



## **Achieving Excellence in Mental Health Crisis Care Adult Mental Health Acute Inpatient Services Review**

### **Briefing Paper for the Kent and Medway Joint Health and Overview and Scrutiny Committees – 30th July 2013**

#### **Introduction**

This briefing paper has been prepared for the Kent and Medway Joint Health and Overview and Scrutiny Committee (JHOSC) meeting on 30<sup>th</sup> July 2013.

It summarises:

- The background to the review
- The proposals, consultation process, and subsequent review by the JHOSC
- Progress on actions agreed at March 2013 NHS Kent and Medway Primary Care Trusts (PCT) Cluster Board
- Impact of the Keogh review into quality of care and treatment provided by 14 hospital Trusts in England
- Next Steps

#### **Background**

Since 2011 NHS Kent and Medway PCTs and subsequently the eight Clinical Commissioning Groups (CCGs) have been reviewing acute mental health care in collaboration with Kent and Medway NHS and Social Care Partnership Trust (KMPT).

In Spring 2012 proposals were developed with the help of clinicians, service users, carers and stakeholders which focused on developing a new model to address:–

- The increasing need to enhance staffing and improve the service delivered by Crisis Resolution and Home Treatment teams following the success of this community-based alternative to hospital admission.
- Very different levels of psychiatric intensive care support between the East and the West of the area.
- Inequitable distribution of hospital beds for Kent and Medway people who are acutely mentally ill and the imbalance in capacity across the area.
- Long standing concerns about the poor quality therapeutic environment at Medway's A Block, including inadequate privacy and dignity on offer and therefore the sustainability of clinical safety. – This is brought into sharper focus by the Keogh review into the quality of care and treatment provided by 14 hospital trusts in England which has given an increased focus on delivering

services that are clinically effective, safe, and give a positive patient experience.

## **Proposals, consultation process, and subsequent review by the JHOSC**

The proposal is for:

- An increase in Crisis Resolution and Home Treatment teams' staffing to enhance the primary alternative to admission for appropriate patients and facilitate a timely discharge by offering more intensive support.
- A reconfiguration of acute beds to provide centres of excellence in Dartford, Maidstone, and Canterbury for individuals requiring admissions. These will enable medical cover and expertise to be focused - driving up quality of service, care, and patient experience.
- A consolidation of psychiatric intensive care beds in Dartford and establishment of a psychiatric intensive care outreach service in East Kent.

A reconfiguration of acute beds to provide centres of excellence in Dartford, Maidstone, and Canterbury for individuals requiring admissions. These will enable medical cover and expertise to be focused - driving up quality of service, care, and patient experience. Consideration was given to a range of options for the locations of centres of excellence, including the potential for a centre in Medway. However, it was not possible to identify an affordable or feasible option in Medway.

The National Clinical Advisory Team examined the clinical case for change. Their assessment concluded that proposals and direction of travel were clinically sound and should deliver reduced need for admissions and duration of inpatient stays.

Proposals were submitted to the Kent and Medway PCT Cluster in June 2012.

In July 2012, the PCT Cluster Board and the Joint Health Overview and Scrutiny Committee agreed to conduct a public consultation. The consultation ran between 26 July 2012 and 26 October 2012. The consultation responses and process were assessed by the University of Greenwich and the University's findings were reported to the Joint Health and Overview Committee meeting in February 2013.

Overall responses to the consultation were:

- Support for the need to improve services, including a recognition that Medway A Block is not fit-for-purpose.
- Support for enhancing Crisis Resolution and Home Treatment teams' staffing and psychiatric intensive care outreach.
- Concern that the number of acute beds proposed was not sufficient to meet demand.
- Concern about Medway residents needing a bed having to travel to Dartford.

The Kent and Medway Cluster PCT Cluster Board met in March 2013, reviewed the results of consultation, endorsed the model of care and supported the implementation of Option A subject to undertaking the following work:

- A bed sensitivity analysis to test the proposed bed numbers
- Completion of a travel plan covering gaps in transport provision
- Quality impact assessments to be undertaken
- Enhancement of Crisis Resolution and Home Treatment teams' staffing and psychiatric intensive care outreach in advance of any change to beds.

The JHOSC met in February 2013 and March 2013 to consider the proposals and raised questions, in particular about the effects of the proposals on Medway people.

### **Progress on actions agreed at March 2013 NHS Kent and Medway Primary Care Trusts (PCT) Cluster Board**

#### Bed Sensitivity Analysis

The Public Health Directorate in Medway Council was commissioned to:

- Review the original calculations of bed numbers
- Develop a more needs based approach to estimating the number of beds needed taking account of the relationship between local and out of area beds, and the impact of the requirement for beds as a result of the proposed improvements to out of hospital services.

The results of the review of the original calculation is that the original figure of 150 acute beds being sufficient for Kent and Medway is no longer supported by the data. The calculation of beds needed, using correct, up to date data is 174.

Development of a more needs based approach is almost complete.

Attachment 1 is the latest draft paper setting out in detail the results of this analysis. A final version will be available by the end of July 2013 and will be circulated to JHOSC members.

KMPT, in partnership with Commissioners, have reviewed the original model and the particular needs of Medway. This review has considered:

- The longstanding need for the development of supported living and recovery house models to support patients requiring short term enhanced support during a crisis.
- The high number of people with a personality disorder within Medway who are recognised to not do well in an acute setting but who in a crisis need immediate intensive support tailored to their need.

In light of this further review in line the clinical strategy and acknowledging the specific needs of the population of Medway, KMPT proposes the following:

- Developing 8-10 intermediate care beds and a day care intensive treatment service for patients with Personality Disorder (through capital investment).
- Establishing a recovery house model in partnership with a third sector provider where 8-12 people would be able to be supported in supervised accommodation with intervention/input from mental health professionals.
- Developing 12 extra acute beds within Maidstone as added capacity in addition to the proposed additional beds at Dartford.
- Changing the function of and extending Dudley Venables House to allow the provision of an additional 8-10 acute beds in Canterbury.

These resources will provide local and immediate support to patients who cannot be safely looked after at home in addition to (and working with) the original proposals of intensive home treatment which would significantly reduce the number of people requiring acute admission, and support more timely discharge.

### Travel Plan

A travel plan has been developed and is being implemented. This is included as attachment 2.

### Quality Impact assessments

Quality impact assessments have been developed for the proposed changes and for maintaining the existing arrangements. These are included as attachment 3.

### Development of Crisis Resolution and Home Treatment teams and psychiatric intensive care outreach

Agreement has been reached with the CCGs and with NHS England for KMPT to commence further investment in Crisis Resolution and Home Treatment teams and psychiatric intensive care outreach ahead of any changes to acute beds configuration and additional funding will be provided to fund any double running costs incurred.

### **Impact of the Keogh review into the quality of care and treatment provided by 14 hospital trusts in England**

Overall the Keogh review has strengthened the pressure for the NHS to take rapid action to improve clinical safety, effectiveness and patient experience in areas where there are concerns.

Medway NHS Foundation Trust was one of the 14 hospitals reviewed by Sir Bruce Keogh and is one of the 11 hospitals put into special measure as a result of the review. The recovery plan agreed by the review team and the trust requires the trust to make significant changes to the layout of its services in order to improve clinical safety, effectiveness and patient experience. To achieve this the trust requires KMPT to vacate the site so that the space currently occupied by them in A Block can be used to improve the quality of acute care.

Whilst this does not change the direction of travel for these services it imposes the need to make rapid progress.

KMPT have undertaken contingency planning to establish how soon they could vacate the site which indicates that this work could take 45 weeks to achieve. This means that they will continue to be providing services in A Block through next winter which presents a continuing significant risk to the clinical safety, effectiveness and patient experience of acute services provided at Medway hospital.

## **Next Steps**

The work that has been undertaken since March 2013, as described in this paper, will be taken to CCGs for consideration in the next month . It is proposed to make the following recommendations for CCGs to approve.

- KMPT commence enhancement of Crisis Resolution and Home Treatment teams and psychiatric intensive care outreach to provide increased and improved alternatives to admission for appropriate patients and facilitating timely discharge.
- KMPT commences implementation of the changes to acute beds in Kent (Canterbury and Maidstone) to improve the levels of care provided, especially in the East of the area.
- In the light of the requirement to vacate A Block (enabling Medway hospital to improve acute services), KMPT commences rapid development of alternative provision for acute beds at Dartford, Maidstone and Canterbury, based on a total current Kent and Medway-wide possible requirement for 174 beds.
- CCGs working with local authorities and KMPT commence work to develop detailed implementation plans for local, multi agency urgent care mental health pathways.

## **Adult Mental Health Review – Position Paper for the Kent and Medway Joint Health and Overview and Scrutiny Committees**

### **Analytical review and sensitivity analysis of bed number estimates**

**This report is set out in 4 parts**

1. Introduction and Context
2. Sensitivity analysis: review of bed number estimates and updated numbers
3. Project plan for future work
4. Re-modelling of bed numbers; approach used and initial progress report

#### **1. Introduction**

The Adult Mental Health Review was submitted to the June 2012 Kent & Medway Cluster PCT board proposing a reconfiguration of inpatient mental health services. The review argued that a reconfiguration of acute bed capacity was necessary in order to address undersupply in East Kent, close facilities which are not fit for purpose and expand the Psychiatric Intensive Care (PIC) Outreach service to cover the whole of Kent and Medway in order to concentrate services in three centres of excellence.

This has generated a number of questions both internally and externally, some of which were to do with the methodology for estimating bed numbers and the data produced for this. This report deals only with this methodology and the data issues. The quality arguments for change are not the subject of this report.

In order to ensure that we can be confident in our analysis, we have reviewed both the methodology used and tried to make any methodological issues and uncertainties explicit.

We have re-run the analysis completely from raw data to identify any issues in the original implementation of this approach and updated it to reflect more recent data to see if this affects the proposed changes.

The first concern of all involved in this process is patient safety and welfare and we therefore consider it healthy to question ourselves and listen to concerns continually in order to make sure that any actions we take are based on robust evidence.

#### **2. Estimating the number of beds needed**

The argument for the number of beds needed is based on three elements:

- 1) Average bed use over the year 2011/12 with adjustments (see below for details)
- 2) A decreasing trend in bed use over the previous four years to provide confidence that the proposed reduction in the number of beds is conservative
- 3) A reduction in the number of beds needed as a result of expansion of Crisis Resolution Home Treatment and improvements in community mental health services.

These three elements are considered in turn below.

### Element 1: The number of beds needed

Most of the description of the method used to calculate the number of beds needed is covered in Appendix C of the Review (page 35). The method is described in a narrative form and can be summarised as consisting of the following components:

- The average daily bed use in 2011/12;
- The average number of PICU beds used in 2011/12 by patients who should be in an acute ward;
- An allowance for within-year variation;
- The average net use of out of area beds in 2011/12, i.e. the average of the number of out of area beds used by KMPT patients minus the number of KMPT beds used by patients from other areas.

The values for these four components were calculated in the Review as follows:

**144** average daily bed use (shown in Appendix B) plus  
**7** PICU beds, on average, currently used for acute patients plus  
**7** for within-year variation plus  
**2** average net daily use of out of area beds

i.e.  $144 + 7 + 7 + 2 = 160$

Then on page 20 the Review states that “*addressing [...] the continued high use of non-same-day ward leave, alongside many other factors that affect demand, should result in an average of at least 10 more available beds across KMPT.*”

Therefore the complete formula for calculating the number of beds needed is:

$144 + 7 + 7 + 2 - 10 = \mathbf{150 \text{ beds needed}}$

Re-examination of the data used to produce Appendix B in the Review has now shown that there was an error in the analysis that particularly affects the year 2011/12. Correcting that error shows that the average bed use in 2011/12 was actually 168 (not 144). Using the same logic for the calculation of the number of beds with this revised average use in 2011/12, the number of beds needed is:

$168 + 7 + 7 + 2 - 10 = \mathbf{174 \text{ beds needed}}$

### Element 2: Linear trend shows that a reduction to 150 beds is conservative

The Review uses the linear trend to demonstrate that the reduction to 150 beds in the redesign is conservative. This happens in several places:

- The review states that over the last four years there has been a reduction in demand (pages 4 and 9). For clarity it should be noted that the data are in fact for bed *use*, not *demand*.
- The Review states that rather than following this decline the reduction to 150 beds is conservative (pages 10, 20 and 34) because the linear trend shows that over two years 32 beds could be removed (pages 10 and 20)

- There are three more references to the trend supporting the reduction in Appendix C (page 34)

The linear trend raises two issues: 1) is it appropriate to use a linear trend and project is further into the future?; and 2) has the trend been calculated correctly?

