Christmas Day has typically observed higher than usual call volumes. However, the uplifts have historically not been as high as levels observed on Boxing Day.	Yes	
26 Dec 2013	Thursday	Boxing Day has historically observed large peaks in call volumes.	Yes	
27 Dec 2013	Friday	Higher than usual volumes expected on account of this being the Friday after Boxing day and the associated uncertainty about GP services being open.	No	
28 Dec 2013	Saturday	Higher than usual call volumes likely, due to the expected uncertainty about the opening hours of GP surgeries on the 27th of December, in addition to the weekend uplift in call volumes.	No	
29 Dec 2013	Sunday	Higher than usual call volumes likely, due to the expected uncertainty about the opening hours of GP surgeries on the 27th of December, in addition to the weekend uplift in call volumes.	No	
30 Dec 2013	Monday	Despite this being a weekday, there may be higher than usual call volumes due to this date preceding New Years Eve and the New Years day bank holiday.	No	
31 Dec 2013	Tuesday	New Years Eve has historically observed large peaks in call volumes.	No	
01 Jan 2014	Wednesday	Significant uplift in call volumes have been observed historically on New Year's Day	Yes	
02 Jan 2014	Thursday	Based on historical evidence from pilot sites, these days may observe different demand patterns to average weekdays or weekends.	No	
03 Jan 2014	Friday		No	
04 Jan 2014	Saturday		No	
05 Jan 2014	Sunday		No	

Consideration 2.4.5: Based on the uplifts observed historically across the provider sites, and assumptions regarding the potential demand during each of the days,
Figure 5 presents some estimated uplifts for the Christmas period. These uplifts are provided as guidance and local assumptions should be used to develop provider estimates.

Figure 5: Estimated uplift over average December weekday for Christmas period 2013/14



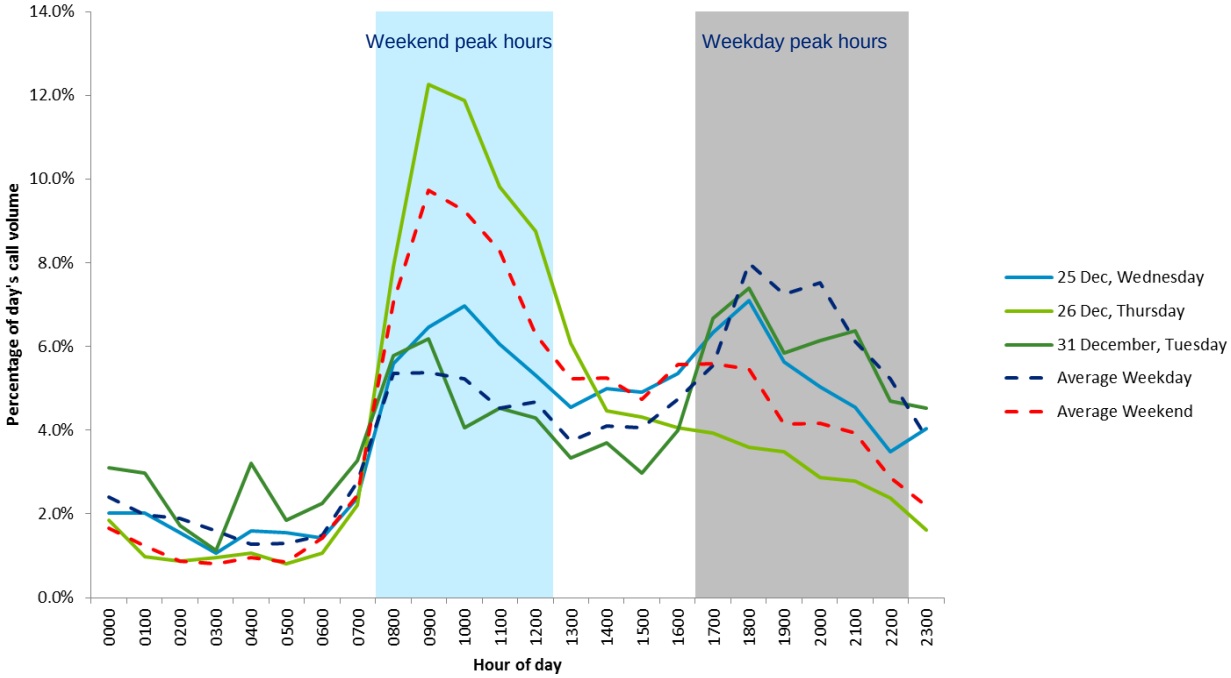
Source: NHS England analysis

Question 2.5: What is the time-of-the-day percentage profile that has been allowed over a typical weekday, a typical weekend, and on Christmas day, Boxing day and New Year's Eve?

Consideration 2.5.1: Capacity requirements depend on the intra-day variation in call volumes, whereas intra-day volume variation differs across weekdays, weekends and bank holidays.

Consideration 2.5.2:
Figure 6 summarises the hourly variation in calls volumes across Christmas day, Boxing Day and New Year's Eve for the pilots. Boxing Day peak times tend to be more consistent with weekend peak hours and no particular trend is observed for Christmas Day or New Year's Eve.

Figure 6: Intra-day variation in call volumes, as observed in the four pilot sites 2012



Source: NHS England analysis actual call volume data

Consideration 2.5.3: It is recognised that it is challenging to estimate variations in intra-day call patterns. However, providers should at least demonstrate a clear rationale around their chosen estimates.

Question 2.6: What account has been taken of a potential increase in call volumes due to an increase in awareness of NHS 111?

