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**JERSEY FUTURE HOSPITAL  
CO004 – SITE OPTION REPORT**

**APPENDIX 9 States of Jersey  
Relevant Activity Data**

QUALITY ASSURANCE

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Position: Director

STATES OF JERSEY

FUTURE HOSPITAL PROJECT

CHANGE REQUEST NR. 4 – STATES OF JERSEY RELEVANT ACTIVITY DATA

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Target Functional Area Assessments were developed to support the process of appraising site options.

The results of this review of all available activity and service data led to the development of an initial area requirement. This was appraised against the Acute Services Strategy, the Key Decisions Matrix developed with Clinical Leadership of the Hospital and the service level clinical engagement and operational briefing work undertaken thus far.

The proposed accommodation was then devised on a room by room basis in line with the Acute Services Strategy, which incorporates an Ambulatory Care Centre, Women's and Children's Centre, Unscheduled Care area with integrated diagnostics, results waiting and emergency acute diagnostic ward, Pathology, Pharmacy and Integrated In-patients. Many of the principles in the Acute Services Strategy are based on evidence based best practice, which in many case supersedes the UK department of Health Guidance, so whilst this guidance was noted, it was not the sole basis of input to the finalised Area Schedules.

The Area Schedule is based upon a number of operational clinical assumptions which link accommodation and workforce. All areas have been conceptualised in a way that meets the Acute Services Strategy, Key Decisions Matrix and briefing work, and then have been developed further using best practice, UK guidance and experience. All of this information will need review and validating with the clinical User Groups during further stages of clinical user engagement.

The subsequent output of the HSSD finance team modelling and that of Project's Financial Advisor have concluded almost identical results to the rudimentary modelling the Lead Advisor's Medical Planners had undertaken as the basis of the functional area assessment. Hence the area assessment holds firm and is validated from three independent sources.

In broad terms the modelling from the three sources concluded the need for circa 7 operating theatres and a total bed stock of 272 beds. The functional area assessment took a risk adverse view given the level of development and understanding, and has included for 8 operating theatres and a total of 277 beds as the bed stock was reflected in generic ward templates of 32 beds and specific bed requirements for areas such as paediatrics and private patients.

The output of the modelling for the outpatient / ambulatory care areas undertaken by the Client Department and the Project's Financial Advisor does not yet provide a consistent position related to required accommodation for this area and so further capacity analysis on a department by department level will be needed. The FAE incorporates the rudimentary modelling which maps generic "standard" accommodation against clinical services, demand, clinical consulting times and patient pathways. This was further developed with service specific accommodation (rooms which are specific to service or have specific equipment requirements) in order to develop the proposed quantum of accommodation.

## Appendix 9 - Demand and Capacity Analysis

### Introduction

The demand and capacity work undertaken by EY has used HSSD Trakcare data to ensure consistency of modelled inputs with previous modelling by the Future Hospital Project Team. Working with the HSSD Future Hospital Project Team, EY outputs support broad conclusions about

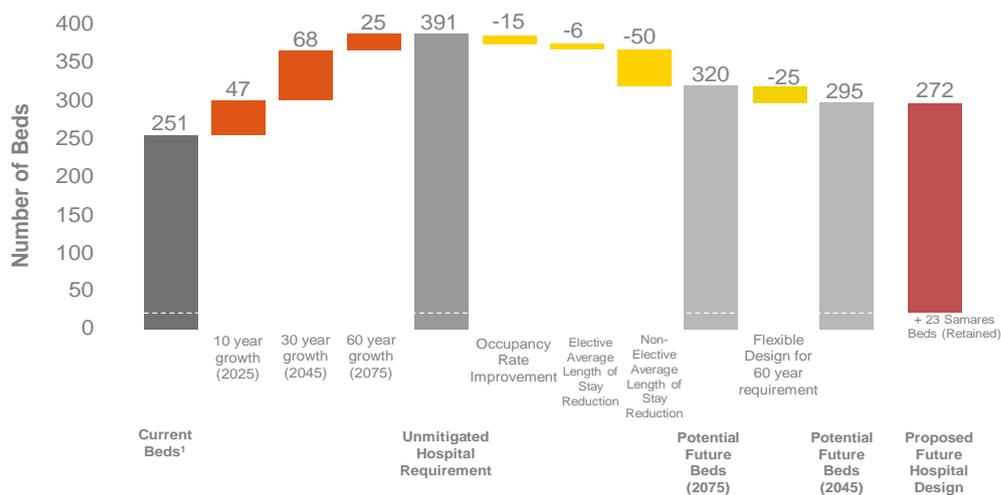
1. The number of in-patient beds
2. The number of operating theatre sessions
3. The outpatient clinic capacity needed

#### 1. In-Patient Beds

### Summary Beds Analysis

National Benchmarking – Total Beds Saving Opportunity

Median Benchmarks<sup>2</sup>



<sup>1</sup>Excludes SCBU Cots <sup>2</sup>Critical Care not possible to benchmark

Based on Ernst and Young Bed Activity Analysis



Unmitigated growth in demand for in-patient beds over a 10, 30 and 60 year time horizon would create the need for a Future Hospital consisting of 391 beds, including the existing 23 rehabilitation beds on Samares Ward at the Westmount Centre. This outcome broadly aligns with conclusions presented in the Strategic Outline Case. The EY demand and capacity analysis identifies a number of opportunities to reduce the number of beds required if:

- Out of hospital services are developed to support the necessary admission avoidance, admission prevention and supported discharge strategies
- The clinical services within the General Hospital operate at median performance against national NHS benchmarks

Opportunities to reduce the number of beds required in the Future Hospital relate to reductions in:

- Bed occupancy – this opportunity would account for c. 15 beds reduction.
- Elective length of stay – this would account for c. 6 beds reduction. The relatively modest size of this opportunity is an indication of the current efficiency of the General Hospital in-patient surgical processes.
- Non-elective length of stay – this would account for c. 50 beds reduction.

EY demand and capacity employed techniques to benchmark Jersey General Hospital performance against national median General Hospital performance. It does not indicate which performance improvement strategies could best be applied to the Jersey health and social care to realise the opportunities to achieve the target efficiencies. The chosen strategies determined by HSSD clinical and service leads would need to be specific to the type of patient. For example the introduction of an ambulatory emergency care model in the way described in the Acute Service Strategy would significantly improve both bed occupancy and non-elective length of stay. Similarly the more widespread application of enhanced recovery pathways across all surgical specialities would contribute to reducing length of stay in elective beds.

Disaggregating the bed base in the EY analysis recognises that that different types of beds in both the current and Future Hospital beds operate safely and efficiently at differing occupancy rates. While many beds are interchangeable in use *in capacity terms* (e.g. subject to the appropriate governance and operational management general medical and surgical beds can flex between clinical use) some beds are not e.g. maternity beds, paediatric beds and critical care beds are designed for a sole purpose. Accordingly the analysis employs a modelling assumption of different occupancy rates as follows:

Adult Surgical Ward and Medical Ward Beds	85%
Maternity Ward Beds	65%
Paediatric Ward Beds	65%
Critical Care Beds	80%

The respective bed bases for Adult Surgical and Medical Ward (Female and Male beds), Maternity, Paediatrics and Critical Care respectively were calculated and then aggregated to provide a total bed number.

The analysis also recognises that patients over 80 years of age have a disproportionately greater impact on bed capacity than younger patients. Increasing frailty and co-morbidity in this group offsets to a significant degree the efficiencies in bed occupancy that are more easily realised in the younger age groups.

The EY subset analysis takes account of all these factors in its modelling and conclusions on in-patient bed numbers.

The EY analysis recognises that the further capacity is modelled into the future, the less certain the outputs of that model would be. The future of medical technology, medical techniques and the impact of health promotion and illness prevention strategies is increasingly challenging to predict beyond 5-10 years. The modelling, therefore, suggests this relative uncertainty about the future

beyond 30 years is best managed by a process of flexible design. This recognises that the Future Hospital *may* need additional beds at some point beyond 2045 but that the need for such beds is better assessed nearer that date and the design brief 'future proofed' accordingly.

The impact of the mitigating actions on occupancy rates, elective and non-elective length of stay plus design flexibility, therefore, creates the case for a new build Future Hospital of 272 beds plus the 23 existing beds on Samares Ward.

## **2. Operating theatre sessions**

The EY demand and capacity analysis relating to operating theatres models two scenarios

1. 3.5 hour Operating Sessions (typical of current Jersey General Hospital operating theatre practice)
2. 4.0 Hour operating sessions (typical of a NHS comparator General Hospital peer group)

For both in-patient and day case theatres when compared against median performance there is a potential reduction in the need for modelled theatre capacity. These opportunities are particularly apparent in high volume operating theatre specialties such as general surgery, trauma and orthopaedics and gynaecology.

As with the in-patients bed modelling, the EY analysis recognises that some operating theatres provide opportunities for more flexible use while others less so. The analysis, therefore, disaggregates maternity theatre activity and emergency theatre activity. Both these operating theatres need to be immediately available should the need arise for emergency caesarean section or major trauma. This does not mean that such assets lie idle when not in use but it does lead to lower utilisation than if this risk was not discounted. It is important to note that *all* NHS General Hospitals would provide such maternity and emergency theatre capability in this way.