How valid is the linear trend modelling as a basis for reducing bed numbers?

- 1) We have looked at this again and feel we have identified significant concerns that the linear trend modelling approach used to estimate the number of beds that will be required in the next two years is not sufficiently robust as a basis for a decision on bed reduction.

The approach taken in the Review uses a linear trend to project forwards for two years. We do need to make clear that there is considerable uncertainty around the use of such a trend line and that this should be made more explicit. There are four main reasons for this.

- i. It is unlikely in the real world that change of this nature will continue in a straight line for even two years.
- ii. It is also likely that there will be still be a number of people whose mental illness will need inpatient treatment even as community services are increased so at some point the trend may level off. We need to be aware of this and so be constantly checking with real time data what is happening rather than putting much reliance on forecasts which are subject to uncertainty.
- iii. Bed usage and bed closures have a complex relationship but it is clear to a significant extent bed usage figures are influenced by bed closures. Consequently there can be a circular argument in that when you close beds demand appears to go down rather than this being driven by a reduction in underlying need. This is explored more fully in Appendix 2 but again gives a reason why we need to be cautious about bed use as the main basis for predicting future need.
- iv. Even if the linear trend method is used, how accurate are the numbers and estimates and what level of uncertainty do we need to recognise?

On completely re-analysing the raw data, some previous analytical errors have been identified which mean that the rate of decrease in the number of beds assumed in the Review may have been considerably over-estimated. As noted above (Element 1), this has a small effect on 2008/9 to 2010/11, however the figures for 2011/12 show a larger difference (168 as opposed to 144).

This has an impact on any projections made. See Table 1 for the differences in numbers and Figure 1 for the effect this has on predictions.



**Table 1: Average daily bed use on adult mental health acute wards in Kent & Medway by financial years**

Financial year	Average daily bed use	
	Original (Mental Health Review)	Recalculated (this report)
2006/07	-	207
2007/08	-	192
2008/09	207	210
2009/10	196	200
2010/11	184	188
2011/12	144	168

*Source: Excerpt from Appendix B, Adult Mental Health Review and NHS Medway Public Health Intelligence Team*

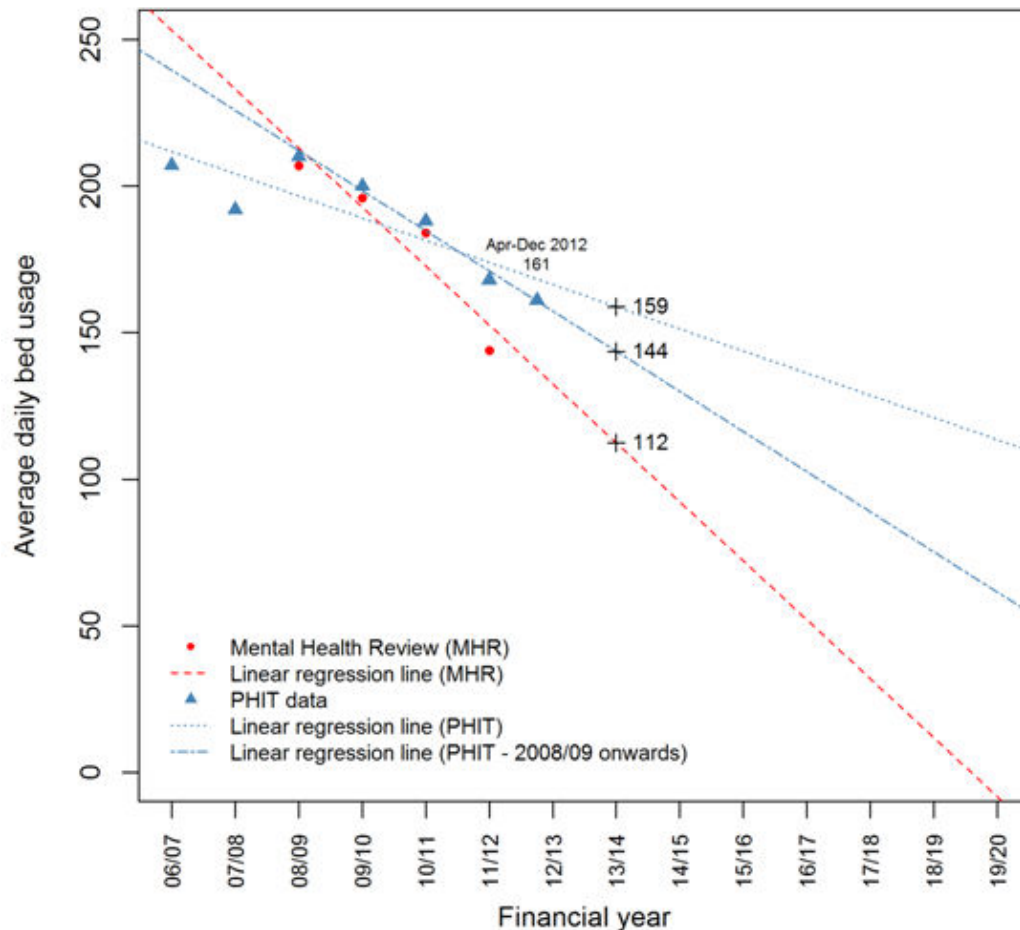
We conducted a sensitivity analysis using the six years data available for Community-based Crisis Resolution and Home Treatment episodes and bed usage in addition to the four years data that was used in the Review. There have been concerns raised that using six years data was more appropriate and we recognised that carrying out a sensitivity analysis using six years would give us greater assurance as to the robustness of our numbers. We have also obtained more data, covering the period April to December 2012.

Using six years of data, ensuring that all the data for 2011/12 are included and adding the new data from April to December 2012 the linear trend shows that rather than falling to 112 beds in 2013/14 as shown in Appendix B in the Review (red line in Figure 1), bed use would fall much more slowly, reaching 159 beds in 2013/14.

Using the complete data for 2011/12 and the new data for April to December 2012 and taking the trend from 2008/09 as per the Review, the projection to 2013/14 is (coincidentally) 144 bed, 32 higher than 112 show in the Review. Note that this is a linear projection and this number may not be reached.

The Review did not use such a projection to estimate the number of beds needed, it used the projection to show that the reduction was conservative.

**Figure 1: Average bed use on acute ward in Kent & Medway by financial year with linear regression lines**



Source: Excerpt from Appendix B, Adult Mental Health Review and NHS Medway Public Health Intelligence Team

Looking more widely, we are aware that we have no reason and no evidence to lead us to believe that mental health need in the population is decreasing. This again reinforces that the primary rationale for decision making on the reduction of bed numbers needs to be based on clarity that the proposed service changes will sufficiently meet the presenting needs for acute care, rather than on this trend analysis. Further consideration also needs to be given to whether underlying need may be captured more accurately.

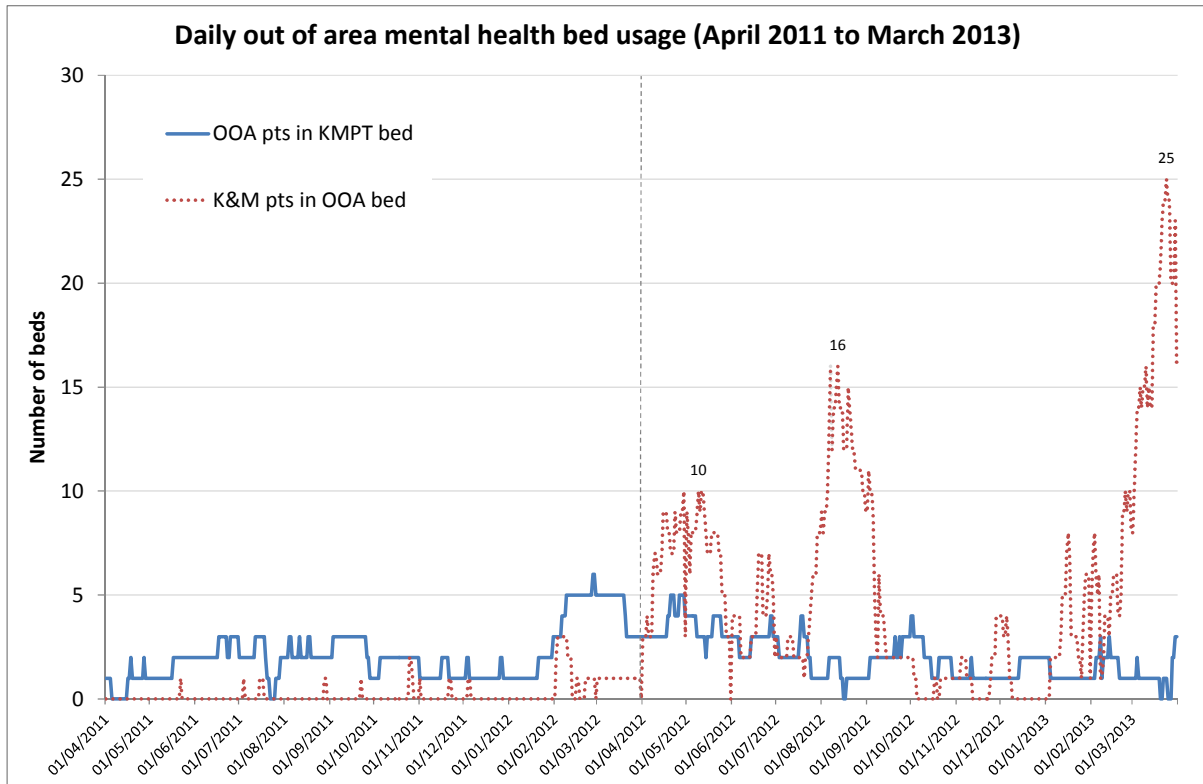
### **Element 3: Reduction in bed use as a result of reduced demand**

Page 20 of the Review states that “addressing [...] the continued high use of non-same-day ward leave, alongside many other factors that affect demand, should result in an average of at least 10 more available beds across KMPT.”

This reduction bed use is used in Element 1, however, we feel that more work needs to be done to make explicit how these changes will lead to proposed bed reduction.

#### Element 4: Increase in out of hours area bed usage

In addition we have done some more work looking at out of area bed usage which is shown below. This also indicates the need to review our previous estimates.



Source: Kent & Medway Social Care Partnership Trust (KMPT)  
Analysed by: Medway Public Health Intelligence team (PHIT)

The data presented here is total ward stays and does not reflect any periods of ward leave. It has been assumed that ward stays relating to Kent and Medway patients being placed in an out of area bed, does not include any kind of ward leave.

Please note: KMPT provided the following explanation for the three peaks observed in 2012/13:

- *May 2012 - There was a reduction of 3 beds due to the decant of Anselm Ward to enable work of new wards at Canterbury, this remained in place until November.*
- *August 2012 – There was a dramatic increase in demand for Acute care, this was also experienced elsewhere in the country (as there was difficulty in finding beds with Private Providers).*
- *March 2013 – Emerald ward was reduced by 2 beds due to maintaining a safe environment. 1 bed remains temporary out of use at Canterbury due to a fire in January. Net effect of 3 beds removed following changes to Woodchurch ward.*

For the most recent financial year (April 2012 to March 2013) there were 741 more bed days involving a Kent & Medway patient using an out of area bed compared to out of area patients using a KMPT bed. The average daily figures are 4.5 and 2.5 respectively (table 1).

**Table 1: Summary of bed use statistics**

	OOA pts in KMPT bed	K&M pts in OOA bed
Total bed usage (2012/13)	921	1,266
Mean bed usage (2012/13)	2.0	5.5
Daily max (2012/13)	5	25

### **Conclusions from sensitivity analysis**

Having checked the data and assumptions again, the basis for 150 acute beds being sufficient for Kent and Medway is no longer supported by the data. The calculation of beds needed, using the approach in Appendix C of the Review, now works out at 174, and the linear trend that was used to provide confidence that a reduction to 150 was conservative no longer provides such assurance. The reduction in the number of beds needed through improvements has not been quantified sufficiently and assumptions need to be made more explicit.