Consideration 2.6.1: For long established NHS 111 services, there will already be wide public awareness. For services only recently, or about to be, mobilised, there may still be an increase in public awareness as we are approaching winter. Awareness can also increase as a result of local "choose well" campaigns. CCGs and providers should, therefore, coordinate these activities.

3 Capacity considerations

CCGs and ATs will need to evaluate and challenge capacity planning assumptions employed by providers for the winter period.

There are five key issues that the providers should take into account when they plan staff capacity. These key issues are set out in Table 3 and further discussed in the remaining of this section.

Table 3: Capacity key issues

No.	Question
3.1	What methodology / approach has been used to estimate staff capacity requirements?
3.2	What metrics have been incorporated into the capacity planning?
3.3	What assumptions have been made regarding each metric used when estimating the capacity requirements?
3.4	What assumptions have been made regarding changes to key capacity planning assumptions during the Christmas period?
3.5	What actions have providers taken to address the changes in the capacity assumptions during the winter and Christmas periods?

Question 3.1: What methodology / approach has been used to estimate staff capacity requirements?

Consideration 3.1.1: There is no single best approach to determining the capacity required to meet forecasted demand but the Erlang model is considered to be the standard approach in call centre based services. Typically, providers will supplement this with insights from pre-established staffing ratios based on legacy systems, historical activity data and anecdotal evidence.

When considering provider estimates for capacity and roster planning, the modelling and assumptions used to arrive at the results should be challenged and evaluated to reach a shared understanding.

Question 3.2: What metrics have been incorporated into the capacity planning?

Consideration 3.2.1: Regardless of the capacity planning approach used, providers usually use the same set of metrics to estimate required staffing levels. These include:

- Average handling time (AHT) for call handlers and clinical advisors;
- Internal and external shrinkage;
- Queuing times;
- Utilisation rates and scheduling inefficiencies; and
- Warm transfer rates.

Question 3.3: What assumptions have been made regarding each metric used when estimating the capacity requirements?

Consideration 3.3.1: Figure 7 lists the assumptions that are typically used to inform capacity planning. Where relevant, the NHS 111 minimum data set (MDS) and other publicly available sources have been used to provide a high level overview of the indicative trends. For cases where data is unavailable, experiences shared by the NHS 111 Central Team and other providers have been cited.

Figure 7: Assumptions to inform capacity planning

Metric	Description	Assumption and source
Warm transfer	The average (mean) time in seconds that it takes a clinician to pick up the call after it had been queued	• The data captured for warm transfer is not comparable across providers, and so the MDS data for warm transfer is not reliable. • Providers should use their own internal data to inform this metric.
AHT for call handlers	Total time in minutes call handlers spend dealing with calls	• MDS only has data on average episode length, not AHT for call handlers. • AHT will vary across providers. Discussions with providers and the 111 Central Team suggests that typically AHT is around 9 minutes. Each provider should inform AHT using their own internal historical data.
AHT for clinical advisors	Total time in minutes clinical staff spend dealing with calls	• MDS only has data on average episode length, not AHT for clinical advisors. • AHT will vary across providers. Discussions with providers and the 111 Central Team suggests that typically AHT ranges from 12 to 18 minutes. Each provider should inform AHT using their own internal historical data.
Transfer rate to clinicians	Per cent of triaged calls transferred to a clinician	• Range between 19% and 26% - based on national average rate from the Minimum Dataset.
Relief rate (shrinkage)	Per cent of time lost per annum when staff are unavailable to handle calls	• No data is available in the MDS. • Shrinkage varies across providers due to provider specific internal and external factors. Internal factors are factors largely within the providers' control and determined by operational management processes. External factors are largely outside providers' control (e.g. sickness and maternity leave). • Typically, providers experience shrinkage rate of 25%-28% (excluding any scheduling inefficiencies).

Consideration 3.3.2: In addition to the assumptions above, capacity estimates to

meet forecasted demand will also depend on the performance standards specified in the CCGs' contracts with providers.[4]

Consideration 3.3.3: When evaluating estimates, it will be important to assess the validity of the underlying planning assumptions. These are likely to vary across different providers and will need to be worked through with CCGs and ATs locally.

Question 3.4: What assumptions have been made regarding changes to key capacity planning assumptions during the Christmas period?

Consideration 3.4.1: As described in Section 2, the Christmas period is expected to observe significant uplifts in call volumes over the average December weekday or weekend.

Consideration 3.4.2:
Figure 8 outlines potential changes to key planning assumptions that may be observed over the Christmas period.

Figure 8: Potential changes in assumptions over the Christmas period

Metric	Over the Christmas period…
Warm transfer	• Typically, the higher the call volumes, the greater the warm transfer times.
AHT for call handlers	• Over the winter months, particularly during the Christmas period, there may be a change in the staff mix to include a higher ratio of agency to substantive staff. This may result in an increase in AHT.
AHT for clinical advisors	• AHT for clinical advisors depends largely on the case-mix complexity of the calls offered. Discussions with providers suggest higher levels of patient acuity and illness over the winter and Christmas period. This may lead to higher than average handing times.
Transfer rates to clinicians	• Transfer rates to clinicians may increase in winter months on two counts: - Higher levels of patient acuity and illness. - Inexperienced staff (new or temporary staff)

[4] Contractual performance standards could relate to key performance indicators such as percentage of calls that must be answered in 60 seconds.

Shrinkage (internal)	• Internal shrinkage can reduce because providers usually streamline operational and management processes (e.g. lockdown annual leave, suspend all non-essential training, improve break scheduling).
Shrinkage (external)	• External shrinkage can increase due to increase in sickness / short-term absenteeism and unscheduled leave.
Shrinkage (Total)	• Shrinkage rate can decrease during the peak Christmas period if providers are successful in streamlining operational management processes.