## **3. Outpatient Clinic Capacity**

Outpatients are of two kinds. 'New' patients (whose consultation is longer, to enable a detailed examination to establish a diagnosis and set a treatment plan) and 'Follow Up' patients (whose consultation is relatively shorter to allow progress against the treatment to be monitored). Most clinics have a mixture of new and follow up appointments. The EY analysis modelled two scenarios, both taking account of "booking rules" (how patients are booked into clinics based on clinic templates, ie how many patients are seen per clinic) and "new to follow up ratios" (to consider the efficiency of the complete outpatient pathway from referral to discharge back to the care of the General Practitioner).

The modelling took account of two scenarios

- a) Outpatient clinic *template* against best practice benchmark
- b) Outpatient clinic *activity* against median benchmark

Clinic templates indicate how many patients could be seen in an outpatient clinic if all the clinic slots were used i.e. it represents the maximum possible capacity. Clinic activity indicates the number of patients who were actually seen in an outpatient clinic. The difference between these two modelled outputs represents operational contingency (few complex systems operate efficiently at 100% utilisation) and potential efficiencies where operational contingency is too generous (e.g. where clinics are underutilised in relation to the staffing and other resources needed to support them)

The EY modelling considered a sample of three clinical specialty activities in more detail:

- Cardiology – illustrative of medical patient outpatient clinic
- Ear Nose and Throat – illustrative of a surgical patients outpatient clinic
- Gynaecology – illustrative of a speciality that has both surgical and medical components in its outpatient clinic

The modelling overall and the clinical specialty subset analysis indicated both potential for improvement on current outpatient performance and the outpatient clinic capacity needed in the Future Hospital

### **Conclusion**

It is important to note that the demand and capacity analysis undertaken by EY presents a conclusion about the required in-patient beds, operating theatres and outpatient's capacity *at a particular point in time* (April 2015). The experience of the Project Team working with activity data at increasingly more fine grain detail has indicated at each phase of the analysis further opportunities are identified to improve the efficiency of the Future Hospital. The analysis for example offers both an opportunity to understand present day possibilities for more efficient use of existing capacity and to explore at specialty level where opportunities exist in the future for improved performance and efficiency at a point between median and upper quartiles against benchmarked peer group General Hospitals. Further analysis in the period up to Outline Business Case will realise these opportunities where possible to do so in an Island context to ensure continued improvements in the affordability of the Future Hospital whilst maintaining safety and sustainability.

# Jersey General Hospital

## Productivity Analysis



Building a better  
working world

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# Summary of Findings

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1. *By improving bed occupancy levels and length of stay Jersey Hospital could achieve a reduction in the number of level 1 beds required based on current activity levels.*
  - ▶ *A reduction of 6-10 elective beds and 50-83 non elective beds by achieving length of stay benchmarks\*.*  
*(\*The range of output depends on the benchmark chosen for length of stay: peer/national, median/upper quartile)*
  - ▶ *Achieving the British Association of Day Surgery best practice targets realising a reduction of 3 elective beds.*
2. *However, demographic growth between 2015 and 2075 results in an increase in bed requirements of 113-133 level 1 beds by 2075.*
3. *The joint impact of improved productivity and demographic growth results in a bed base requirement of **245-302 level 1 beds by 2075.***
4. *If both ICU and HDU operated at 80% occupancy there is a requirement for **18 critical care beds by 2075.***
5. *Currently Jersey Hospital has 2,920 3.5 hour sessions of theatre time available. By achieving 80% utilisation (70% for Maternity) this can be reduced by 521 3.5hour sessions.*
6. *If non elective and emergency theatre sessions remain at current utilisation the 2,920 sessions can be reduced by 415 3.5 hour sessions.*
7. *Applying demographic growth to the reduced theatre requirement (80% utilisation excluding non elective and maternity sessions), it is estimated that Jersey Hospital would need a **theatre capacity of 3,040 3.5 hour sessions in 2075.***

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# Beds Analysis

## Benchmarking Assumptions and Methodology

### Data

- The Inpatients Analysis is based on the following two data sources provided by Jersey Hospital:-
  - 1) *Inpatient\_Episodes\_Discharge\_AdmissionMethod\_2014\_2015*
  - 2) *Inpatient\_Movements\_JGH\_Overdale\_2014\_2015*
- Well Babies have been excluded from the analysis
- Day Case and Regular Attending patients were identified by the 'Intended Management' field along with any Elective patient that had a length of stay of zero and an associated procedure code
- Any patients with an Intended Management of Day Case but a length of stay greater than zero, were classified as Elective patients
- Jersey currently have 64 adult single rooms as part of its bed base. We have assumed these could be occupied by either Males or Females.
- Critical care patient days were identified using the ward names 'HDU' and 'ICU' in the Movements data file.

### Demographic growth

- Using population forecasts provided to EY by Jersey Hospital (sourced back to 2011 Census), the following demographic growth assumptions have been used. The table on the left shows the raw population forecasts by time period and age group and the table on the right the demographic growth rates.

Population	2015	2025	2045	2075
0-17	19,206	19,516	19,855	20,437
18-64	64,758	65,291	64,588	67,018
65-80	12,450	16,234	19,247	19,760
81+	3,848	5,564	11,205	14,690
Total Population	100,261	105,986	114,896	121,906

Growth Rate	10yr (2025)	30yr (2045)	60yr (2075)
0-17	1.6 %	1.7 %	2.9 %
18-64	0.8 %	(1.1 %)	3.8 %
65-80	30.4 %	18.6 %	2.7 %
81+	44.6 %	101.4 %	31.1 %
Total Population	5.7 %	8.4 %	6.1 %

- All future capacity estimates include demographic growth alone, no other factors have been included.

### Length of Stay Benchmarking

- The benchmarking was performed at Clinical Classification Software (CCS) code level, which is the internationally recognised grouping of diagnosis codes. Each patient's primary diagnosis was matched to an associated CCS code, to analyse average length of stay performance against the benchmarks.
- There were 750 episodes without a primary diagnosis code. These have been excluded from the benchmarking calculations.
- Day Cases and Regular Attenders have also been excluded from the benchmarking analysis as they have zero LOS.
- The rural peer group used for benchmarking was "Small Acute" hospitals that are based in rural areas and are of similar size to Jersey Hospital with regards to number of episodes.
- Opportunity is calculated where the Average Length of Stay (ALoS) for a diagnosis group, Point of Delivery (PoD) and 10yr Age Group exceeds the benchmark.
- The bed days opportunity is calculated as:

$$\text{Bed days Opportunity} = \text{Jersey ALoS (CCS Group, PoD, Age Group)} - \text{Benchmark ALoS (CCS Group, PoD, Age Group)} \times \text{number of episodes}$$

- An occupancy rate is applied to convert bed days into bed numbers using the following calculation

$$\text{Beds Opportunity} = \text{Bed days opportunity} / 365 / \text{Occupancy rate (\%)}$$

- Bed numbers were calculated separately for Males, Females, Critical Care, Maternity and Paediatrics as these bed subsets are not interchangeable.

### British Association of Day Surgery (BADs) Opportunity

- Calculations performed at procedure level based on OPCS procedure codes
- Target Rates taken from the "BADs Directory of Procedures - 4th Edition", 2012

# Beds Analysis (level 1)

## Seasonal Variation and Maximum Bed Demand

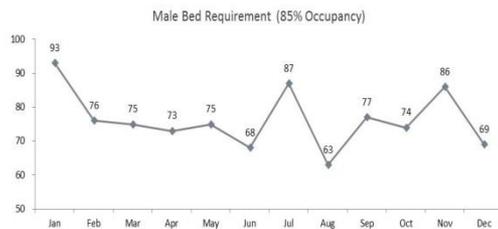
The current bed base and target occupancy levels at Jersey Hospital are shown below.

	Bed base*	Occupancy
Adult Male	93	85%
Adult Female	107	85%
Maternity	24	65%
Paediatric	15	65%

\*The 64 single rooms have been divided between male and female according to demand.

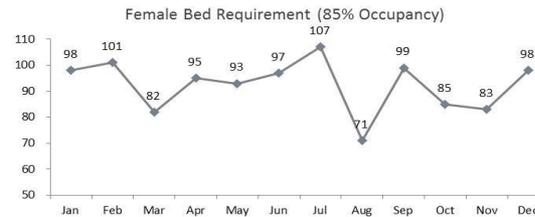
To calculate potential *occupancy rate savings*, the maximum monthly bed requirement in 2014 for each bed subset is calculated, based on the above rates.