The numerical estimates therefore do not now give us sufficient assurance on bed reductions in order to use them confidently to inform decision making therefore further work needs to be undertaken.

### **3. Project planning for the future**

Following the work undertaken above a project plan has now been developed to take this work forward which is attached as Appendix 3.

### **4. Approach and progress to date on modelling estimated numbers needed**

#### Introduction

The ideal way to estimate the number of beds needed (i.e. demand) is to have a means of estimating the number of people in the population who have acute mental health problems that require admission, and the frequency and duration of those admissions. As far as we are aware there is no recent robust tool for generating such estimates based on current practices of care. We must therefore use proxy estimates of need that are based on previous bed use as indicated above and in the original Review. Bed use is driven to some extent by bed availability and this is therefore hard to interpret when wards are being closed. During the year 2012/13 no wards were closed which means that the 2012/13 year provides a more stable set of data with which to model the estimated number of beds needed.

#### Approach

The approach taken here is in two parts. The first is to demonstrate how often a given number of beds would provide enough beds on each day of the year, and from this to work out how often, and how many, out of area (usually private provider) beds would be needed. As there is variation in bed use (both seasonal and random) a

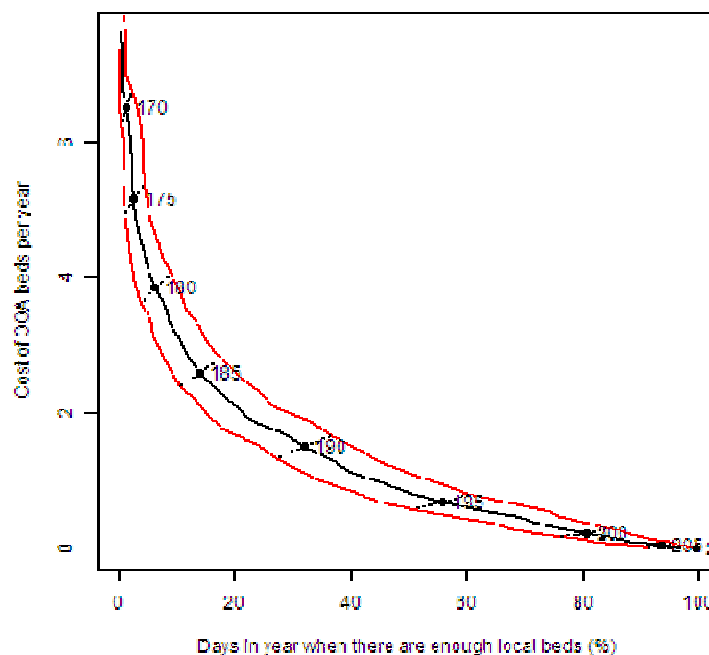
technique known as boot-strapping<sup>1</sup> is used to provide ranges around the most likely values. Using estimates of the average cost of an out of area bed it will be possible to show on one plot for a given number of beds what percentage of days in the year there will be enough beds, and what the expected cost of out of area beds will be.

The second part of the approach is to model the proposed changes to see what effect these are likely to have on the expected bed use. These will be modelled using estimates of the most likely effect of the changes, with ranges around those estimates demonstrating explicitly that we cannot be certain of the exact effect size.

### Results so far

The approach involves developing analytical code that is run many times. The code is almost ready and the figures below illustrate the types of output that will be produced. **Please note that these are for illustrative purposes only and that these numbers should not be used.**

**Figure 1 Example of the type of curve that will result from the analysis**

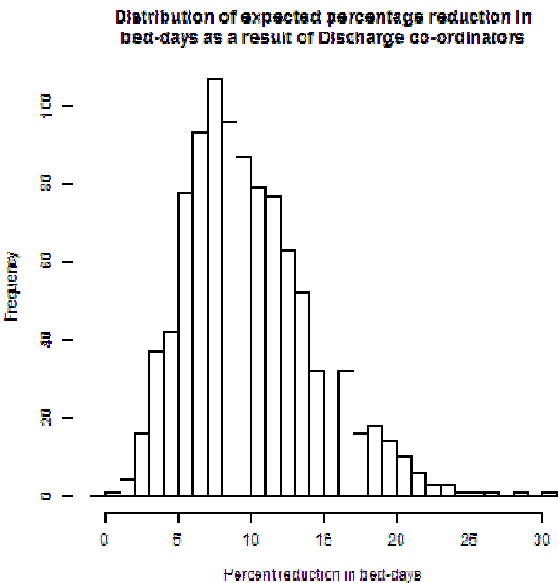


Part 1 of the model: In Figure 1 the number of beds is indicated on the curve line itself, the x-axis shows the percentage of days in the year when there will be enough local beds (assuming no change in need and no change in length of stay as a result of improvements). The y-axis shows the cost of out of area beds (currently this has no units as this is for illustrative purposes only). The red lines show the 95% confidence intervals, and the dashed lines show the confidence intervals for a given number of beds.

<sup>1</sup> Boot-strapping is a statistical technique that involves repeatedly sampling from the data to show which values are very likely to happen and which are much less likely. The approach creates 95% intervals around the estimate. For example, it might say that when there are 165 beds there will be enough beds for 75% of the days in the year, with a confidence interval of 71% to 77%. This means that it will most likely be 75% and we are pretty sure that most of the time it will not be lower than 71% or higher than 77%.

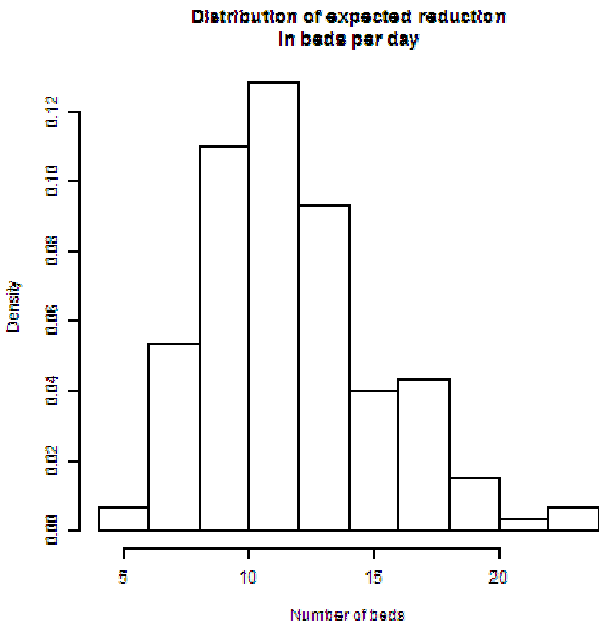
Part 2 of the model: Modelling of the improvements, i.e. reduction in length of stay as a result of STR workers and discharge co-ordinators, is also underway. An example of how the expected effects of the improvements in care will be considered is shown in Figure 2. In this example the discharge co-ordinators are expected to reduce the length of stay by 10%, with a range of 5% to 20%. This information is used to create a distribution of the effect, as shown in Figure 2. This distribution is used in the model so that sometimes the effect may be 10%, other times 5%, others 15%, etc., with 10% being more common than 20%.

**Figure 2 Example of the distribution of expected reduction in bed-days assuming a 10% reduction with a range of 5% to 20%**



A similar approach is used for the other service improvements and these are combined to calculate a distribution of the overall reduction in length of stay and occupied bed days. This will be shown as a distribution, as shown in Figure 3.

**Figure 3 Example of the distribution of expected reduction in beds per day as a result of all of the service changes**



How will this information be used?

Once all of the changes have been modelled and the code run several thousand times, the resulting figures will show how often commissioners can expect there to be enough beds for a given number of beds, and the likely cost implications of out of area beds when there are not enough local beds. It will also show the likely effect of the planned improvements. These will be shown as ranges, e.g. with 170 beds there will be enough local beds for 70% of days (range 65% to 75%), it will cost £XX (range £YY to £ZZ) in out of area beds and the changes are likely to reduce the use of beds by 10 beds per day (range 5 to 20).<sup>2</sup>

Combining this information it will be possible to create a table similar to the one shown below. In this table it is assumed that we want to have enough in-area beds for 70% of the days in the year, and that the ranges around bed use and effect of service improvements are as described above. The shaded area shows the number of beds needed minus the reduction as a result of service improvements, with the most likely scenario being 165 beds.

Table 1: Example showing the number of beds needed to cover 70% of days after the effect of service improvements (for illustrative purposes only, please do not use these estimates)

		<b>Service improvements (reduction in bed use per day)</b>		
		Worst case scenario	Most likely scenario	Best case scenario
<b>Enough local beds for 70% of days</b>		5	10	20
Worst case scenario	176	<b>171</b>	166	156
Most likely scenario	175	170	<b>165</b>	155
Best case scenario	174	169	164	<b>154</b>

<sup>2</sup> These ranges will be 95% confidence intervals

**Appendix 1: Methods used for re-calculating the bed numbers Methods**

Analysis was based on the same raw ward stay data files used to produce the mental health review. Prior to work starting, clarification on the search criteria applied to the patient administration system (PAS) was sought from the analyst at Kent and Medway Social Care and Partnership Trust (KMPT) who supplied the original data. Clarification was also sought regarding the history of modifications to the extracted data from the data analyst in the PCT Cluster, who produced the tables and figures in the review, to enable the outputs in the June 2012 document to be recreated independently.

The raw data contains rows of separate ward stays with multiple variables including a start and end date covering the period from 01/04/2006 to 31/03/2012. Multiple ward stays can make up a 'spell' of treatment if the patient is transferred from one ward to another and each patient can have multiple spells. Other key variables are the Ward name, Ward type (Acute Ward, Acute Older People Mental Health, Psychiatric Intensive Care Unit), Postcode and Age at start of stay.

The data was submitted by KMPT in two batches. The first file contained 19,084 rows and included ward stays during the period 01/04/2006 to 09/02/2012. The second file contained 956 rows and included ward stays during the period 01/01/2012 and 31/03/2012. The datasets were combined and 440 duplicates were removed (retaining the most recent version) which left 19,600 rows of data for further analysis.

First, the data were examined for completeness. Plots of bed occupancy by day, month, quarter and financial year were produced for each ward over the six year period using the R statistical programming language<sup>3</sup>. Re-naming of wards, closures and reclassifications from one type to another were identified. The wards were mapped to the six Mental Health Units (MHUs) in order to take account of possible transfer of patients between wards within the same site and the same analysis was repeated. The plots were annotated with details of changes to the wards in each MHU.

The numbers of younger adults (aged under 65) placed on Older People's Mental Health wards was examined as well as the age profile of patients placed on acute wards. To check data quality, the age distribution of new spells on an acute ward was examined.

Lastly, the number of new spells and average length of stay on acute wards was calculated for each MHU.

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<sup>3</sup> R Core Team (2012). R: A language and environment for statistical computing. R Foundation for statistical Computing, Vienna, Austria. ISBN 3-900051-07-0, URL <http://www.R-project.org/>.