Question 3.5: What actions have providers taken to address the changes in the capacity assumptions during the winter and Christmas periods?

Consideration 3.5.1: Despite the changes in the assumptions over the winter and Christmas periods, providers can take a number of mitigating actions to streamline operational management processes:

- Lockdown annual leave;
- Suspension of non-essential training;
- Re-schedule breaks more efficiently; and
- Manage short-term absenteeism.

These actions usually result in improved staff utilisation rates and improved scheduling efficiency.

Consideration 3.5.2: A further check CCGs and ATs could undertake is around the accuracy and completeness of special patient notes (SPNs) and the local directory of service (DoS). SPNs will help to support efficient navigation of high risk patients and keep AHT within more acceptable parameters during periods of increased volume and pressure.

4 Roster planning and fulfilment

Roster planning forms an important part of translating the expected demand and capacity requirements through to the actual delivery of the service. Achieving roster fulfilment is likely to require adequate planning of a number of mitigating actions, particularly during the winter months. This section outlines a number of key areas that need to be considered when evaluating providers' roster plans and roster fulfilment.

Table 4: Roster planning and fulfilment key issues

No.	Question
4.1	What factors have been taken into account when translating call volumes and capacity requirements into roster planning needs?
4.2	How are forecasting errors tracked and corrected over time within roster planning?
4.3	What mitigation mechanisms are in place by the provider to ensure satisfactory roster fulfilment rates?

Question 4.1: What factors have been taken into account when translating call volumes and capacity requirements into roster planning needs?

Consideration 4.1.1: Estimates on required staffing levels will need to be translated into shifts when compiling the staffing rota. In order to adequately plan to meet forecasted demand, roster planning needs to take into account a number of factors, including:

- Roster hours should fully match agent hours produced by the capacity model used by the provider;
- Staffing rotas should make reasonable allowances for breaks and any other essential activities;
- Timings of breaks included in the roster are reasonable;
- Rotas account for intra-day variation in call volumes, with particular emphasis on peak hours in weekday evenings, weekend mornings, and throughout the Christmas period; and
- Expected levels of shrinkage, both internal and external.

Consideration 4.1.2:

Figure 9 lists the key components for roster planning divided into the areas of scheduling and shrinkage.

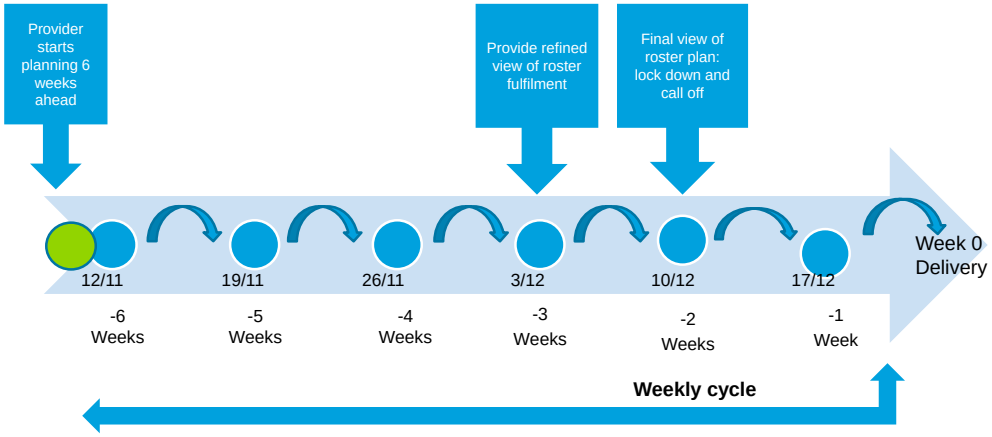
Figure 9: Key considerations for roster planning

Key considerations for roster planning	
Scheduling	• Roster hours match agent hours produced by Erlang model • Rotas account for intra-day variations in call volumes • Intervals between end of shift and start of another shift • Shift start times (for instance, on the hour, half hour) • Length of shifts • Number of breaks • Timing of breaks
Internal shrinkage	• Management requested duties • Preceptorship support • Training • Huddle
External shrinkage	• Paid break • Short term sickness • Long term sickness • Maternity

Question 4.2: How are forecasting errors tracked and corrected over time within roster planning?

Consideration 4.2.1: Roster planning should be an iterative process, as providers consistently refine their estimates as winter approaches and more information is available.
Figure 10 shows an iterative roster planning process, where the provider refines the roster plans on a weekly basis as the Christmas period approaches and the provider is better informed about staffing availability and potential contingency requirements.

Figure 10: Iterative roster planning process



Monitoring roster fulfilment on an iterative basis will incentivise providers to adjust their assumptions to better track the actual position.

Question 4.3: What mitigation mechanisms are in place by the provider to ensure satisfactory roster fulfilment rates?

Consideration 4.3.1: Achieving roster fulfilment targets will rely on how closely the provider's planning assumptions reflect reality. Whilst an iterative roster planning process will help to refine the assumptions, the provider will need some key mitigation mechanisms in place to help to ensure that satisfactory roster fulfilment rates are achieved. A number of typical mitigating actions providers could take include:

- Having a clear understanding and contractual arrangements with any in-source providers to achieve more efficient call-off;
- Providing incentives to staff to work on days for which it is difficult to achieve roster fulfilment targets such as Christmas day, Boxing day or New Year's Eve;
- Holding a list of staff that are willing to work additional shifts and that can be contacted at very short notice;

- Ensuring that efficient communication mechanisms are in place with all staff;
- Potentially transporting staff to and from the call centre site in severe weather and at very short notice; and
- Making provision for clinical staff to front end calls.