### Adult Male



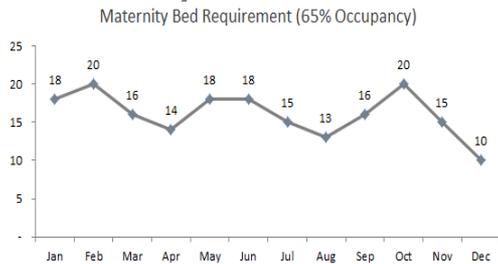
Max Demand 93  
 Current Bed Base 93  
 Occupancy Rate Savings Opportunity 0

### Adult Female



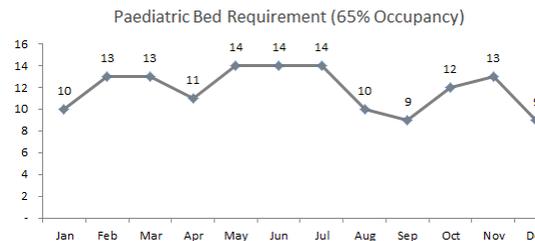
Max Demand 107  
 Current Bed Base 107  
 Occupancy Rate Savings Opportunity 0

### Maternity



Max Demand 20  
 Current Bed Base 24  
 Occupancy Rate Savings Opportunity 4

### Paediatrics



Max Demand 14  
 Current Bed Base 15  
 Occupancy Rate Savings Opportunity 1

# Beds Analysis (levels 2 & 3)

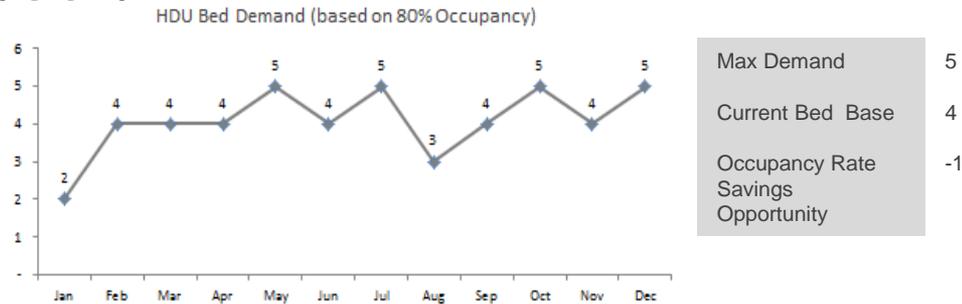
## Seasonal Variation and Maximum Bed Demand

The current bed base and target occupancy levels at Jersey Hospital are shown below.

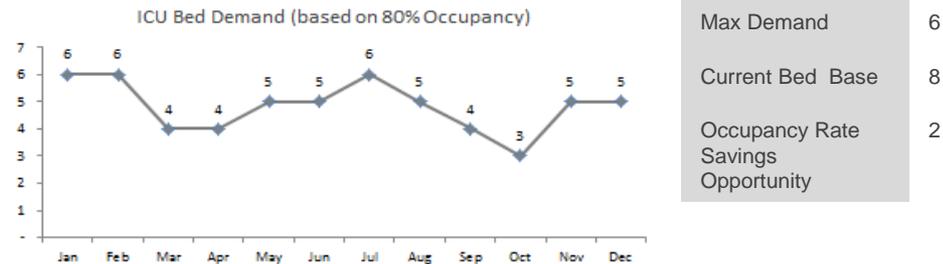
	Bed base*	Occupancy
HDU	4	80%
ICU	8	80%

To calculate potential *occupancy rate savings*, the maximum monthly bed requirement in 2014 for each bed subset is calculated, based on the above rates.

### HDU (Level 2)



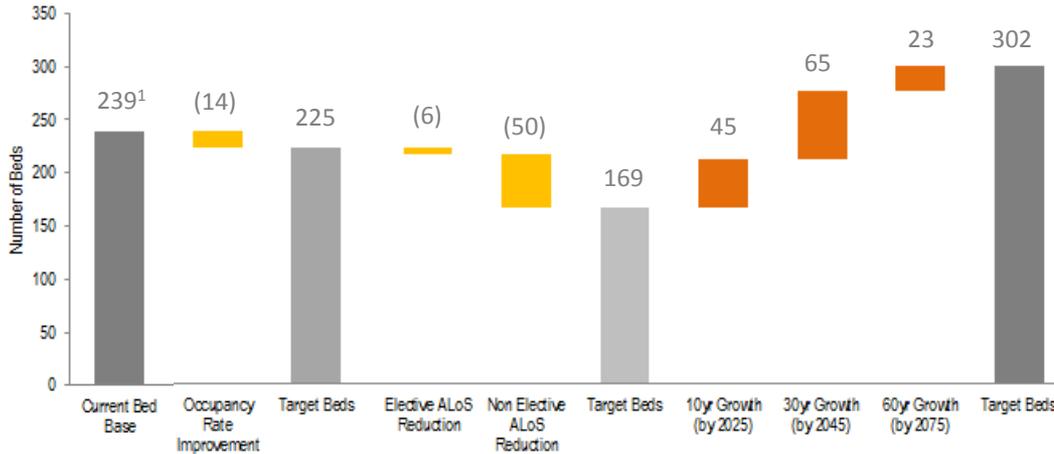
### ICU (Level 3)



# Summary Beds Analysis

## National Benchmarking – Total Beds Saving Opportunity

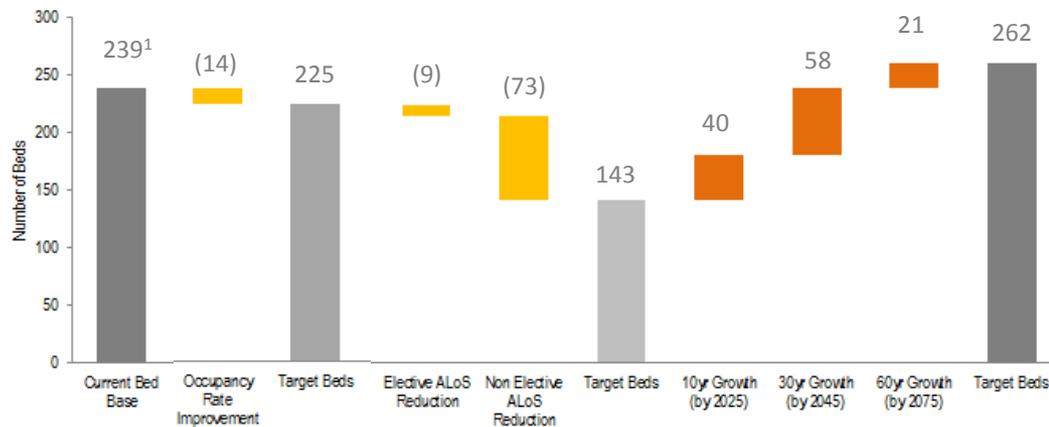
### Median Benchmarks



*Summarising Male and Female Adult, Maternity and Paediatric beds, if median ALoS targets are achieved, Jersey Hospital will require as bed base of 302 beds in 2075. This figure assumes no further change in Length of Stay over the next 60 years. If upper quartile ALoS targets are achieved, 262 beds will be required. A breakdown of each area (Adult Male, Adult Female, Maternity and Paediatric) forms the basis of the following slides.*

- If Length of Stay is reduced to the **median** national benchmark, a potential saving of 56 beds could be made (6 Elective and 50 Non Elective). If **upper quartile** targets are achieved, this reduction is 82 beds (9 Elective, 73 Non Elective).
- Factoring in demographic growth an additional 133 beds (median ALoS benchmark) or 119 beds (upper quartile ALoS benchmark) will be required by 2075.

### UQ Benchmarks

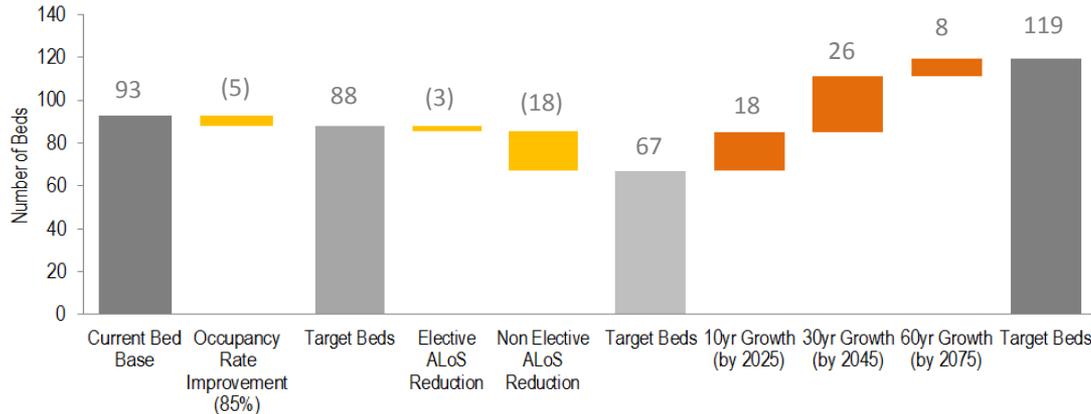


<sup>1</sup>Excludes SCBU Cots

# Male Beds Analysis

## National Benchmarking – Total Beds Saving Opportunity

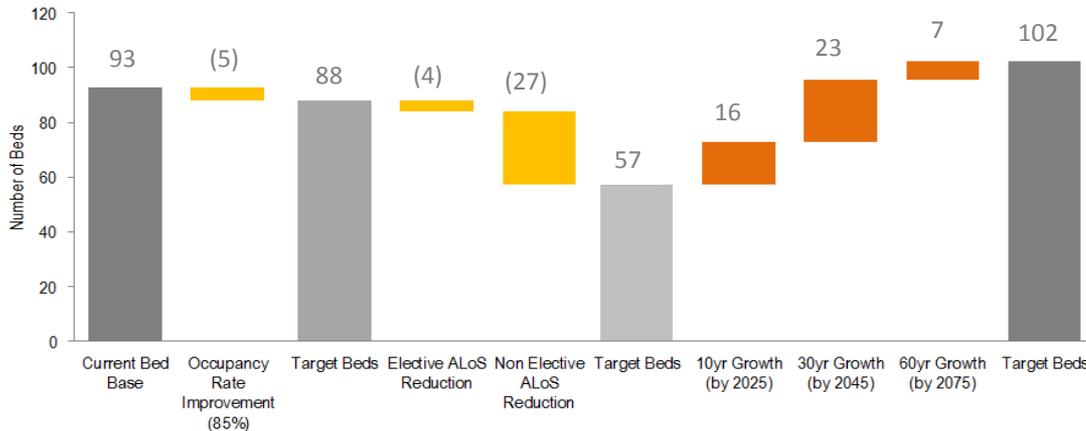
### Median Benchmarks



*By 2075, if median ALoS targets are achieved, Jersey Hospital will require 119 male adult beds. If upper quartile ALoS targets are achieved, 102 male adult beds will be required.*