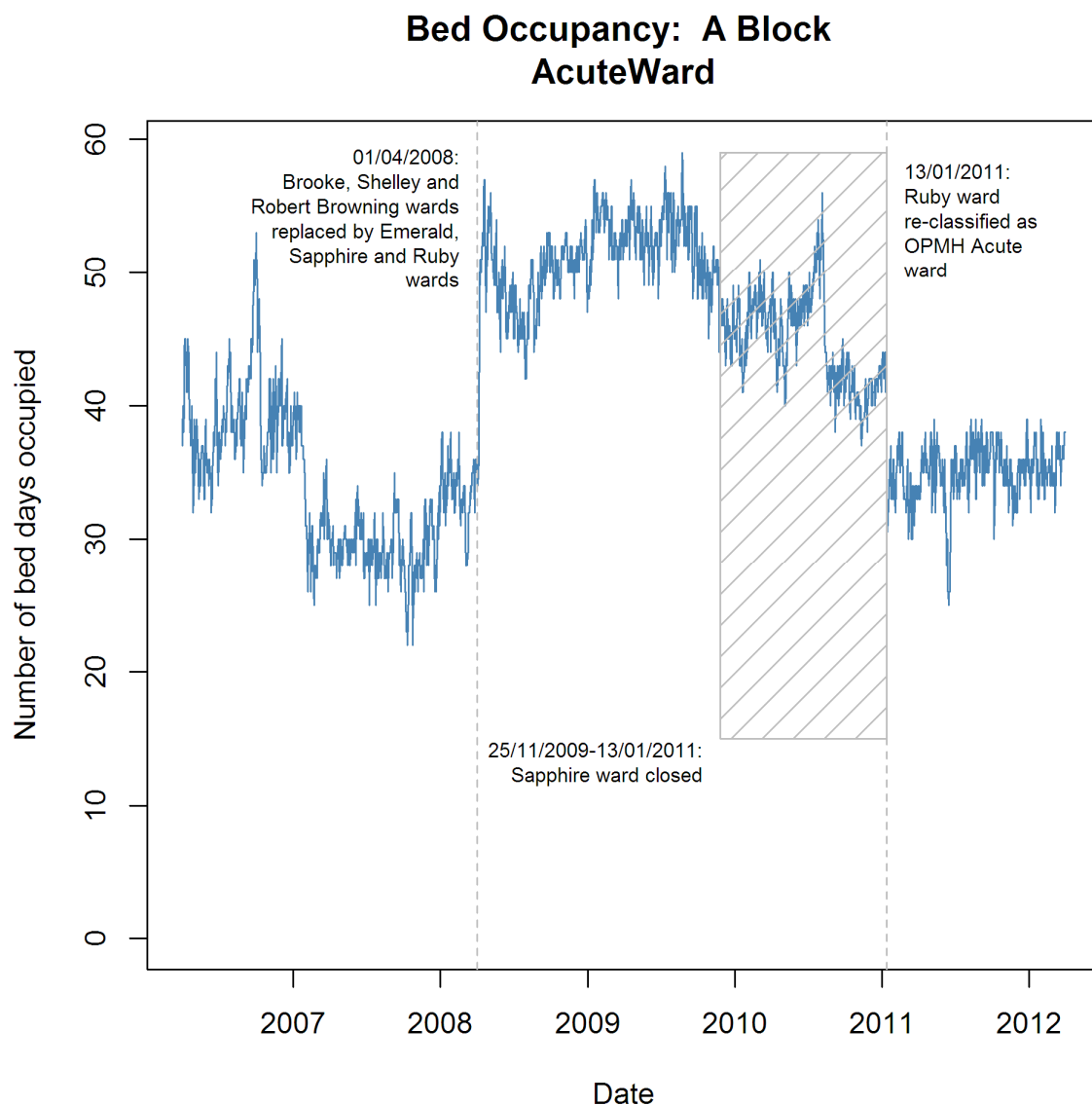


## Appendix 2: Bed usage and bed closures

Figures 2-7 show the daily bed occupancy trends for the six mental health units across Kent and Medway which at some point included wards classified as 'acute' for younger adults. They have been annotated with details of when wards have been opened, closed or re-classified. Figure 8 shows all the known changes annotated on one plot. These show the links between bed closures and bed usage.

In the case of A Block at Medway Hospital, Arundel Unit at William Harvey Hospital, St Martin's Hospital in Canterbury and Thanet Mental Health Unit, it is clear that daily bed occupancy suddenly changes corresponding to changes to the wards.

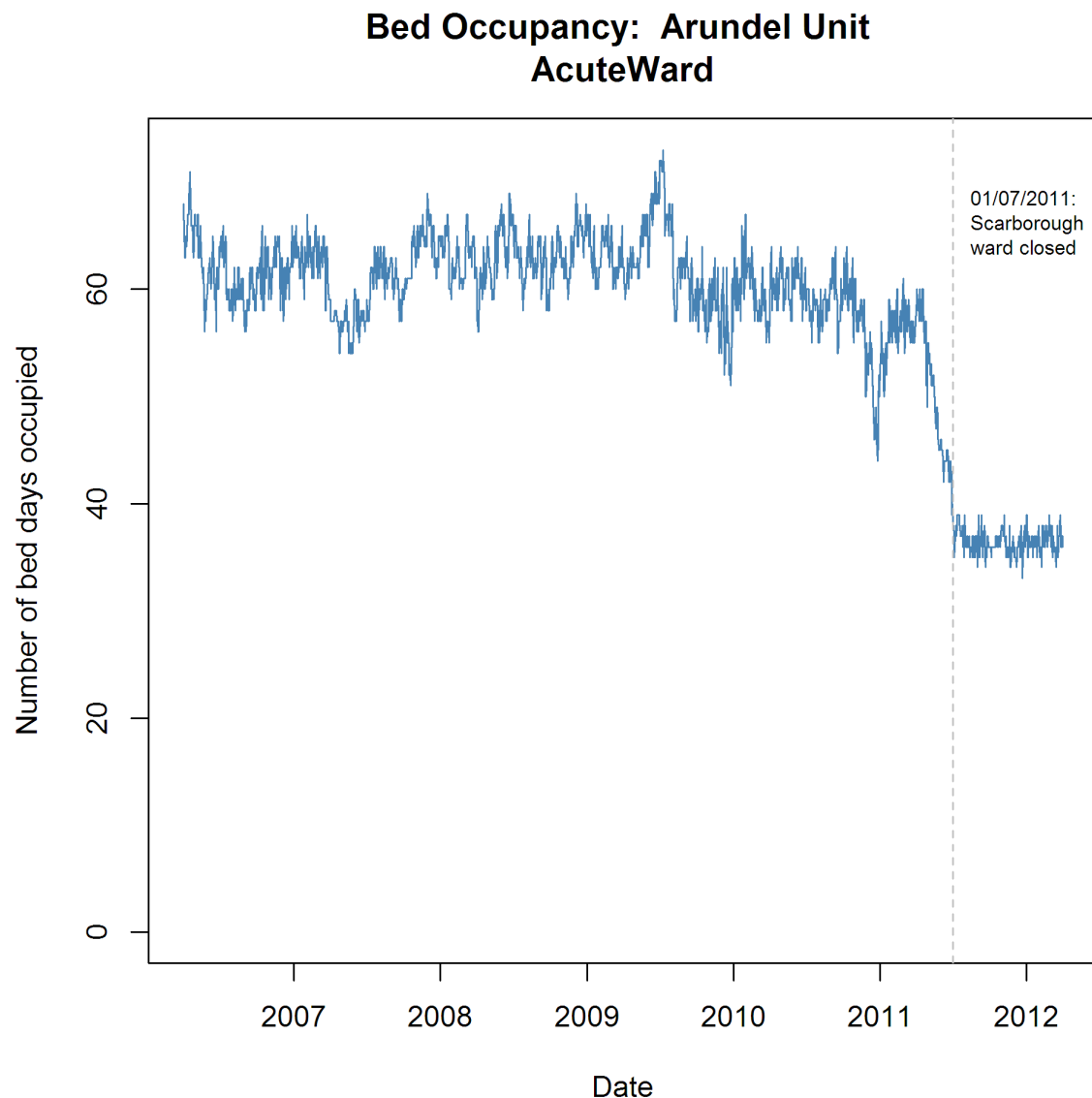
**Figure 2: Daily bed occupancy on an acute ward at A Block (Medway Hospital)**



Source: Raw ward stay data (KMPT), analysed by NHS Medway Public Health Intelligence Team

At A Block, bed occupancy rose sharply in April 2008 but this could be due to an increase in bed capacity not known at the time of writing this report. Sapphire ward was closed between 25<sup>th</sup> November 2009 and 13<sup>th</sup> January 2011 (indicated by the shaded box). It is evident that Bed occupancy was level or increasing when Sapphire ward was in use.

**Figure 3: Daily bed occupancy on an acute ward at Arundel Unit (William Harvey Hospital)**

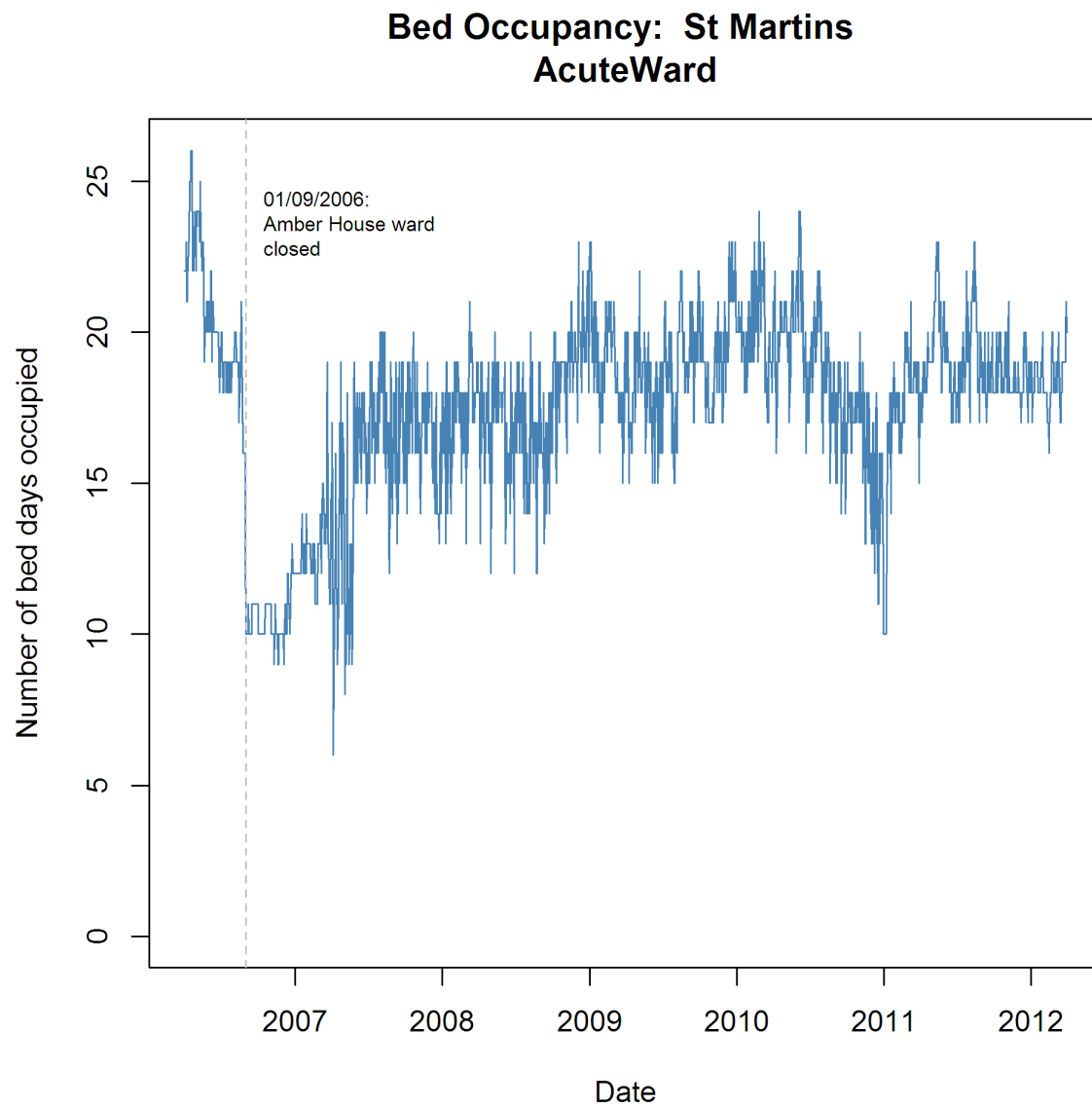


Source: Raw ward stay data (KMPT), analysed by NHS Medway Public Health Intelligence Team

At the Arundel Unit (Figure 3), Edgehill and Newington wards have subsequently been moved to St Martin's with effect from 01 November 2012.

Prior to Scarborough ward being closed there is evidence of a slight reduction in bed occupancy.