Appendix A Technical Guidance

A.1 Unobserved Components

This section provides an overview of the econometric methodology employed to generate statistical, model-based estimates of the winter call offered volumes shown in Figure 2. The primary objective of the analysis is to estimate the expected seasonal uplift in calls offered in the 2013-2014 winter period (e.g. December 2013, January 2014 and February 2014) after accounting for any other factors other than seasonality that are expected to drive call volume.

The methodology used is based on an Unobserved Components (UC) model. These types of model decompose time series into components such as trend, seasonality and regression effects, and provide a flexible framework for estimating the seasonal variation of a historical time series such as calls offered.

In the 111 context, UC models are capable of accounting for the impact of factors that vary over time and which are unobserved, such as public's awareness of the 111 service, as well as observed factors such as population covered.

An UC model with one explanatory variable and a seasonal effect can be described by the following equation.[5] Calls offered volume is modelled as a function of the seasonality, population covered and a latent variable that captures the impact of all unobserved variables.

$$log(Calls_t) = \alpha_t + S_t + \beta\, log(Population_t) + e_t$$

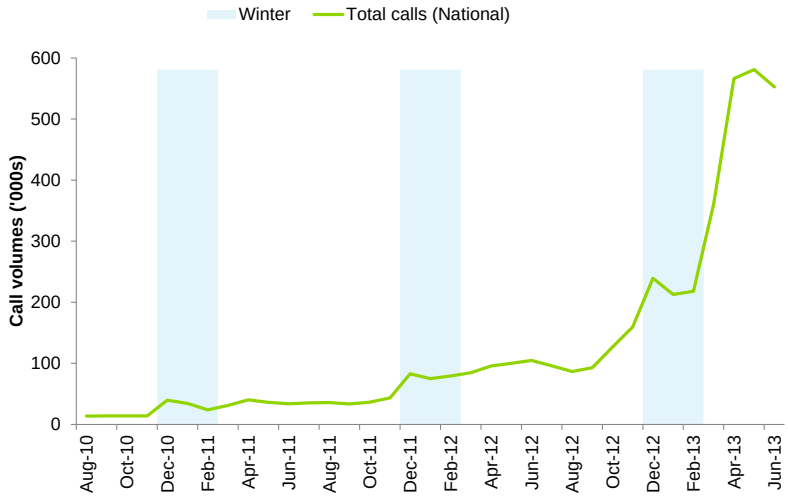
Variable	**Description**
$Calls_t$	Calls offered volume
$Population_t$	Population covered by 111 service
α_t:	Unobserved component
S_t:	Seasonal component
e:	Random error term
β:	Coefficient showing the estimated impact of the explanatory variable, *Population* on calls offered volume

Note that if α_t=$constant$ the model is reduced to a classical linear regression model. Intuitively, α reflects the "base" of calls volume. If the general population becomes more aware over time of the 111 service, the base of calls volume is expected to grow because of that. In UC models, the base is allowed to vary over time and the model, essentially, is designed to capture the impact of unobserved factors such as population's awareness of 111. In addition, it allows the seasonal

[5] The UC model described was estimated by maximum likelihood using the Kalman filter, and implemented in STAMP/OxMetrics software. For a detailed discussion of UC models, see Harvey (1989), and Commandeur and Koopman (2007).

impact to vary over years.

Historical monthly data from the MDS has been used to model above. Whilst the main model is based on nation-wide data, insights gained from estimating regional and provider-specific models have also been utilised when inferring the seasonal variation in calls volume.



The MDS dataset covers the period from August 2010 to June 2013. MDS reports data by provider but also aggregates data across broad regions and England in totality. In particular, the following call volume time series were used:

- National
- North (regional)
- Midlands and East (regional)
- Durham and Darlington
- Lincolnshire
- Luton
- Nottingham

Further details on the providers and the regions considered are provided in Figure 11: National call volumes, Aug 2010 to Jun 2013 Table 5.

depicts the historical variation in calls offered across all 111 providers as reported by MDS. There is a clear upward trend and a considerable step change in early 2013, which are expected to reflect primarily the increased population covered and, to a lesser extent, greater public awareness of 111.

Figure 11: National call volumes, Aug 2010 to Jun 2013

Table 5: Regions and providers considered

London	North	Midlands and East	South
• Hillingdon • Croydon • NWL • Wandsworth • S&M • K&R • NCL • SEL • EL & C • ONEL	• County Durham & Darlington • North West • C&M • Manchester • Y&H	• Lincolnshire • Luton • Nottingham City • Derbyshire • Herts • GY&W • Norfolk • Suffolk • S Essex • Northampton • Milton K • West Midlands	• Isle of Wight • Oxfordshire • SHIP • Bucks • Somerset • Dorset

MDS reports data for several other regions or providers, however, was not used due to lack of history in the time series. At least two years' worth of data is typically required in order to estimate monthly seasonal variations in historical time series.

Annex B

The following areas did not report full inclusion of NHS 111 in their plans as part of the last formal position submitted by regional tripartite panels.