- The number of adult male bed days in 2014 suggests that Jersey Hospital is operating at a 66% average occupancy rate and should see a reduction in beds with improved occupancy. At 85% occupancy the peak monthly requirement is 88 male beds (see slide 5). Therefore in practice, there is a potential reduction of 5 beds by increasing occupancy levels.
- If Length of Stay is reduced to the **median** national benchmark, a potential saving of 21 beds could be made (3 Elective and 18 Non Elective). If **upper quartile** targets are achieved, this reduction is 31 beds (4 Elective, 27 Non Elective).
- Factoring in demographic growth an additional 52 beds (median ALoS benchmark) or 46 beds (upper quartile ALoS benchmark) will be required by 2075.

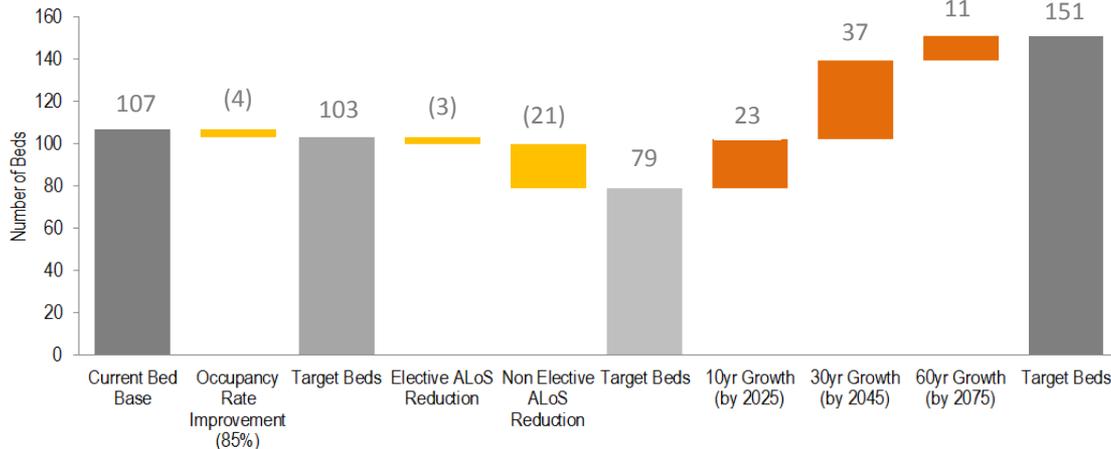
### UQ Benchmarks



# Female Beds Analysis

## National Benchmarking – Total Beds Saving Opportunity

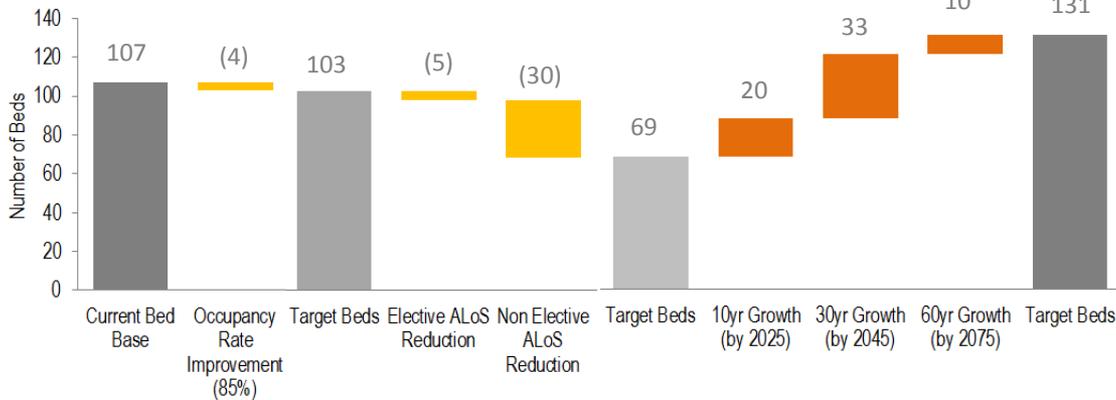
### Median Benchmarks



*By 2075, if median ALoS targets are achieved, Jersey Hospital will require 151 female adult beds. If upper quartile ALoS targets are achieved, 131 female adult beds will be required.*

- The number of adult female bed days in 2014 suggests that Jersey Hospital is operating at a 71% average occupancy rate and should see a reduction in beds with improved occupancy. At 85% occupancy the peak monthly requirement is 103 female beds (see slide 5). Therefore in practice, there is a potential reduction of 4 beds by increasing occupancy levels.
- If Length of Stay is reduced to the **median** national benchmark, a potential saving of 24 beds could be made (3 Elective and 21 Non Elective). If **upper quartile** targets are achieved, this reduction is 35 beds (5 Elective, 30 Non Elective).
- Factoring in demographic growth an additional 71 beds (median ALoS benchmark) or 63 beds (upper quartile ALoS benchmark) will be required by 2075.

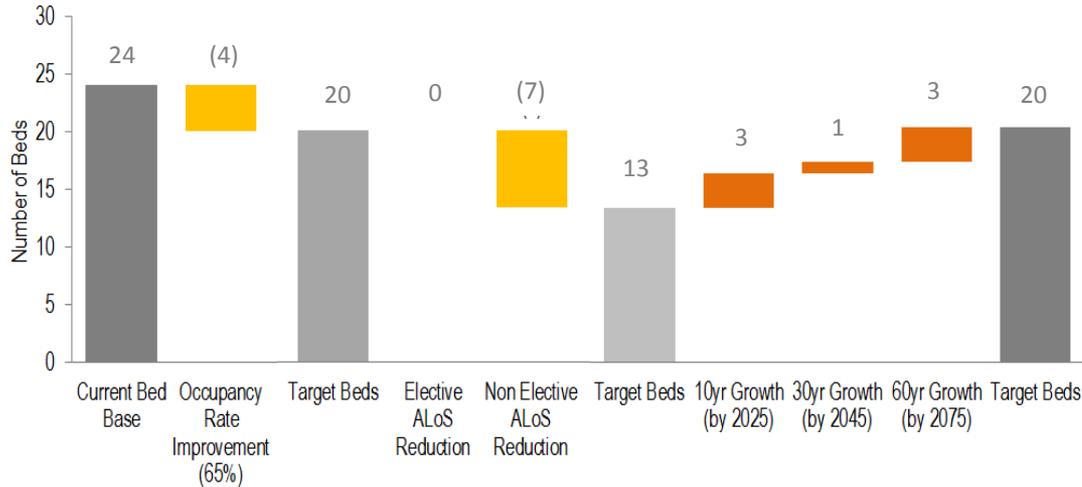
### UQ Benchmarks



# Maternity Beds Analysis

## National Benchmarking – Total Beds Saving Opportunity conscious

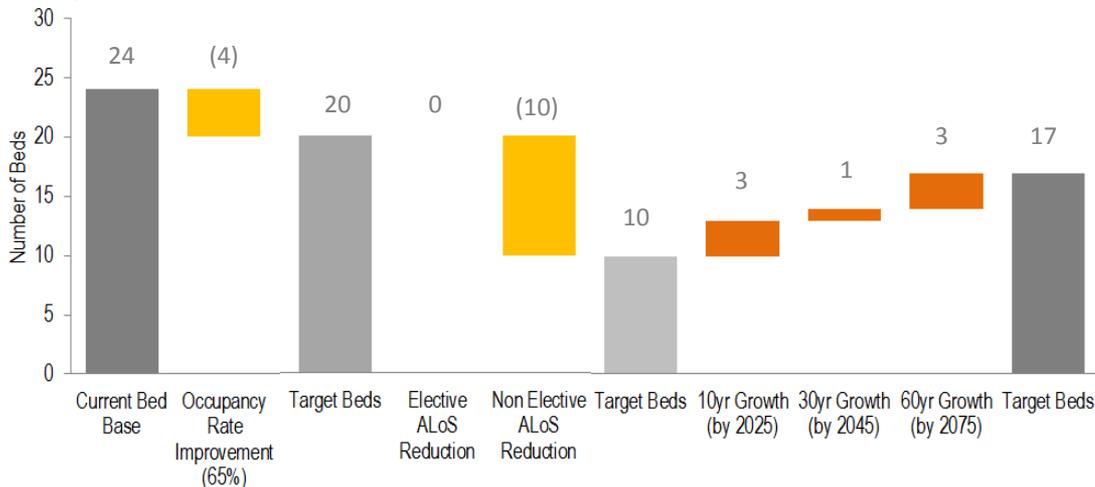
### Median Benchmarks



*By 2075, if median ALoS and occupancy targets are achieved, Jersey Hospital will require 20 maternity beds. If upper quartile ALoS targets are achieved, 17 maternity beds will be required.*

- The number of maternity bed days in 2014 suggests that Jersey Hospital is operating at a 42% average occupancy rate. At 65% occupancy the peak monthly requirement is 20 maternity beds (see slide 5). Therefore in practice, there is a potential reduction of 4 beds by increasing maternity occupancy levels.
- If Length of Stay is reduced to the **median** national benchmark, a potential saving of 7 beds could be made. If **upper quartile** targets are achieved, this reduction is 10 beds.
- Factoring in demographic growth an additional 7 beds will be required by 2075.