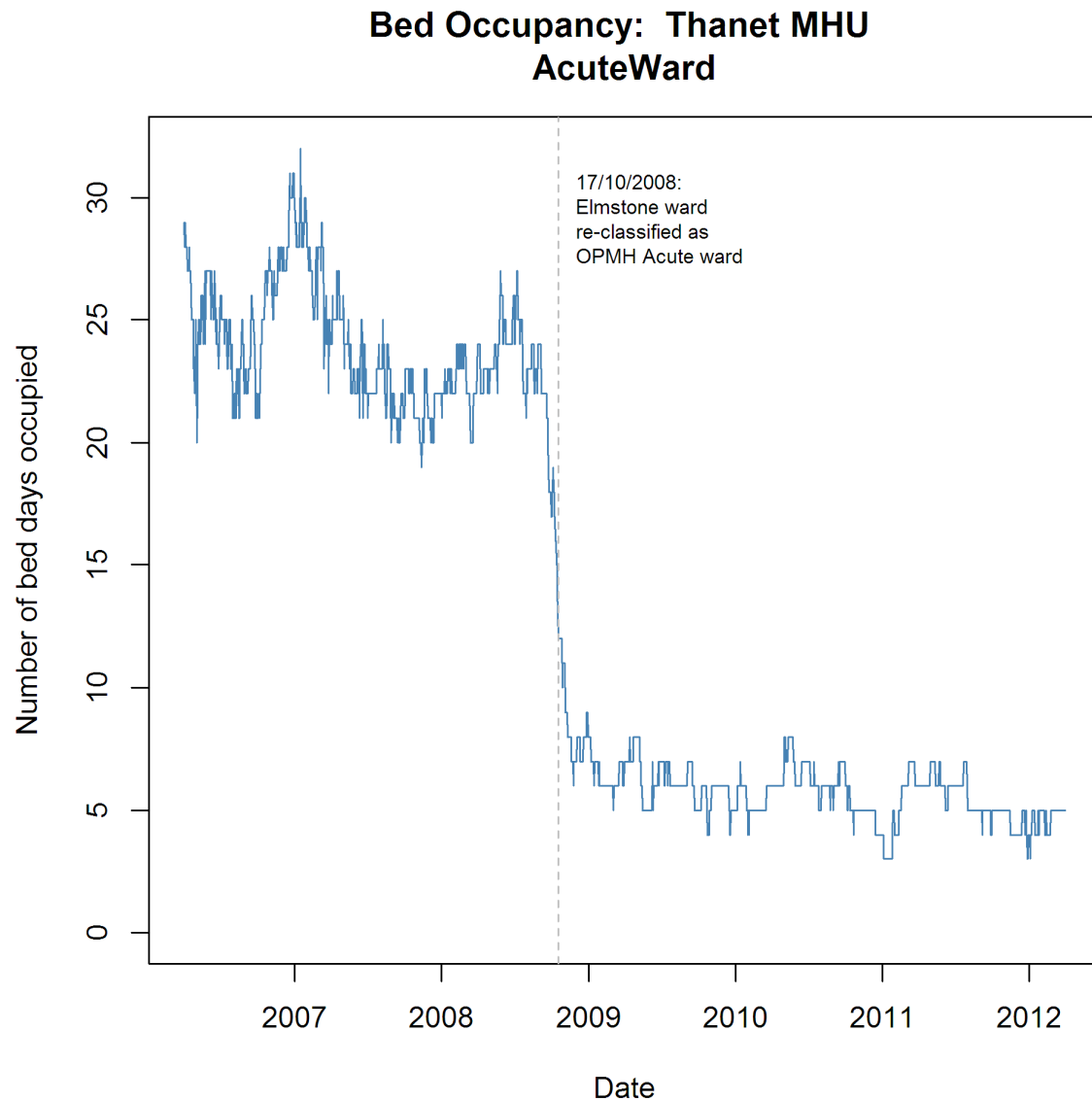
**Figure 4: Daily bed occupancy on an acute ward at St Martins Mental Health Unit (Canterbury)**



Source: Raw ward stay data (KMPT), analysed by NHS Medway Public Health Intelligence Team

At St Martin's Hospital, bed occupancy has remained level over recent years with the exception of a brief dip in late 2011 (reason unknown).

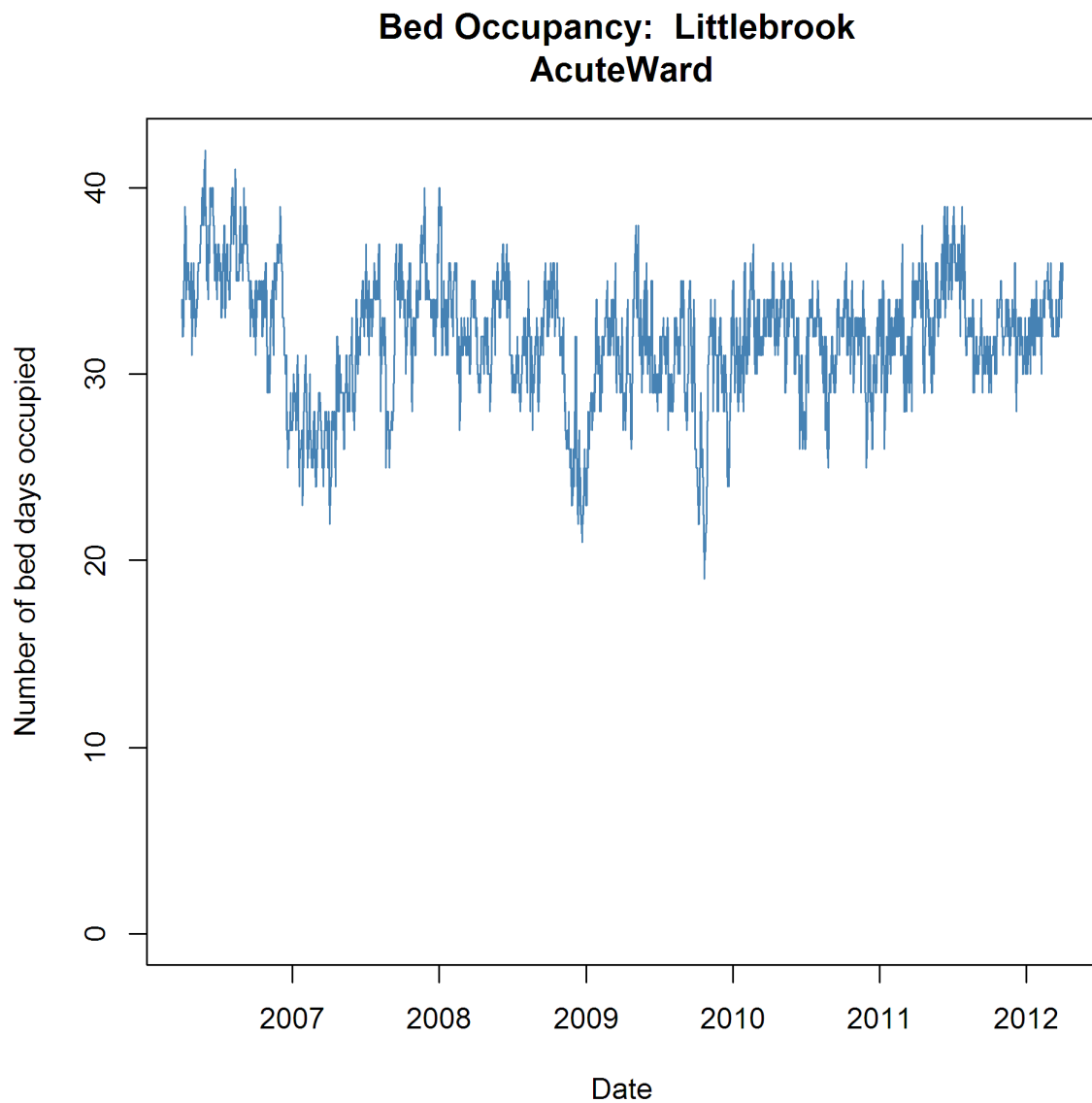
Figure 5: Daily bed occupancy on an acute ward at Thanet Mental Health Unit



Source: Raw ward stay data (KMPT), analysed by NHS Medway Public Health Intelligence Team

The Mental Health Review refers to five beds on an Older People's Mental Health ward at Thanet Mental Health Unit being used for younger adults. This is evident in Figure 5.

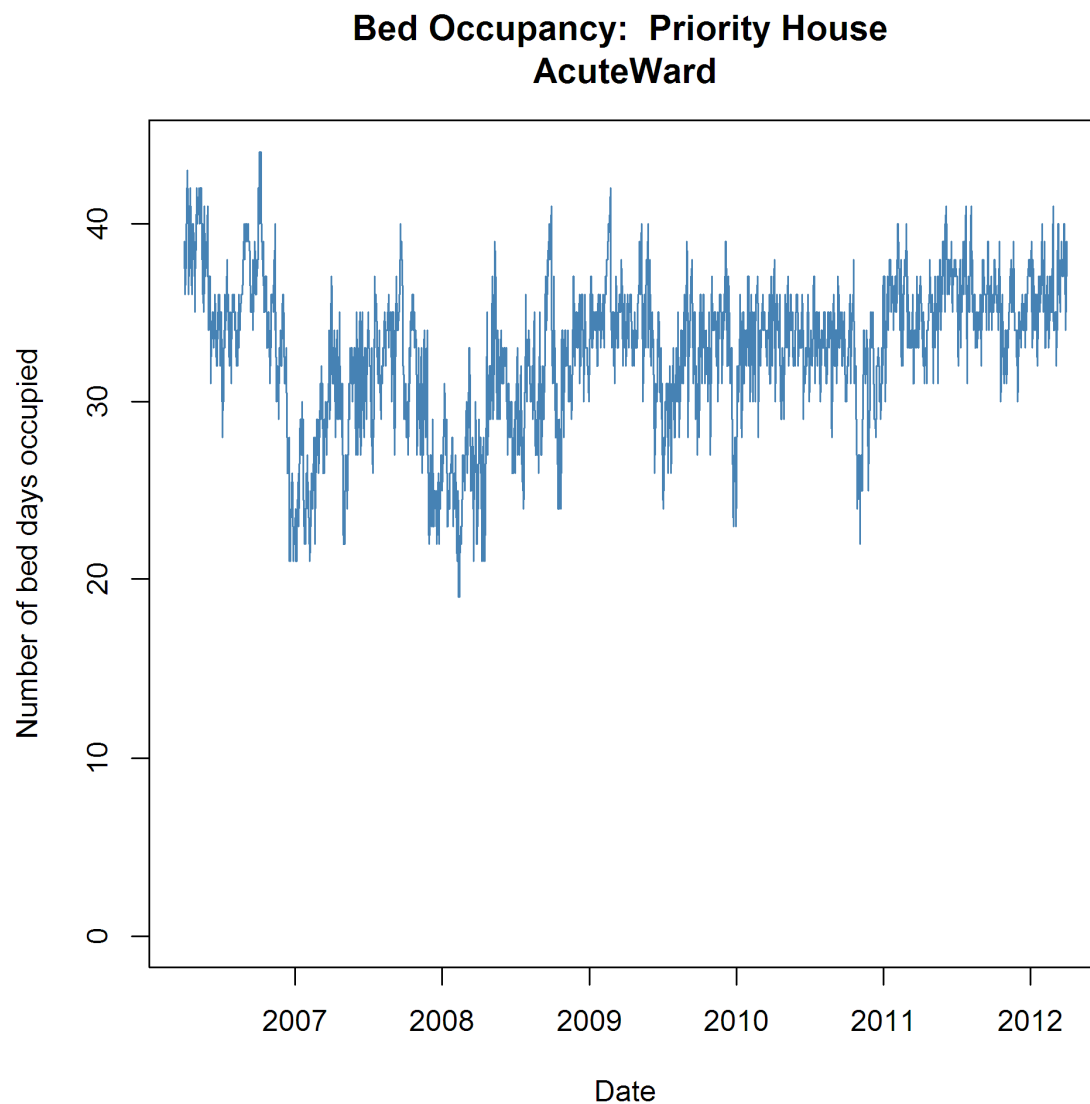
**Figure 6: Daily bed occupancy on an acute ward at Littlebrook Hospital (Dartford)**



Source: Raw ward stay data (KMPT), analysed by NHS Medway Public Health Intelligence Team

Bed occupancy at Littlebrook Hospital, Dartford has, on average, remained constant over time.