4 health economies' plans do not include 111 plan arrangements:

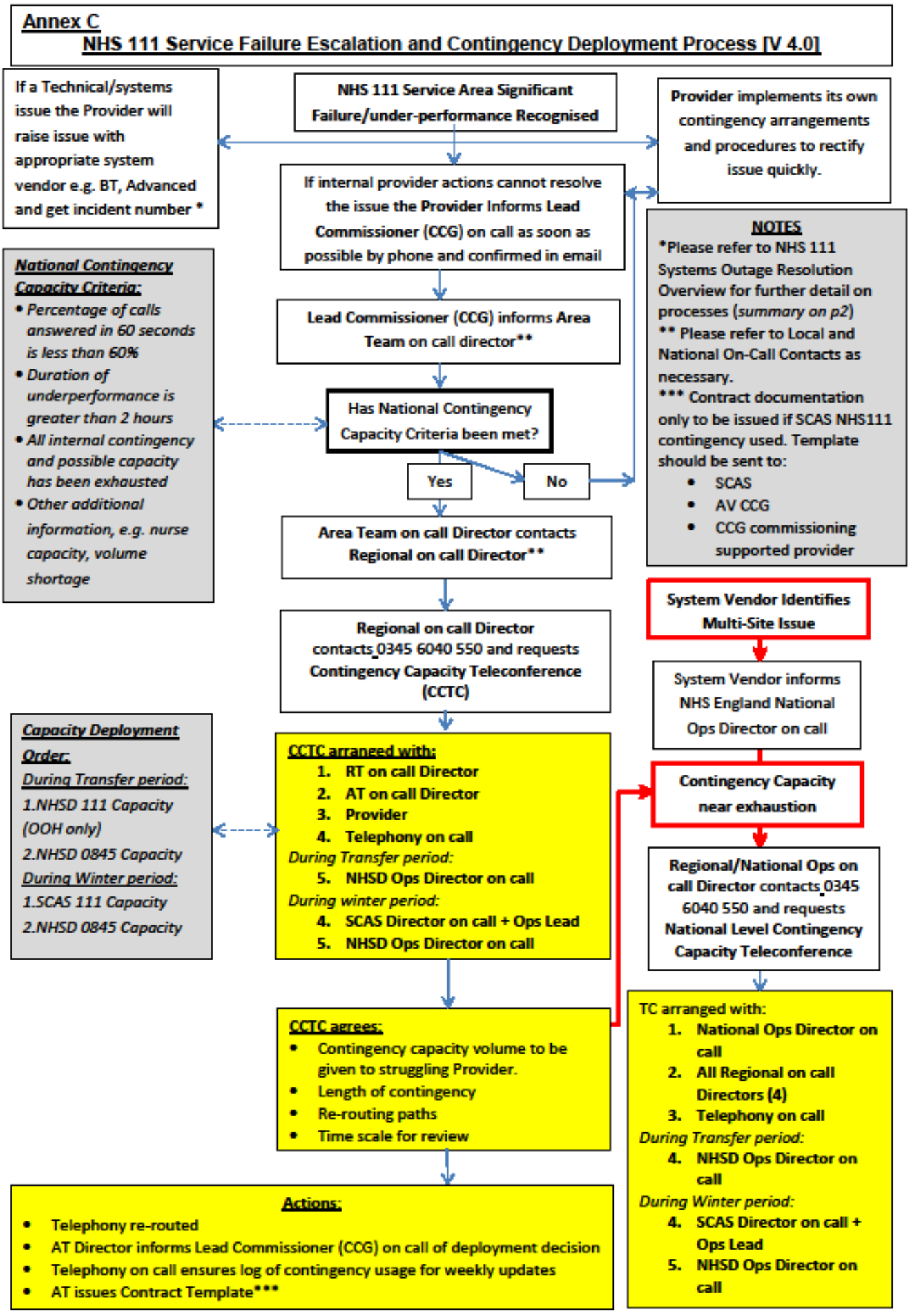
London	North West London Hospitals NHS Trust
Midlands and East	Bedford Hospital NHS Trust
London	The Hillingdon Hospitals NHS FT
Midlands and East	Luton and Dunstable Hospital NHS FT

12 health economies plans partially include 111 plans:

London	Barking, Havering and Redbridge University Hospitals NHS Trust
London	St George's Healthcare NHS Trust
North	Doncaster and Bassetlaw Hospitals NHS FT
London	Croydon Health Services NHS Trust
North	Sheffield Teaching Hospitals NHS FT
North	Barnsley Hospital NHS FT
London	Kingston Hospital NHS Trust
London	Epsom and St Helier University Hospitals NHS Trust
London	Ealing Hospital NHS Trust
London	West Middlesex University Hospital NHS Trust
North	The Rotherham NHS FT
North	Sheffield Children's NHS FT

Nil return:

	Moorfields
	Queen Victoria


Annex C
NHS 111 Service Failure Escalation and Contingency Deployment Process [V 4.0]
If a Technical/systems issue the Provider will raise issue with appropriate system vendor e.g. BT, Advanced and get incident number *
NHS 111 Service Area Significant Failure/under-performance Recognised
Provider implements its own contingency arrangements and procedures to rectify issue quickly.
If internal provider actions cannot resolve the issue the Provider Informs Lead Commissioner (CCG) on call as soon as possible by phone and confirmed in email
NOTES
*Please refer to NHS 111 Systems Outage Resolution Overview for further detail on processes (summary on p2)
** Please refer to Local and National On-Call Contacts as necessary.
*** Contract documentation only to be issued if SCAS NHS111 contingency used. Template should be sent to:
SCAS
AV CCG
CCG commissioning supported provider
National Contingency Capacity Criteria:
Percentage of calls answered in 60 seconds is less than 60%
Duration of underperformance is greater than 2 hours
All internal contingency and possible capacity has been exhausted
Other additional information, e.g. nurse capacity, volume shortage
Lead Commissioner (CCG) informs Area Team on call director**
Has National Contingency Capacity Criteria been met?
Yes
No
Area Team on call Director contacts Regional on call Director**
System Vendor Identifies Multi-Site Issue
Regional on call Director contacts 0345 6040 550 and requests Contingency Capacity Teleconference (CCTC)
System Vendor informs NHS England National Ops Director on call
Capacity Deployment Order:
During Transfer period:
1.NHSD 111 Capacity (OOH only)
2.NHSD 0845 Capacity
During Winter period:
1.SCAS 111 Capacity
2.NHSD 0845 Capacity
CCTC arranged with:
1. RT on call Director
2. AT on call Director
3. Provider
4. Telephony on call
During Transfer period:
5. NHSD Ops Director on call
During winter period:
4. SCAS Director on call + Ops Lead
5. NHSD Ops Director on call
Contingency Capacity near exhaustion
Regional/National Ops on call Director contacts 0345 6040 550 and requests National Level Contingency Capacity Teleconference
CCTC agrees:
Contingency capacity volume to be given to struggling Provider.
Length of contingency
Re-routing paths
Time scale for review
TC arranged with:
1. National Ops Director on call
2. All Regional on call Directors (4)
3. Telephony on call
During Transfer period:
4. NHSD Ops Director on call
During Winter period:
4. SCAS Director on call + Ops Lead
5. NHSD Ops Director on call
Actions:
Telephony re-routed
AT Director informs Lead Commissioner (CCG) on call of deployment decision
Telephony on call ensures log of contingency usage for weekly updates
AT issues Contract Template***

Narrative for NHS 111 Service Failure Escalation and Contingency Deployment Process

This process has been built around on-call arrangements that are already in place across the commissioning system. In order to ensure this process is followed in line with these arrangements please refer to Local and National On-Call Contacts as necessary.

Summary of process:

- Provider experiences service failure for any reason which significantly impacts on quality of service and performance
- Provider should instigate internal local contingency plans or log issues with system vendors as appropriate
- If Provider contingency does not resolve the issue quickly, the Provider should inform relevant commissioner (CCG) on-call and explain the issue and system impact being faced and commissioner should ensure that the Provider has taken all necessary steps to resolve the issue locally/internally
- Commissioners should inform any other services that would also be affected by the issue e.g. local A&E departments
- If no further contingency or plans are available after speaking with the provider, the local commissioner should escalate the issue to the relevant Area Team on-call Director (or relevant escalation cascade in place)
- The local commissioner on-call and Area Team on-call Director should discuss the issue and the Area Team on-call Director should be provided with the following information:
    - Percentage of calls answered in 60 seconds
    - Duration of underperformance
    - If all internal contingency and possible capacity has been exhausted
    - Other additional information, e.g. nurse capacity, volume shortage
    - If appropriate, the case for accessing national contingency call capacity
- If the Area Team on-call Director agrees with the local commissioner on-call that the criteria has not been met, the local commissioner should continue to work with the Provider to resolve the issue locally/internally
- If this information indicates that the Provider would be eligible for support from the national contingency call capacity the Area Team on-call Director should escalate to the relevant Regional Team on-call Director in order to request
- The Regional Team on-call Director will contact the helpdesk on 0345 6040 550 and request the set-up of a Contingency Capacity Teleconference. The Regional Team on-call Director will need to be able to provide the helpdesk as to which Area Team and Provider are required, or pass TC details to them.

- On the teleconference the team present will discuss the possibility of deploying national contingency call capacity, first through the 111 Winter Contingency Service and only in exceptional circumstances through the NHS Direct 0845 Service. If agreed, the volume and timescale of the contingency capacity should be determined and a review time set.
- If there are multiple requests for support, or if service failure is catastrophic, and the contingency capacity is near exhaustion, a National Level Contingency Capacity Teleconference should instead be convened, at which there will be high-level decisions about contingency capacity deployment. It is essential that all Regional Team on-call Directors are fully briefed by their Area Team on-call Directors prior to joining the TC.
- A National Level Contingency Capacity TC can also be set up if a system vendor escalates to NHS England National Ops Director on call that a system outage is affecting multiple service areas.
- Following TCs, Telephony on-call and Area Team on-Call Directors have specific actions following a decision to deploy contingency capacity re-routed.
- A contract variation template (below) will need to be completed when a request for support from the WCS is approved. This will be completed by the Area Team for that area. This template will need to be sent to the two existing parties to the contract: SCAS and AV CCG and to the lead CCG for the area requiring support.
- The Contract Variation Agreement is required to make the CCG an additional party to the contract between SCAS and AV CCG (the commissioning CCG for the purposes of the WCS). This is necessary because a CCG can only commission on behalf of their own patients therefore by becoming a party to the WCS contract the CCG needing support is effectively commissioning this additional capacity for their patients.

High Level Summary

NHS 111 Systems Outage Resolution Overview (October 2013)