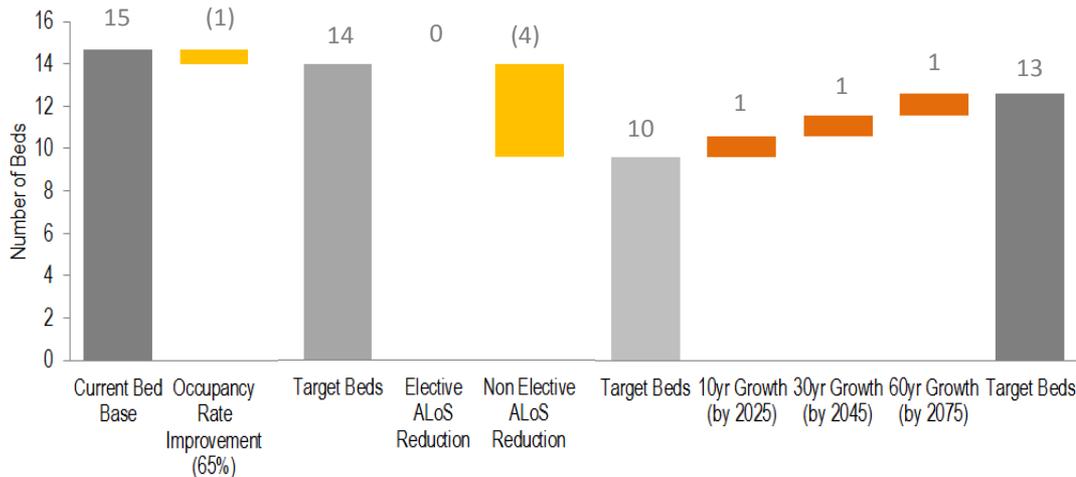
### UQ Benchmarks



# Paediatric Beds Analysis

## National Benchmarking – Total Beds Saving Opportunity

### Median Benchmarks



*By 2075, if median ALoS targets are achieved, Jersey Hospital will require 13 paediatric beds. If upper quartile ALoS targets are achieved, 11 paediatric beds will be required.*

- The number of paediatric\* bed days in 2014 suggests that Jersey Hospital is operating at a 50% average occupancy rate. At 65% occupancy the peak monthly requirement is 14 paediatric beds (see slide 5). Therefore in practice there is a reduction of 1 bed by increasing paediatric occupancy levels.
- If Length of Stay is reduced to the **median** national benchmark, a potential saving of 4 beds could be made (all Non Elective). If **upper quartile** targets are achieved, this reduction is 6 beds (all Non Elective).
- Factoring in demographic growth an additional 3 beds will be required by 2075.

### UQ Benchmarks

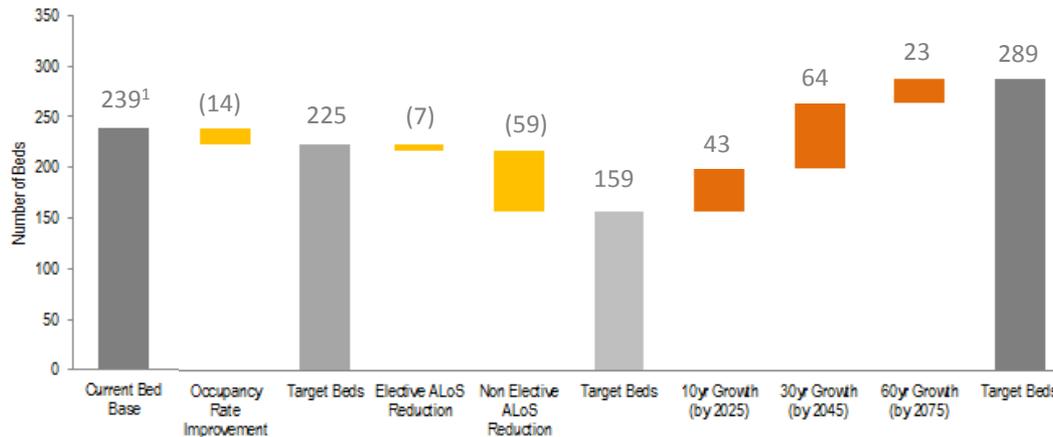


\*Paediatric is defined as age <=16 years at admission

# Summary Beds Analysis

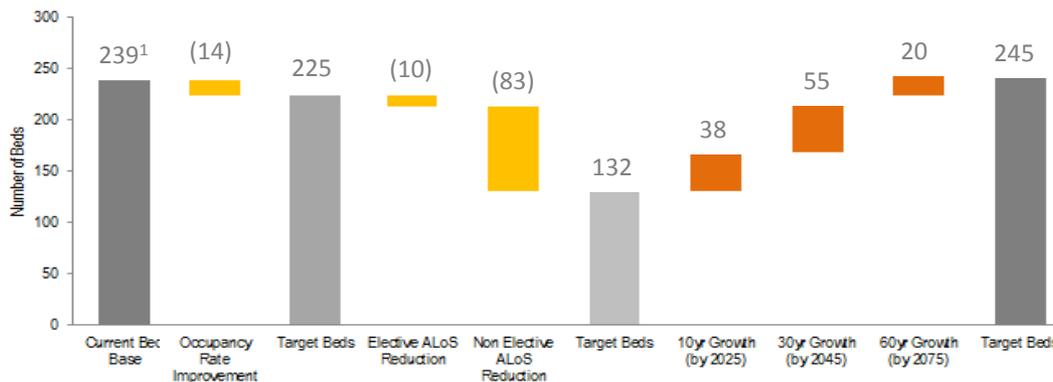
## Peer Group Benchmarking – Total Beds Saving Opportunity

### Median Benchmarks



*Summarising Male and Female Adult, Maternity and Paediatric beds, if the peer group median ALoS targets are achieved, Jersey Hospital will require a bed base of 289 beds in 2075. This figure assumes no further change in Length of Stay over the next 60 years. If upper quartile ALoS targets are achieved, 245 beds will be required. A breakdown of each area (Adult Male, Adult Female, Maternity and Paediatric) forms the basis of the following slides.*

### UQ Benchmarks



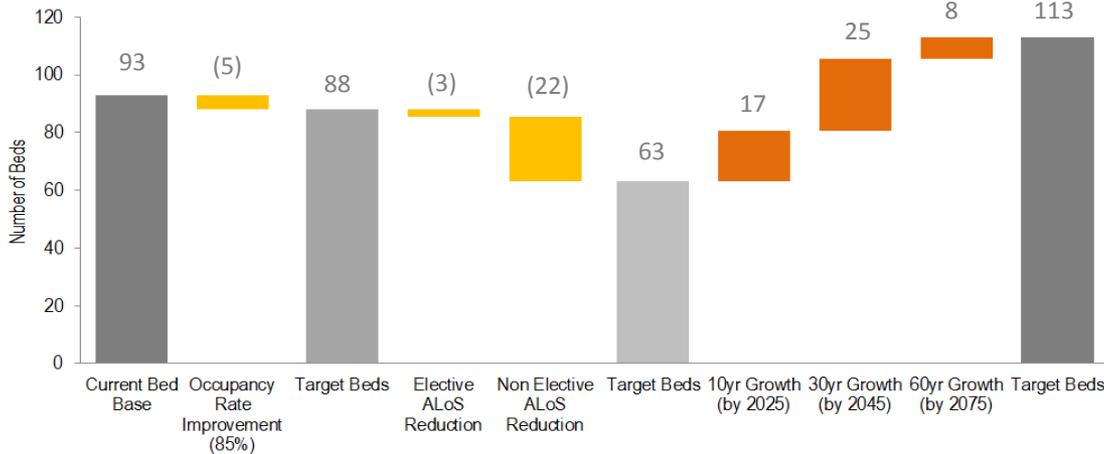
- If Length of Stay is reduced to the **median** national benchmark, a potential saving of 66 beds could be made (7 Elective and 59 Non Elective). If **upper quartile** targets are achieved, this reduction is 93 beds (10 Elective, 83 Non Elective).
- Factoring in demographic growth an additional 130 beds (median ALoS benchmark) or 113 beds (upper quartile ALoS benchmark) will be required by 2075.