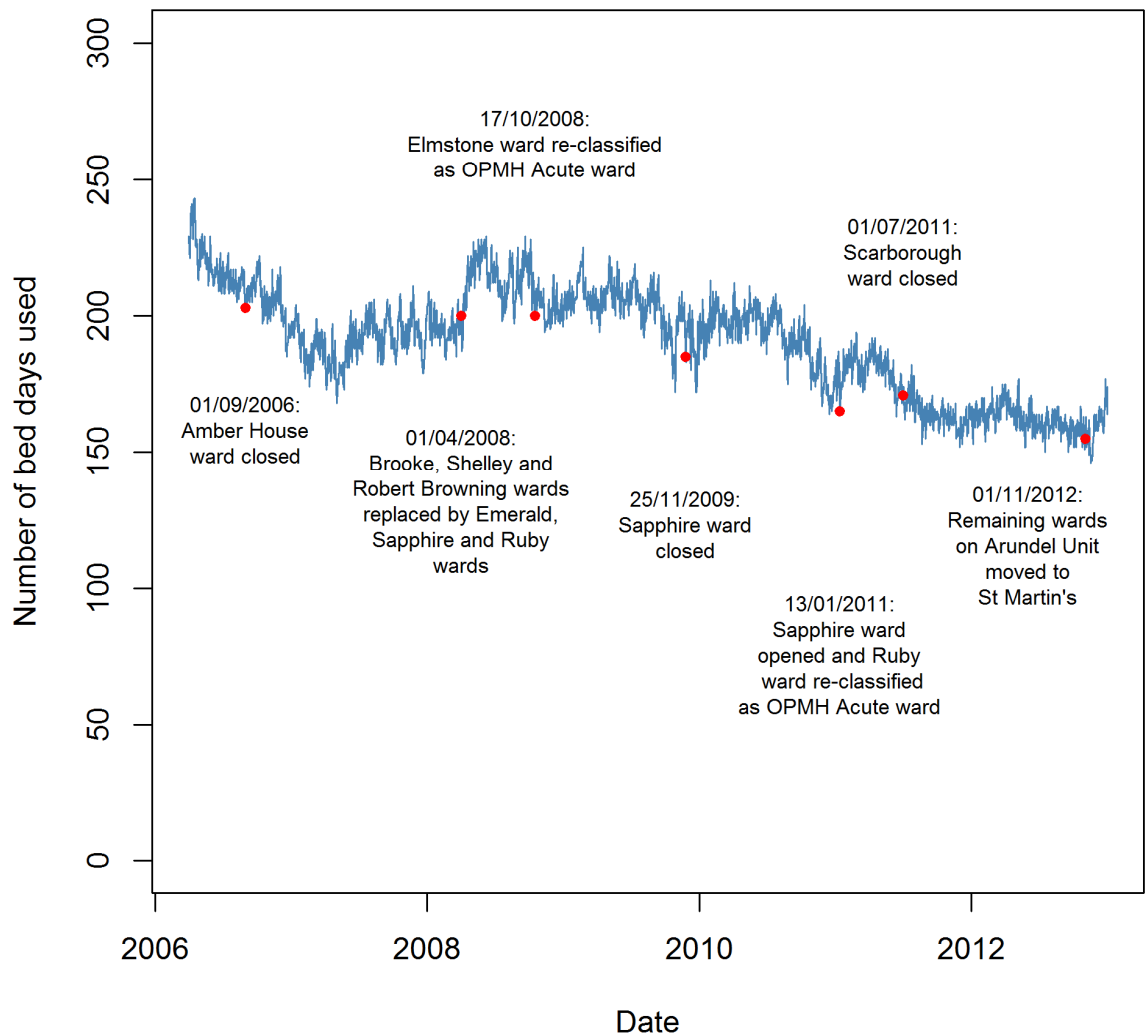
**Figure 7: Daily bed occupancy on an acute ward at Priority House Mental Health Unit (Maidstone Hospital)**



Source: Raw ward stay data (KMPT), analysed by NHS Medway Public Health Intelligence Team

Bed occupancy at Priority House has increased gradually since 2008.

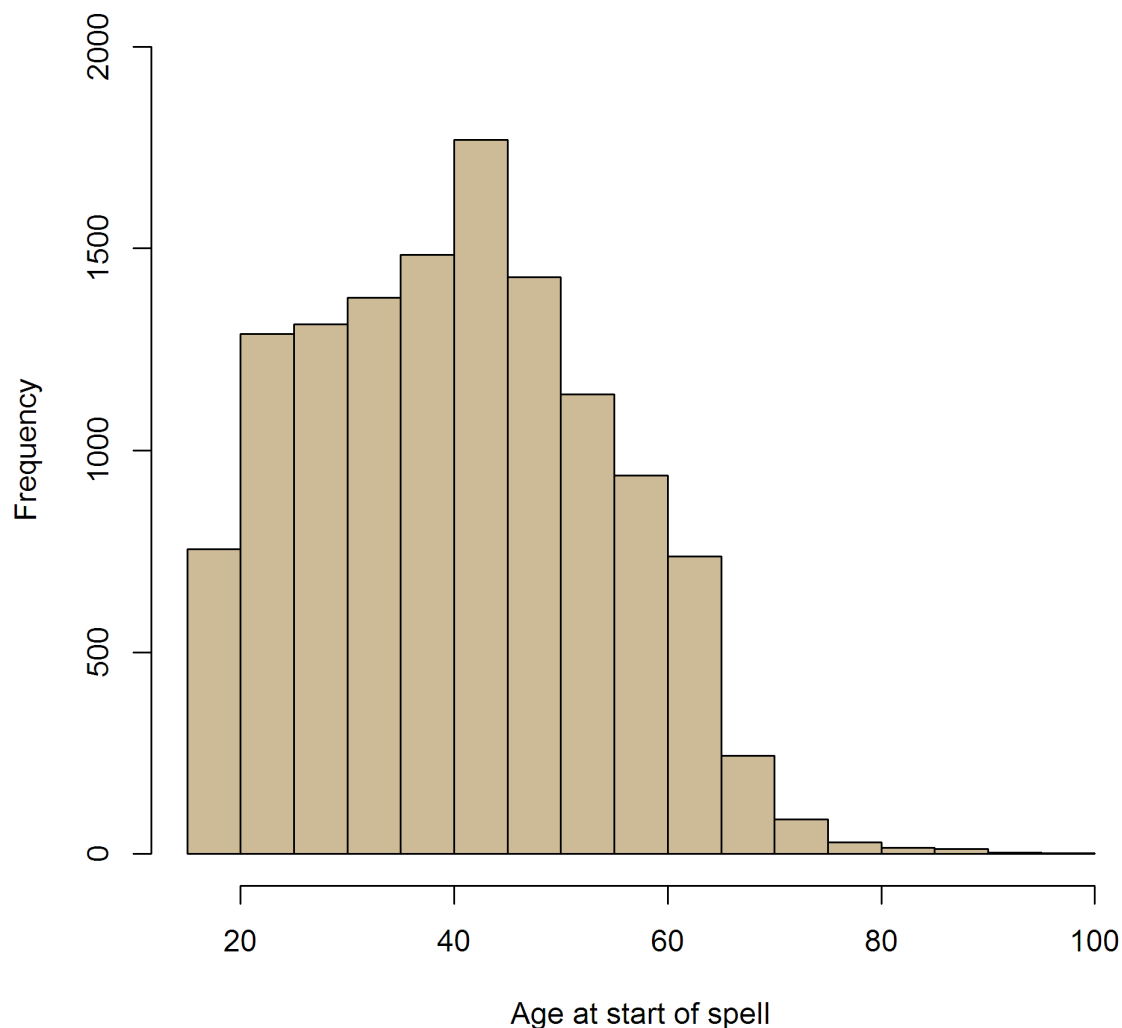
Figure 8: Daily bed occupancy on an acute ward at all sites



Source: Raw ward stay data (KMPT), analysed by NHS Medway Public Health Intelligence Team

In Figure 9 it can be seen quite clearly that the vast majority (97%) of patients on an acute ward are aged 65 years or under.

**Figure 9: Age distribution of patient spells on an acute mental health ward, April 2006-March 2012**

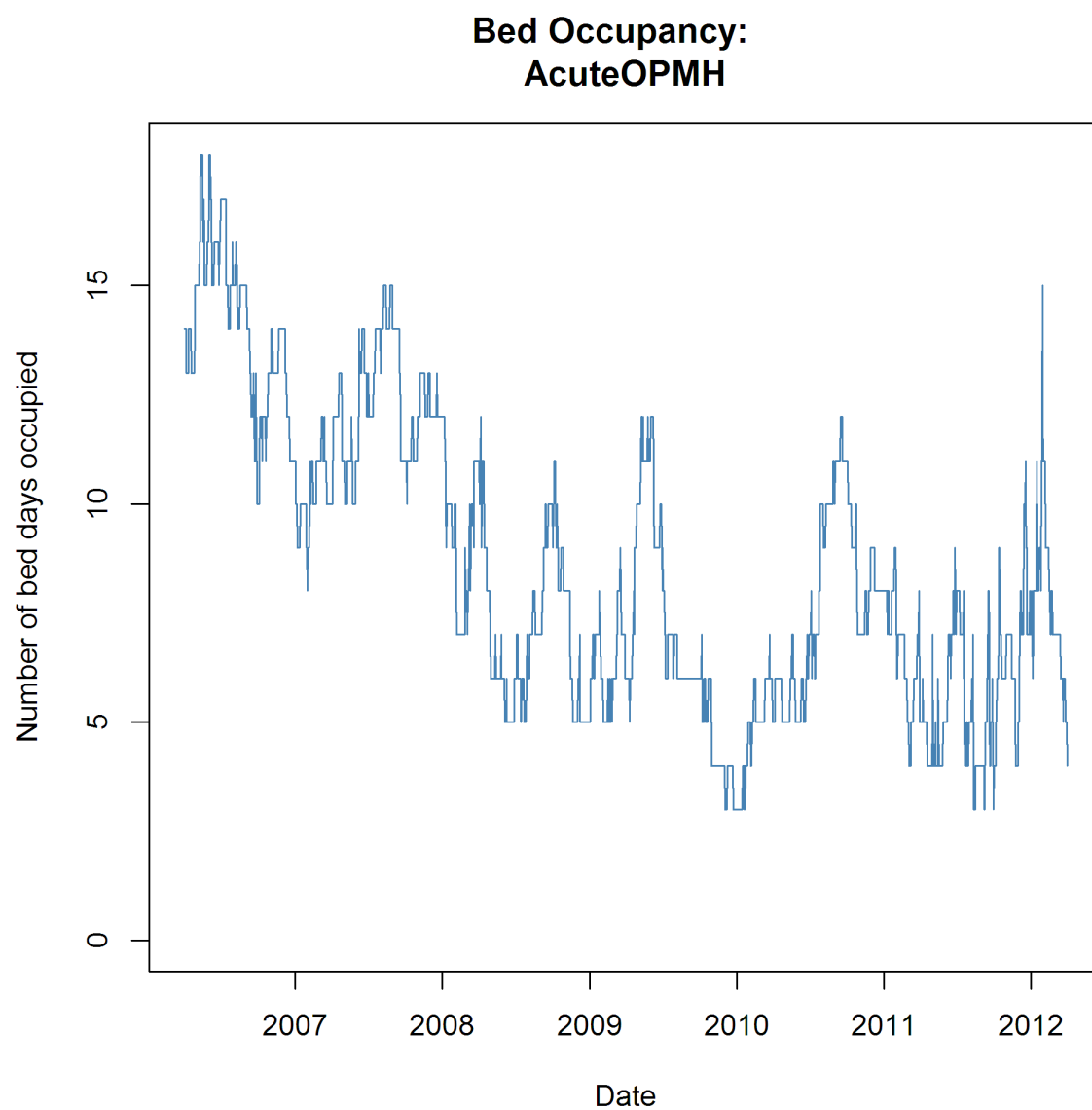


Source: Raw ward stay data (KMPT), analysed by NHS Medway Public Health Intelligence Team

The review states that in some instances it is clinically appropriate to place younger adults (aged under 65) on an older people's mental health ward if they have Dementia. Figure 10 shows the daily bed occupancy of younger adults on older people's mental health wards. This has reduced from around 15 beds per day in April 2006 to around 5 in March 2012 but has spiked over that period in particular between 10 and 15 in late January and early February 2012. A closer analysis of the 190 separate spells over this period reveals that around half (93) have a primary diagnosis of Dementia. Of the 97 spells without a diagnosis of dementia, of which 26 are at Thanet Mental Health Unit which has five beds set aside for younger adults and the rest are in wards not intended for younger people.