Please use in conjunction with the full report

System Outage	System Outage Severity Level	Management Responsibility	Resolution Responsibility	Incident Reports Required
NHS 111 Interoperability Landscape				
CMS/DOS goes down	Level 1	Provider	HSCIC	1 from HSCIC 1 from Provider
Hosted Provider N3 Outage	Level 2	Provider	BT	1 from BT 1 from software vendor 1 from Provider
Local Provider N3 Outage	Level 2	Provider	BT	1 from BT 1 from Provider
111 Software System Outage	Level 3	Provider	Software vendor	1 from software vendor 1 from Provider
999 System Outage	Level 4	Provider/999 Service	999 ICT service	1 from 999 service 1 from Provider 1 from software vendor
GP System Outage	Level 4	GP Practices via software vendors service desk	GP System vendor	1 from GP system vendor
Clinical Dashboard System Outage	Level 5	Clinical Dashboard service host	Clinical Dashboard service host	Nil with respect to NHS 111
A&E System Outage	Level 5	IT Service within the acute trust	IT Service within the acute trust	Nil with respect to NHS 111
PDS System Outage	Level 4	Software Vendor	HSCIC	1 from Provider
OOH System Outage	Level 3	OOH service	OOH Software vendor	1 from OOH 1 from software vendor 1 from Provider
National Telephony Infrastructure				
Vodafone 111 Platform Outage	Level 1	Provider	Vodafone	1 from Vodafone 1 from Provider
Scysis Database Outage	Level 1	Provider	Vodafone	1 from Vodafone/Scysis 1 from Provider
Scripting Malfunction	Level 3	Receiving Provider	Vodafone	1 from Vodafone/Scysis 1 from Provider
ACD System Outage	Level 2	111 Provider with local ICT	111 Provider with local ICT	Provider

Severity Level 1 – Catastrophic consequences to the NHS 111 as a national service. Multiple services affected to the same level of Severity Level 2.
Severity Level 2 – Has a severe impact on the NHS 111 service provider being able to provide the service to any level of quality. Significant impact will also be felt on downstream services. May affect other NHS 111 providers.
Severity Level 3 – Has a significant impact on the NHS 111 service provider. Performance will be affected with a detrimental effect on service provision. Business continuity is in place to prevent these events occurring. This will have a down-stream impact on other services receiving volume from NHS 111.
Severity Level 4 – Has very little operation impact on the NHS 111 service. There may be some issues that need to be worked around but not at the detriment of the service provision.
S**everity Level 5** – Has no operational impact on the NHS 111 service. This may be a serious outage for the service in question and have its own consequences outside of NHS 111.

INSTRUCTION SHEET [Please delete this page upon completion]:

Please find a word version of the Winter Contingency Service (WCS) Contract Novation and Variation Agreement. The areas for completion are highlighted in yellow.

The purpose of this Novation and variation agreement is to make the CCGs which require support become parties to the WCS contract. This is necessary as only CCGs can commission the NHS111 service for their population. This does not put any financial commitment on those CCGs, as it is clearly detailed in the service contract that the payment for the WCS will come from Aylesbury Vale CCG (AV CCG). AV CCG in turn derives this funding from NHS England and this relationship is detailed in a separate MOU. This documentation can be made available to CCGs upon request.

The contract variation template will need to be completed when a request for support from the WCS is approved. This will need to be completed for either:

- every CCG whose NHS 111 service has had to utilise the contingency capacity
  or
- the lead CCG holding the contract with the NHS 111 service that has had to utilise the contingency capacity, on agreement with the other CCGs who are associate parties to that contract.

The completion of this contract will be coordinated by the relevant Area Team.

Once completed, this template will need to be sent by the Area Team to the following:

- SCAS: james.underhay@scas.nhs.uk
- Aylesbury Vale CCG: robert.majilton@nhs.net
- The relevant CCGs

Please direct any queries to the NHS 111 mailbox at england.nhs111@nhs.net.

NOVATION AND VARIATION AGREEMENT DATED [INSERT DATE]

between:

Aylesbury Vale CCG of First Floor, Aylesbury Vale District Council, The Gateway, Gatehouse Road, Aylesbury, Buckinghamshire, HP19 8FF ("AVCCG") and any other Commissioners under the Contract from time to time (those Commissioners other than AVCCG being the "Other Commissioners");

South Central Ambulance Services NHS Foundation Trust of 7 & 8 Talisman Business Centre, Talisman Road, Bicester, Oxfordshire, OX26 6HR (the "Provider"); and

[Insert details of incoming CCGs] (the "Incoming CCGs")

together the "Parties".

IT IS AGREED AS FOLLOWS:

Definitions

In this novation and variation agreement (the "Agreement"):

"Amendment Date" means [insert date the Incoming CCGs join/joined the Contract];

"Contract" is the contract dated 20th November 2013 between the Pre-Variation Parties (as varied from time to time);

"Pre-novation Parties" means AVCCG, the Provider and any Other Commissioners; and

Capitalised words and phrases in this Agreement have the meanings given to them in the Contract, and references to General Conditions (GC) or Special Conditions (SC) are to the corresponding provisions of the Contract.

Novation

The Parties agree that, with effect from the Amendment Date:

the Incoming CCGs shall also become parties to (and included, alongside AVCCG and any Other Commissioners, as Commissioners under) the Contract;

the Incoming CCGs agree (in relation to the Services for which each Incoming CCG is the Responsible Commissioner) to comply with the Contract as Commissioners (alongside AVCCG and any Other Commissioners) in consideration of the rights and benefits from which they then benefit as Commissioners under the Contract; and

the Provider agrees to perform the Contract also for the benefit of the Incoming CCGs (in addition to AVCCG and any Other Commissioners) in consideration of the sums to be paid by the Incoming CCGs to the Provider for the Services in relation to which each Incoming CCG is the Responsible Commissioner (such sums to be paid through the aggregate payments made by AVCCG pursuant to SC36.3 and Part D of Schedule 3).

Nothing in this Agreement shall affect or prejudice any claim or demand that the Pre-novation Parties may have against each other under or in connection with the Contract arising before the Amendment Date.