<sup>1</sup>Excludes SCBU Cots

# Male Beds Analysis

## Peer Benchmarking – Total Beds Saving Opportunity

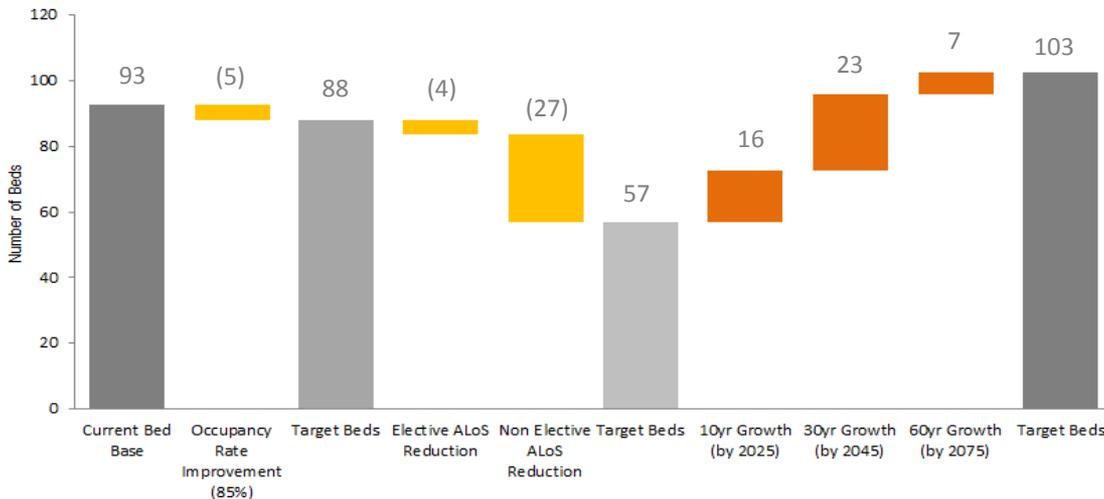
### Median Benchmarks



*By 2075, if median ALoS targets are achieved, Jersey Hospital will require 113 male adult beds. If upper quartile ALoS targets are achieved, 103 male adult beds will be required.*

- The number of adult male bed days in 2014 suggests that Jersey Hospital is operating at a 66% average occupancy rate and should see a reduction in beds with improved occupancy. At 85% occupancy the peak monthly requirement is 88 male beds (see slide 5). Therefore in practice, there is a potential reduction of 5 beds by increasing occupancy levels.
- If Length of Stay is reduced to the **median** peer benchmark, a potential saving of 25 beds could be made (3 Elective and 22 Non Elective). If **upper quartile** targets are achieved, this reduction is 31 beds (4 Elective, 27 Non Elective).
- Factoring in demographic growth an additional 50 beds (median ALoS benchmark) or 46 beds (upper quartile ALoS benchmark) will be required by 2075.

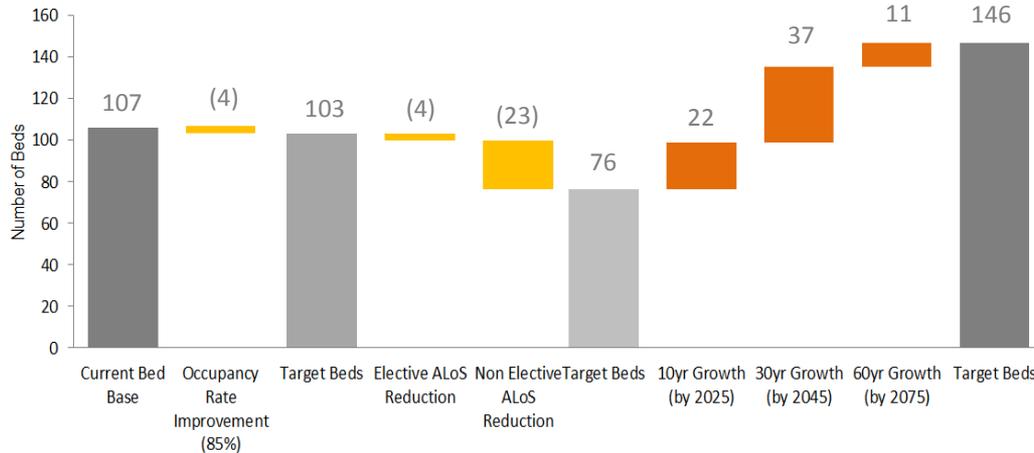
### UQ Benchmarks



# Female Beds Analysis

## Peer Group Benchmarking – Total Beds Saving Opportunity

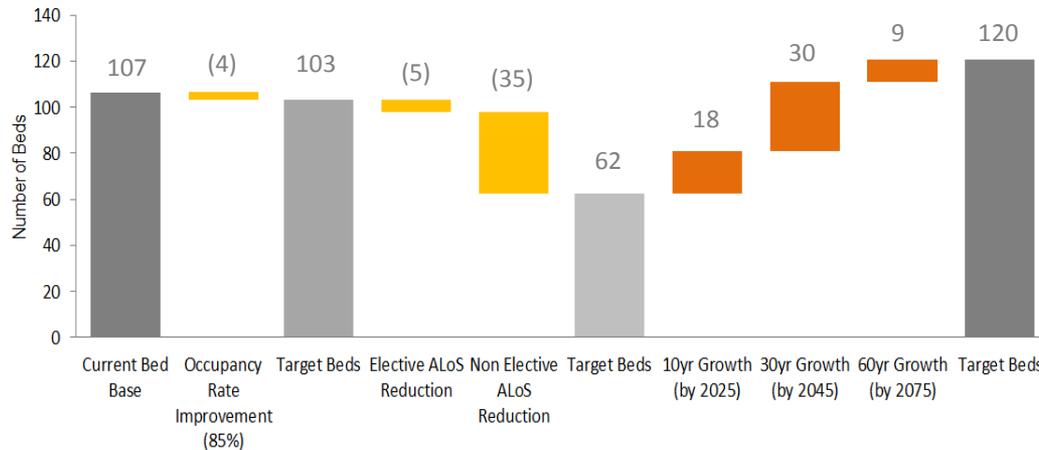
### Median Benchmarks



*By 2075, if median ALoS targets are achieved, Jersey Hospital will require 146 female adult beds. If upper quartile ALoS targets are achieved, 120 female adult beds will be required.*

- The number of adult female bed days in 2014 suggests that Jersey Hospital is operating at a 71% average occupancy rate and should see a reduction in beds with improved occupancy. At 85% occupancy the peak monthly requirement is 103 female beds (see slide 5). Therefore in practice, there is a potential reduction of 4 beds by increasing occupancy levels.
- If Length of Stay is reduced to the **median** peer benchmark, a potential saving of 27 beds could be made (4 Elective and 23 Non Elective). If **upper quartile** targets are achieved, this reduction is 40 beds (5 Elective, 35 Non Elective).
- Factoring in demographic growth an additional 70 beds (median ALoS benchmark) or 57 beds (upper quartile ALoS benchmark) will be required by 2075.