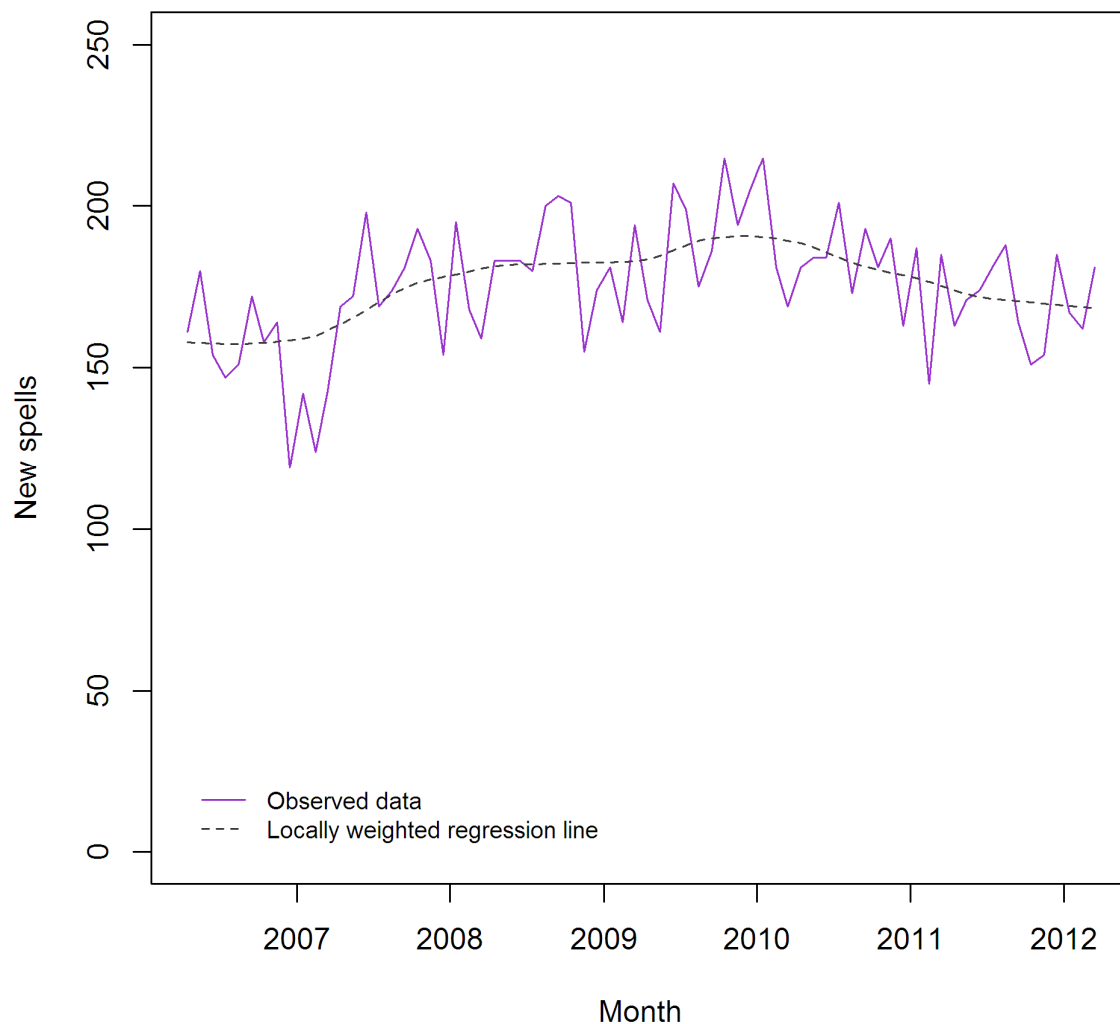


**Figure 10: Daily bed occupancy on an older people's mental health ward at all sites**



Source: Raw ward stay data (KMPT), analysed by NHS Medway Public Health Intelligence Team

**Figure 11: New spells starting on an acute mental health ward at all sites by month**

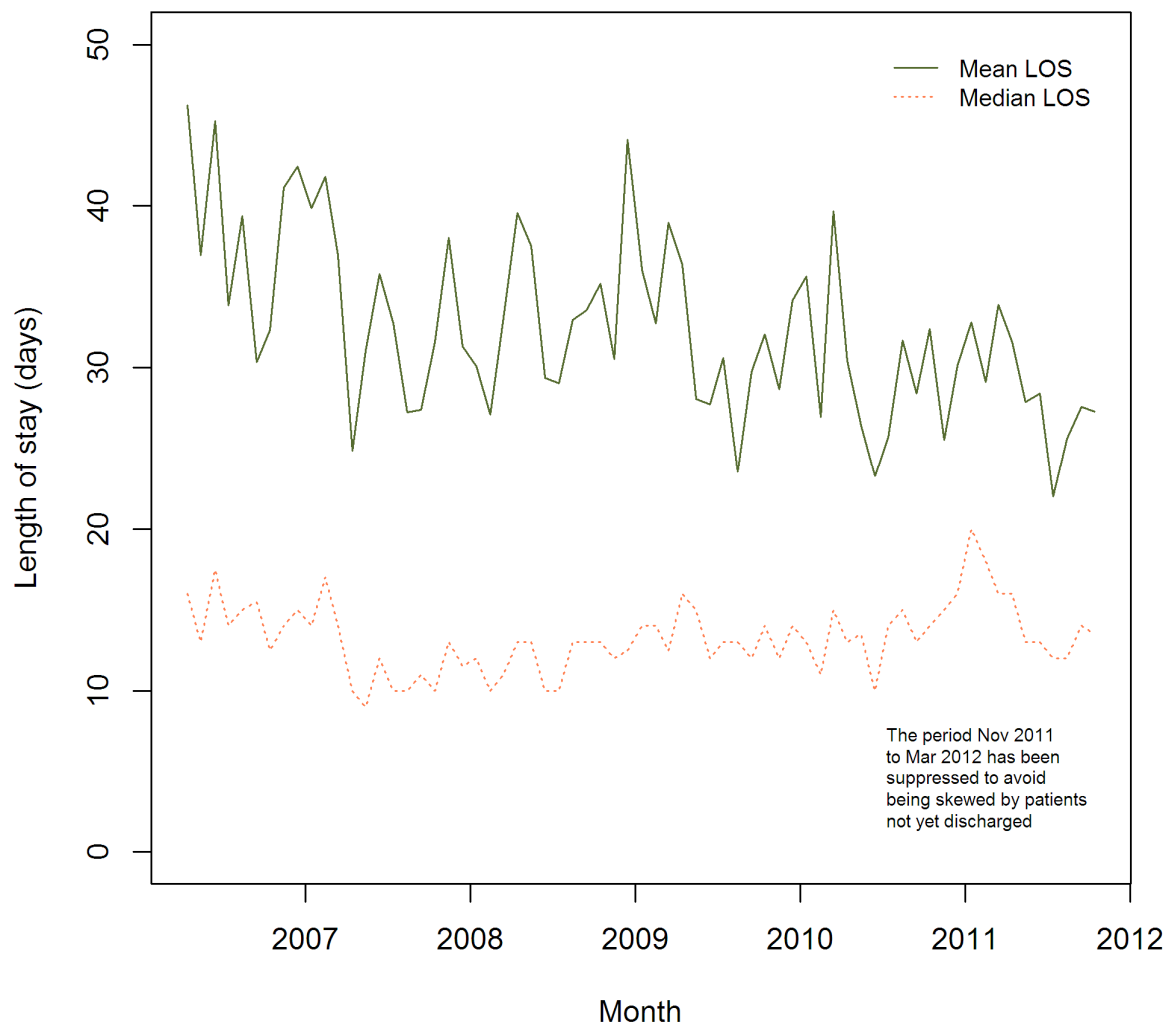


Source: Raw ward stay data (KMPT), analysed by NHS Medway Public Health Intelligence Team

Figure 11 shows that the number of new inpatient spells on an acute mental health ward has reduced since 2010. It is not possible to disaggregate by MHU as patients are often transferred between sites in the course of a single spell so the Kent and Medway total has been presented as one series.

The average length of stay (LOS) has been measured by using the arithmetic mean and median (middle value). In Figure 12 it can be observed that the mean LOS has fluctuated and generally reduced. Some patients stay on a ward for an extremely long time. Over the entire period, 2,145 spells (17%) lasted more than 50 days, 2.5% lasted more than 200 days and 0.6% lasted over 1,000 days. The median LOS has remained fairly constant between 10 and 15 days except for a peak between December 2010 and February 2011.

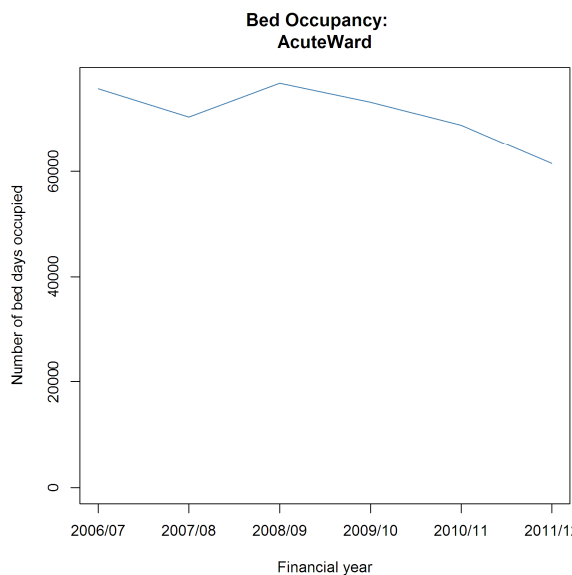
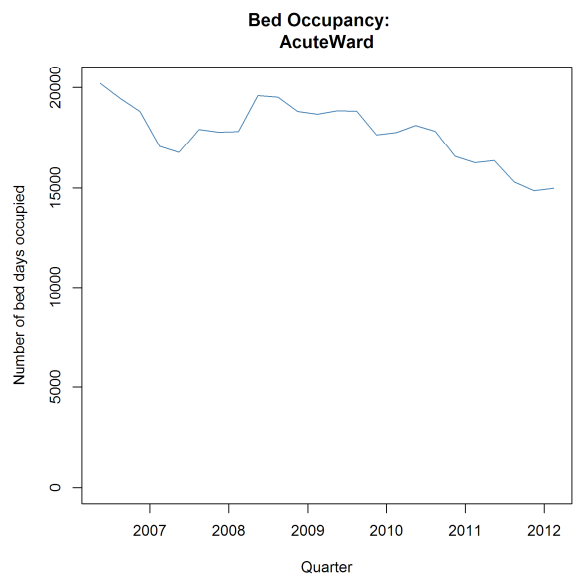
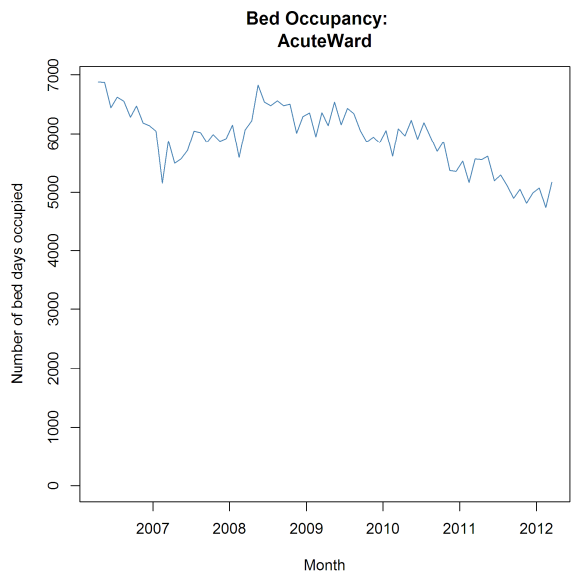
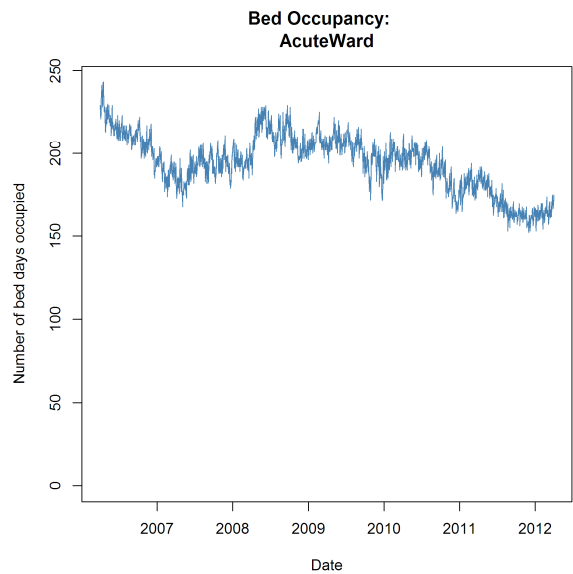
**Figure 12: Average length of stay on an acute mental health ward at all sites by month**



Source: Raw ward stay data (KMPT), analysed by NHS Medway Public Health Intelligence Team

The June 2012 paper does not attempt to model the effect of changes to the service. Creating a model around the proposed service changes would be informative because it would require explicit specification of the parameters and enable the testing of scenarios. This would not on its own determine the actual need for beds, ideally a clinical review is required to do this.