Variation

The Parties agree that, with effect from the Amendment Date, the Contract shall be varied as follows (the Parties agree that this shall be a valid variation for the purposes of GC13.3):

Page 3 - the Incoming CCGs shall be added to the list of Commissioners;

In the Governance section:

the Incoming CCGs shall be added to the list of Commissioners in the "Commissioner authorised signatories" section and their authorised signatories shall be

[ ] CCG - [insert names];

[ ] CCG - [insert names]; and

the Incoming CCGs shall be added to the list of Commissioners in the "Accountable Emergency Officers" section and the name and contact details for each Incoming CCG's Accountable Emergency Officer shall be:

[ ] CCG - Name: [insert], Email: [insert] and Tel: [insert];

[ ] CCG - Name: [insert], Email: [insert] and Tel: [insert]; and

In the Contract Management Section, the Incoming CCGs shall be added to the list of Commissioners in the "Address for Service of Notices" section and each CCG's address and email shall be:

[ ] CCG - [insert] and [insert];

[ ] CCG - [insert] and [insert]; and

Schedule 6 shall be amended to include details of this Agreement.

The Parties agree that no amendments are made to Schedule 3 of the Contract pursuant to this Agreement and (without prejudice to SC36.3 and Part D of Schedule 3 of the Contract, and clause 0 below) that AVCCG shall (acting reasonably) determine how the monthly payments under the Contract are apportioned amongst the Commissioners in relation to the Services for which each Commissioner is the Responsible Commissioner.

Collaboration arrangements

Without prejudice to clause 0 above, the Incoming CCGs and AVCCG:

agree that they shall (in relation to the Services for which the Incoming CCGs are the Responsible Commissioner):

obtain best performance, quality and value from the Services by assessing quality and outcomes (including clinical effectiveness, patient experience and patient safety);

carry out monthly or other reviews with the Provider, as required under the Contract;

establish clear reporting and escalation protocols regarding quality, safety and performance issues and review these on a regular basis;

agree how decisions will be taken, and agree to put in place the necessary governance arrangements to make timely decisions in accordance with their constitutions;

(without prejudice to clause 0 below) agree, as appropriate, arrangements to sign any variations to the Contract; and

provide each other with any information received from the Provider in accordance with the Contract;

agree that they each remain responsible for:

performing and exercising their separate statutory duties and functions for delivery of the Services to the population and patients for which each is the Responsible Commissioner;

making decisions relating to its own policy for committing commissioning resources and for making commissioning decisions for its health economy; and

liabilities arising as a result of the exercise of its functions;

acknowledge Part D of Schedule 3 of the Contract, and each Incoming CCG authorises AVCCG to make (pursuant to SC36.3) payments on its behalf to the Provider for the Services for which that Incoming CCG is the Responsible Commissioner (and the Parties agree that AVCCG shall make and receive aggregate payments for the Incoming CCGs in accordance with SC36.3);

acknowledge Part D of Schedule 5 of the Contract and each Incoming CCG authorises AVCCG (subject to this clause 0 and any agreements and arrangements made pursuant to this clause 0) to act as Co-ordinating Commissioner pursuant to GC10 of the Contract (and AVCCG agrees to act as Co-ordinating Commissioner for the Incoming CCGs); and

agree that the Incoming CCGs shall only cease to be Commissioners if agreed by the Parties (from time to time).

The Incoming CCGs consent to any future novations and variations of the Contract that:

involve other NHS Bodies and are on substantially the same terms as this Agreement (but relating to those NHS Bodies); and

are from time to time approved by AVCCG

and the Incoming CCGs each authorise AVCCG to sign on their behalf any documents effecting any such novations and variations.

Rights of third parties

No term of this Agreement shall be enforceable under the Contracts (Rights of Third Parties) Act 1999 by a person who is not a party to this Agreement, but this does not affect any right or remedy of a third party which exists or is available apart from under that Act.

Counterparts

This Agreement may be executed in any number of counterparts, each of which when executed shall constitute an original of this Agreement, but all the counterparts shall together constitute the same agreement.

This Agreement has been entered into on the date stated at the beginning of it.

SIGNED for and on behalf of Aylesbury Vale CCG

……..

Signature

……

Title

SIGNED by Aylesbury Vale CCG for and on behalf of the Other Commissioners

[this signature clause would not be included the first time this Agreement is used (as there would be no "Other Commissioners" at that time) but would be included every time this Agreement is subsequently used]

……..

Signature

……

Title

SIGNED for and on behalf of [insert Incoming CCG]

[AND REPEAT THIS SIGNATURE BOX FOR EACH INCOMING CCG]

……..

Signature

……

Title

SIGNED for and on behalf of South Central Ambulance Service NHS Foundation Trust

……..

Signature

……

Title

Annex D

NHS 111 National Contingency Call Capacity high level summary (inc. 0845)

Time Period	Estimated National NHS 111 Winter Contingency Capacity Available [Live from 27 Nov 2013]	0845 Commissioned Capacity	0845 Commissioned capacity less forecast demand
W/C 11 Nov 2013	0	10,000	6,215
W/C 18 Nov 2013	0	10,000	6,215
W/C 25 Nov 2013	7,345	5800	311
W/C 2 Dec 2013	10,977	5800	370
W/C 9 Dec 2013	12,663	5800	446
W/C 16 Dec 2013	13,078	5800	496
W/C 23 Dec 2013	11,377	5800	609
W/C 30 Dec 2013	11,537	5800	631
W/C 6 Jan 2014	13,292	5800	613
W/C 13 Jan 2014	12,522	5800	640
W/C 20 Jan 2014	12,112	5800	1,606
W/C 27 Jan 2014	TBC	5800	1,606
Feb-13	TBC	23,200	8,086

Annex E- Please see separate file enclosed

NHS 111 Systems Outage Resolution Overview

NHS 111 Programme
Version 1.3
November 2013