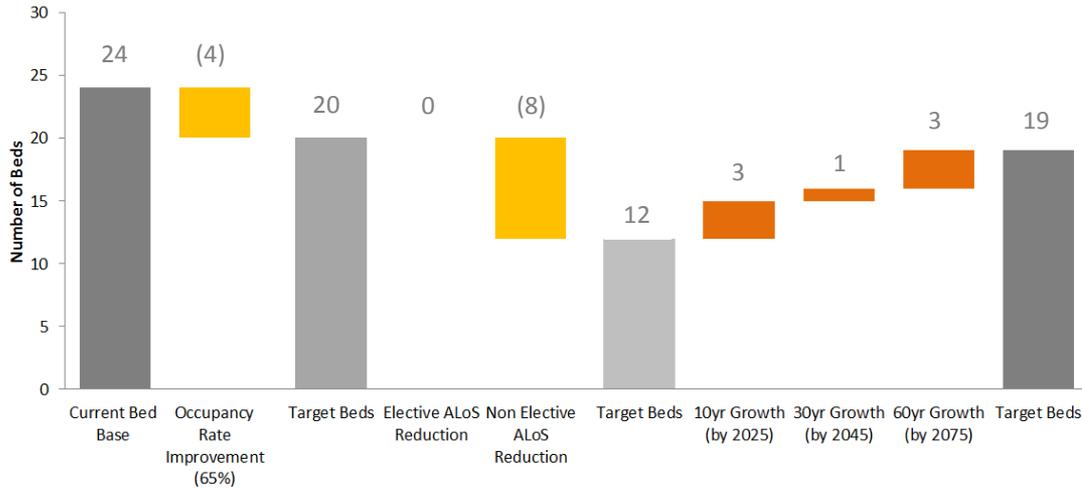
### UQ Benchmarks



# Maternity Beds Analysis

## Peer Group Benchmarking – Total Beds Saving Opportunity

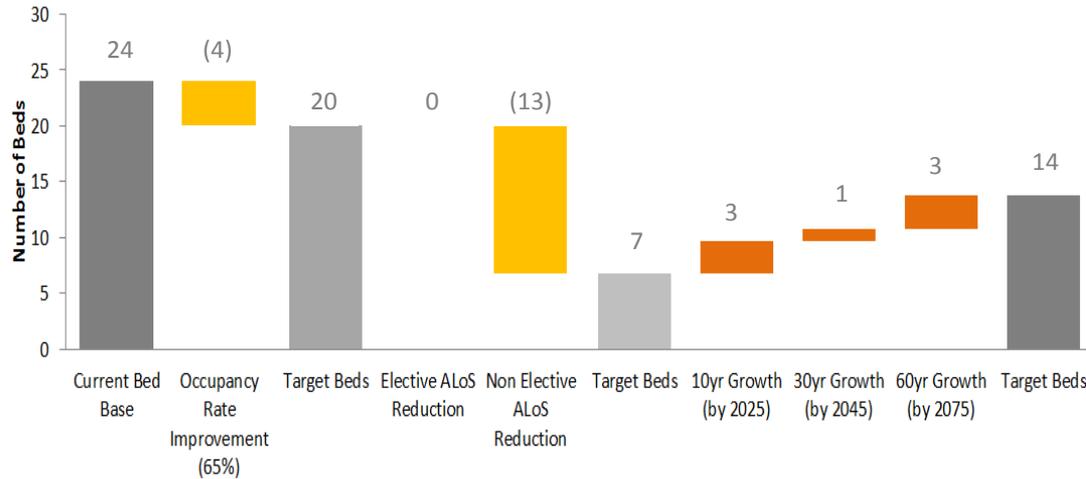
### Median Benchmarks



*By 2075, if median ALoS and occupancy targets are achieved, Jersey Hospital will require 19 maternity beds. If upper quartile ALoS targets are achieved, 14 maternity beds will be required.*

- The number of maternity bed days in 2014 suggests that Jersey Hospital is operating at a 42% average occupancy rate. At 65% occupancy the peak monthly requirement is 20 maternity beds (see slide 5). Therefore in practice there is a reduction of 4 beds by increasing maternity occupancy levels.
- If Length of Stay is reduced to the **median** peer benchmark, a potential saving of 8 beds could be made. If **upper quartile** targets are achieved, this reduction is 13 beds.
- Factoring in demographic growth an additional 7 beds will be required by 2075.

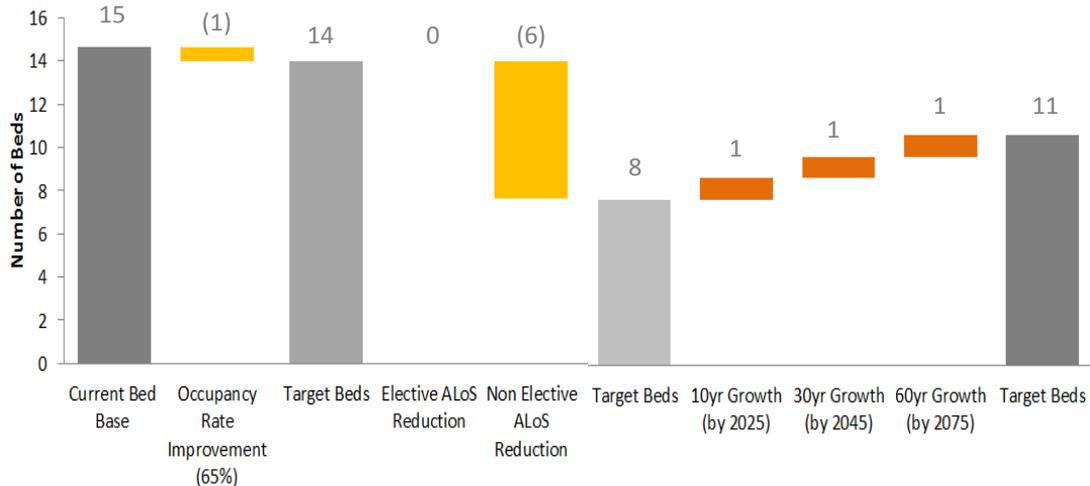
### UQ Benchmarks



# Paediatric Beds Analysis

## Peer Group Benchmarking – Total Beds Saving Opportunity

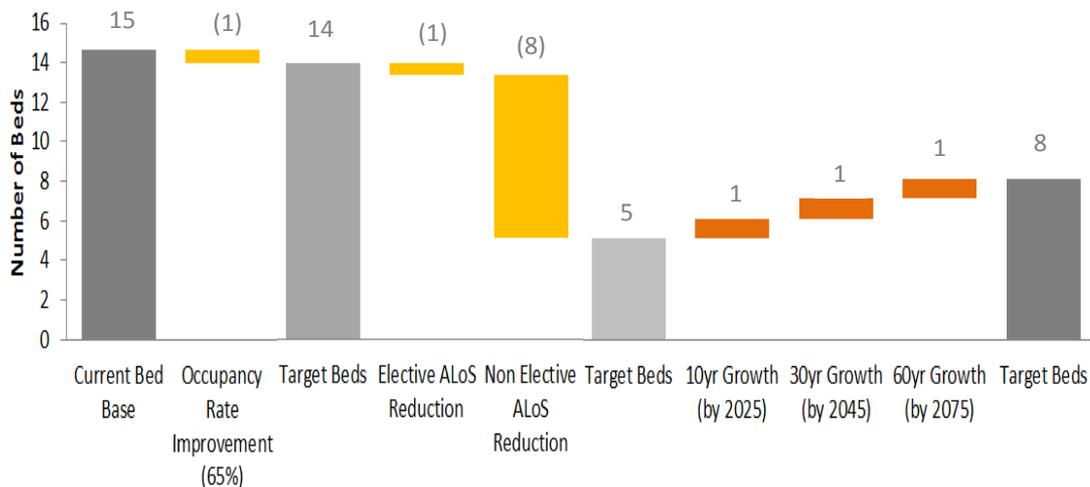
### Median Benchmarks



*By 2075, if median ALoS targets are achieved, Jersey Hospital will require 11 paediatric beds. If upper quartile ALoS targets are achieved, 8 paediatric beds will be required.*

- The number of paediatric\* bed days in 2014 suggests that Jersey Hospital is operating at a 50% average occupancy rate. At 65% occupancy the peak monthly requirement is 14 paediatric beds (see slide 5). Therefore in practice there is a reduction of 1 bed by increasing paediatric occupancy levels.
- If Length of Stay is reduced to the **median** peer benchmark, a potential saving of 6 beds could be made (all Non Elective). If **upper quartile** targets are achieved, this reduction is 9 beds (1 Elective, 8 Non Elective).
- Factoring in demographic growth an additional 3 beds will be required by 2075 for both median and upper quartile targets.

### UQ Benchmarks

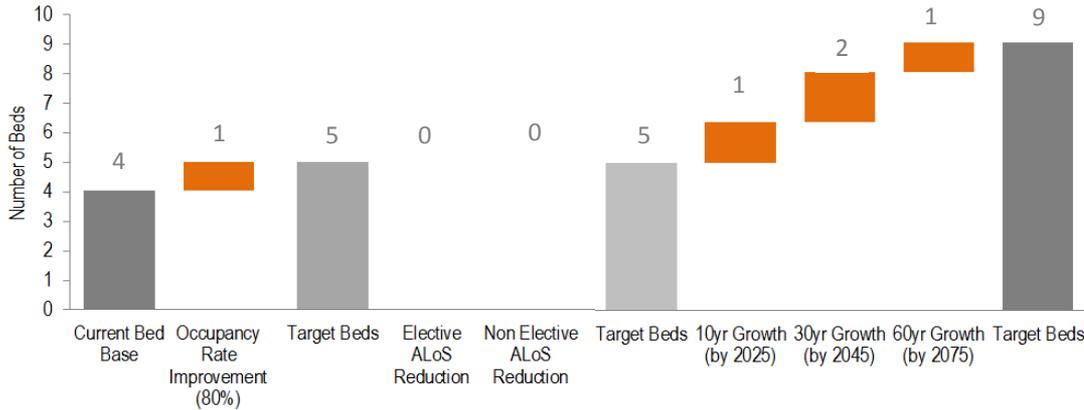


\*Paediatric is defined as age <=16 years at admission

# Critical Care Analysis

## Total Beds Saving Opportunity

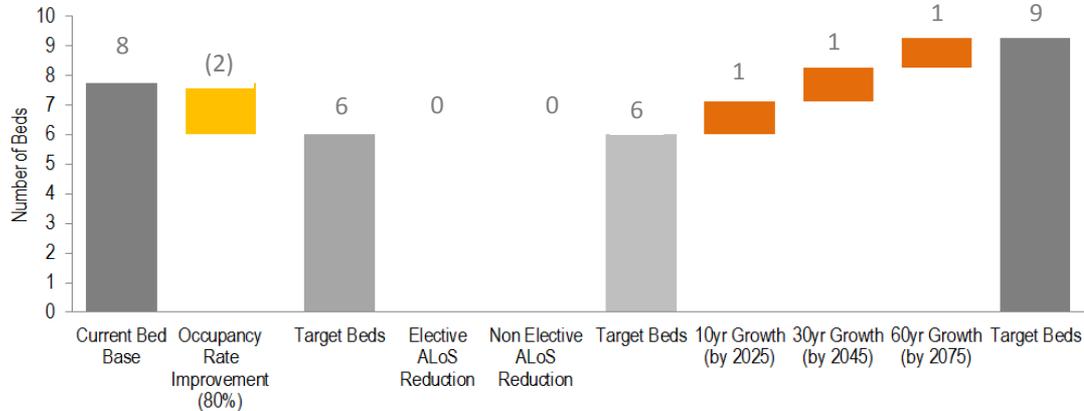
### HDU



*By 2075, if occupancy targets are achieved, Jersey Hospital will require 9 HDU beds and 9 ICU beds*

- The number of critical care bed days in 2014 suggests that Jersey Hospital is operating at a 70% average occupancy rate for HDU and 50% for ICU. At 80% occupancy the peak monthly requirement is 5 HDU beds and 6 ICU beds (see slide 6). Therefore in practice there is a reduction of 2 ICU beds but a requirement for 1 extra HDU bed.
- Factoring in demographic growth an additional 4 HDU beds and 3 ICU beds will be required by 2075.