Appendix A



## **Review and sensitivity analysis of mental health bed redesign: work completed and project plan going forward**

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### **1. Work completed as of 01/05/13**

- (i) Model used to calculate bed numbers reviewed and rerun, accuracy of calculations assessed and update
- (ii) Trend analysis reviewed, accuracy of calculation assessed and updated. Sensitivity analysis carried out to see the effects of 4 and 6 years data
- (iii) Out of area bed numbers reviewed and updated

### **2. Project plan going forward**

- (i) Probability curves for out of area beds
  - Create probability curves with number of beds on x-axis and probability of needing out of area beds on y-axis. Use data on historical use of mental health beds in KMPT.
  - Include a check of the use of out of area beds when the use of in-area beds was low. At the moment we are not able to explain why out of area beds were used when in-area beds were available.
- (ii) Document the effect of proposed changes
  - KMPT to list the proposed changes and specify which relate to quality of care and which are expected to have an effect on beds days. For those that are expected to affect beds days, specify the expected effect, and define a range for that effect. E.g. STR workers are expected to lead to a 5% reduction in total bed days, with a range of 1% to 10%.
- (iii) Model the probable effect of the proposed changes

- Use the information provided by KMPT to model the probable effect on the number of beds used resulting from the proposed changes in the service reconfiguration. Combine this with the probability curves to determine the probability of needing out of area beds after the reconfiguration.
- (iv) Review other methods for determining need for mental health care to assess if applicable
- Review needs assessment work done in other areas to see if other methods used may be more appropriate.
  - Review local measures of mental health need.
- (v) Review other models of community services
- KMCS to review good practice in areas with high satisfaction ratings with mental health services with respect to bed ratios and community mental health services design.
- (vi) Review proposed distribution of beds across Kent and Medway
- With updated demand and need information review proposed distribution of beds across Kent and Medway

## Timescales and Responsibilities

Overall project plan: KMCS, Head of Mental Health Commissioning: Kim Solly

[illegible]

**Travel Plan Update: July 2013**

The following table summarises progress to date with the travel plan in relation to the proposed acute mental health service redesign. The Travel Steering group are due to meet on the 22<sup>nd</sup> July, 2<sup>nd</sup> October and 4<sup>th</sup> December and will provide monitoring and oversight of plan as service redesign is implemented.

RAG Rating:

 Red: at risk either of slippage or in delivery;  Amber: in progress/on target;  Green: completed

 White: not started

Area	update	Lead Organisation – Responsible Officer	Further actions required	Milestone/T imeframe	RAG
Signage - internal	All internal signage in place at the Littlebrook site providing directions to the inpatient unit and to local public transport routes.	KMPT	KMPT to consider adding directions from Bluewater Shopping Centre to Littlebrook Hospital on their Internet site.	End August 2013	(A)
Signage - external	Advice has been sought with view to signage on external roads/ motorway; we are currently awaiting feedback and will formulate plan/provide further update when we are in receipt of this information.	KMPT	To explore possibility of Bluewater SC providing signage to Littlebrook Hospital on their site.	End August 2013	(A)

Transport information	Information on public transport is available at main entrances at each acute inpatient site.	KMPT	Review current availability of travel to KMPT sites information on Trust Web site to ensure it is robust and up to date. Review information held at each acute in-patient site to ensure that it is easily found and is 'user friendly'	End August 2013  End August 2013	(A)
Secure Transport	Secure vehicles have now been delivered and are available for the internal transfer of patients.	KMPT		Completed	(G)
Voluntary transport scheme	Plans in place to extend the voluntary transport scheme which is present in Maidstone/SWK. Guidance and policy to be reviewed to reflect extension of the scheme.	KMPT	Plans in place to provide this scheme for three main acute in-patient sites.  Voluntary transport scheme to be in place to support all three main acute in-patient sites.	End September 2013  End March 2014	(A)
Visiting times	Wards have protected times to ensure patients	KMPT	This information to be included on Trust web	End August 2013	(A)







	have opportunity to eat uninterrupted, and to engage in therapeutic interventions/ treatment. However flexible visiting can be requested should a carer/close family member be unable to visit within set hours due to distance, public transport restrictions; the wards will accommodate requests in those circumstances.		site in relation to all wards.  KMPT to ensure that all acute in-patient wards fully implement this initiative.	End August 2013	
Visitor Audit	Further audit was completed seeking views of those visiting Medway A Block. Findings and implications of this audit are to be reviewed at the July steering group	KMPT	Update on July Steering Group review required.  Actions in relation to findings to be developed and action plan with milestones/timeframes to be developed.	End August 2013  End September 2013	(A)
Technology	All wards have access to spider phones to facilitate clinical engagement with community colleagues (secondary and primary	KMPT	Completion of protocols and guidance notes required.	End September 2013	(A)

	care) around an individual's treatment plan. Patient Internet Access has been established and SKYPE is now available. Final protocols and guidance notes are being developed.				
Guidance notes and policies	Existing policies and guidance notes have been collated from current voluntary transport scheme. Steering group will allocate a small working group to review and amend so meets need for an extended service.	KMPT	Working Group to be established.  Complete work required.	End September 2013  End December 2013	(A)





# KMPT Quality Impact Assessment

## Achieving Excellence in Mental Health Crisis – Do Nothing

<b>KMPT</b> <b>Quality Impact Assessment</b>		Scheme number: Date of QIA:		
		14.03.2013		
Scheme Name	Achieving Excellence in Mental Health Crisis - Do Nothing			
Benefits for patients	This option is based on the outcome of the consultation not being supported and the status quo re current acute care provision being maintained. Reduced travel as individuals accessing inpatient care from Medway & Swale can continue to access inpatient care from within A Block Medway.			
Clinical Lead	David Tamsitt/ Rosarii Harte	Service line	Acute	
Quality Indicator(s) - consider Performance Management Framework PAF KPIs	Length of stay; Delayed Transfers of care; Occupancy Patient Satisfaction; Staff Survey; Home treatment episodes per locality; admissions per locality CQC standards; PEAT scores			
Risks to Patient Safety	<b>Details (include mitigation)</b> Fixtures & Fittings and poor sight lines inherent within the building design in A Block Medway. The current environment increases risks of incidents occurring which impact on the well being of all patients. Increased incidents, staff sickness, poor retention and recruitment has a direct link to patient safety. The service has sought to mitigate these risks as far as possible however the issues listed above remain.	<b>Consequence</b> 4	<b>Likelihood</b> 4	<b>Score</b>  16 (R)
Risks to Clinical Effectiveness	<b>Details (include mitigation)</b> Increased sickness rates, poor retention and recruitment impacts on ability to provide continuity and monitoring of best practice with increased dissatisfaction from patients, carers and staff as a result. The lack of easy access to outside space hinders the therapeutic environment available to service users on Sapphire Ward and increases frustrations leading to an increase in incidents.	<b>Consequence</b> 4	<b>Likelihood</b> 4	<b>Score</b>  16 (R)
Risks to Patient Experience	<b>Details (include mitigation)</b> Incidents of violence and aggression are higher than other environments and this and other environmental issues such as lack of outside space, single rooms have resulted in the poor surveys and complaints. The accommodation within Medway limits choice regarding single rooms, access to en suite facilities and access to external space.	<b>Consequence</b> 3	<b>Likelihood</b> 5	<b>Score</b>  15 (R)
Overall Risk Score (highest from above quality domains)		 16		
Date approved by Service Line Director	15/03/2013			
Date approved by Medical Director				
Date approved by Executive Nurse	15/03/2013			

# KMPT Quality Impact Assessment

## Achieving Excellence in Mental Health Crisis – Option A

<b>KMPT</b> <b>Quality Impact Assessment</b>		Scheme number: Date of QIA:	
Scheme Name	Achieving Excellence in Mental Health Crisis (development 3 centres of excellence, PIC Outreach, development of CRHT; Option A preferred outcome of consultation - relocation of inpatient services Medway to Dartford; Swale to Maidstone & centralised PICU)		
Benefits for patients	Delivering acute care services within Kent and Medway from three centres of excellence will optimise care within purpose built accommodation and provide opportunity for staff to share of experience, knowledge and best practice. This will also optimise productivity. There will be an improved environment for patients, Staff and visitors. The accommodation within the three centres reduces ligature risks that are present within current environment in Medway. This will also provide a critical mass of staff and optimises skill mix. Supports the delivery of the acute care pathway. The scheme addresses inequality of inpatient environment, reduces ligature risks, addresses concerns relating to privacy and dignity, reduces the likelihood of out of area placements. Improved environments have a positive impact on incidents of violence and aggression, recruitment and retention of staff, reduced sickness.		
Clinical Lead	David Tamsitt/ Rosarii Harte	Service line	Acute
Quality Indicator(s) - consider Performance Management Framework PAF KPIs	Length of stay; Delayed Transfers of care; Occupancy Patient Satisfaction; Staff Survey; Home treatment episodes per locality; admissions per locality CQC standards; PEAT scores		
Risks to Patient Safety	<b>Details (include mitigation)</b> This will have a positive impact on patient safety. The development of the three centres of excellence will mitigate against the current and inherent risks present in Ablock, Medway.	<b>Consequence</b> 1	<b>Likelihood</b> 1
			<b>Score</b>  1 (G)
Risks to Clinical Effectiveness	<b>Details (include mitigation)</b> This will have a positive impact on clinical effectiveness. The three centres of excellence will enable shared learning and opportunities for shadowing and coaching which in turn will improve the quality of care delivered. Skill mix and expertise will be optimised across the pathway. the scheme will also support robust clinical leadership and consistency to the leadership provided across all aspects of acute care. It supports the delivery of the acute care pathway and supports /encourages the implementation of audit and peer review.	<b>Consequence</b> 1	<b>Likelihood</b> 1
			<b>Score</b>  1 (G)
Risks to Patient Experience	<b>Details (include mitigation)</b> Overall we anticipate improvement to the patient experience. The scheme delivers improved inpatient environment, ability to have own room when an inpatient and access to external space both of which are limited in Medway. The development of the acute care pathway supports and actively promotes individualised care. The consolidation of staff onto 3 centres also improves level of expertise and skill mix available. However the scoring noted reflects for some this may have a negative impact regarding the proximity to friends family and carers to the inpatient facilities and their ability to visit. A transport plan has been developed to aid mitigation of this, and provide support where applicable. Concerns remain regarding sufficient bed capacity due to unprecedented increased demand for acute inpatient care over the past year. Further sensitivity work is being undertaken to review bed capacity. This will inform final decisions regarding the redesign and bed requirements.	<b>Consequence</b> 3	<b>Likelihood</b> 3
			<b>Score</b>  9 (A)
Overall Risk Score (highest from above quality domains)		 9	
Date approved by Service Line Director			
Date approved by Medical Director			
Date approved by Executive Nurse			