### ICU



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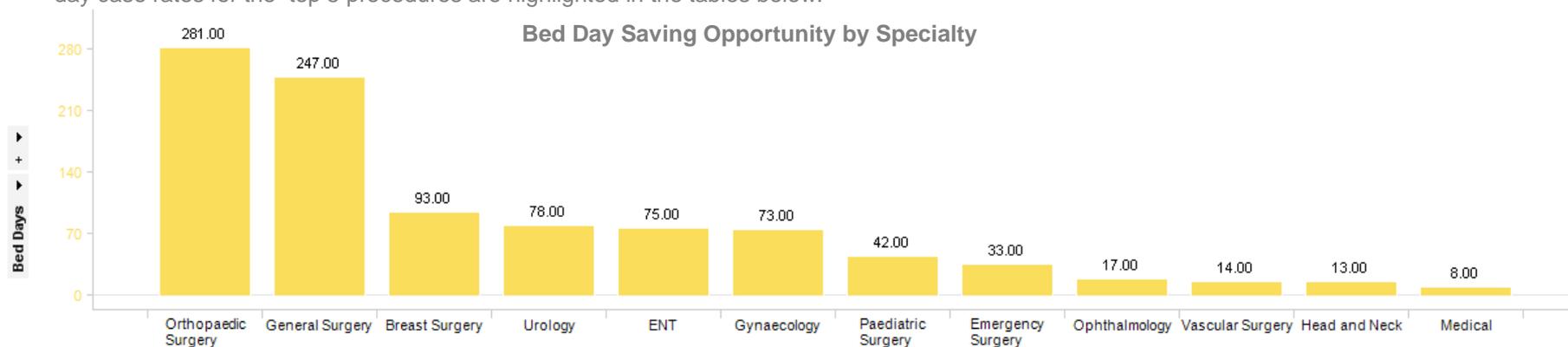
# BADS Analysis

## British Association of Day Surgery Savings Opportunity

*Length of stay improvements can be realised by achieving best practice targets for day case procedures set by the British Association of Day Surgery. Achieving these targets could result in a bed reduction of up to 3 beds for Jersey Hospital.*

### Bed Day Savings by Speciality

If best practice targets had been achieved in 2014, a reduction of 974 bed days could have been realised which corresponds to 3 beds at 85% occupancy. Of the total Bed Day Opportunity 54% falls under Orthopaedic Surgery and General Surgery. The bed day opportunity and target day case rates for the top 5 procedures are highlighted in the tables below.



### Top 5 Procedures for Bed Day Savings

Procedure	Current DC Rate	Target DC Rate	Bed Day savings
Arthroscopy of knee including meniscectomy, meniscal or other repair	78%	95%	109
Primary repair of inguinal hernia	46%	95%	73
Diagnostic laparoscopy	59%	85%	57
Simple mastectomy (without axillary surgery)	0%	30%	53
Bunion operations with or without internal fixation and soft tissue correction	32%	85%	49

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# Theatre Analysis

## Assumptions and Methodology

### Data

- The Theatres Analysis is based on the following two data sources provided by Jersey Hospital:-
  - Theatre Data 2014
  - Theatre sessions\_main-DSU\_2014
- A combination of operation date, and session ID (which includes Surgeon Name, session time and session location) was used as an identifier in file 2) above, such that a planned session start and planned session end time could be matched to the individual cases in file 1). All other data came from file 1).
- 30 sessions were omitted from the analysis due to operations ending **before** the operation start time. These were excluded to avoid skewing utilisation.
- Where there was no available session start and/or end time, these entries have been omitted from the analysis. This affected approx. 350 entries out of a total 11,000.
- 336 sessions contained significant time overlaps between individual procedures within the session. This led to inflated used planned time and total operating time. For these sessions, used planned time was set to equal planned session time and total operating time was reduced by the difference in the planned session time and used planned time.
- To remove non elective and maternity sessions from the utilisation calculation we removed only those sessions which included only non elective or maternity activity.

### Demographic growth

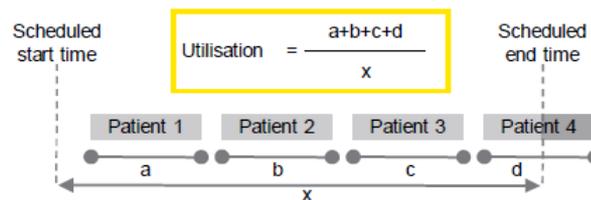
- Using population forecasts provided to EY by Jersey Hospital (sourced back to 2011 Census), the following demographic growth assumptions have been used. The table on the left shows the raw population forecasts by time period and age group, and the table on the right converts these into the growth rates that have been used in further analysis.
- Results projected into the future are based *only* on this demographic change assumption.

Population	2015	2025	2045	2075
0-17	19,206	19,516	19,855	20,437
18-64	64,758	65,291	64,588	67,018
65-80	12,450	16,234	19,247	19,760
81+	3,848	5,564	11,205	14,690
Total Population	100,261	105,986	114,896	121,906

Growth Rate	10yr (2025)	30yr (2045)	60yr (2075)
0-17	1.6%	1.7%	2.9%
18-64	0.8%	(1.1%)	3.8%
65-80	30.4%	18.6%	2.7%
81+	44.6%	101.4%	31.1%
Total Population	5.7%	8.4%	6.1%

### Methodology

- Utilisation (Planned Time) calculated as:



- Utilisation (inc Non Planned Time) is calculated as above, with Patient 4's full case time included
- Utilisation (inc Non Plan Time) was used to calculate session utilisations
- The opportunity is calculated based on achieving target utilisations for **each session**
- If the session utilisation is lower than the target, the difference is used to calculate the time that could be saved within the planned session time should the target be achieved
- A **lower target of 80%** and an **upper target of 90%** utilisation were used to calculate the opportunity, excluding **Maternity** sessions, where a target of 70% is assumed for *both* lower and upper targets.

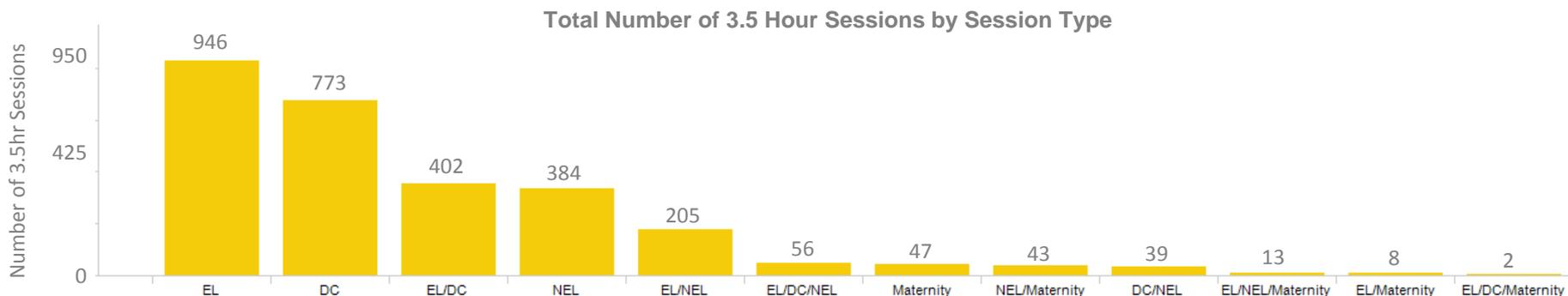
# Theatre Analysis

## Activity and Current Utilisation

Currently Jersey Hospital has 2,920 3.5 hour sessions worth of demand with Elective Session utilisation of 73% utilisation and Day case session utilisation of 71%

### Current Activity by List Type

Based on demand data for 2014, Jersey Hospital ran 2,930 3.5 hour sessions with c.74% of the sessions purely Elective, Day case or Elective and Day case sessions. Key metrics for Elective, Day case, Non Elective and Maternity Sessions are highlighted below.



### Current Elective and Day case Demand and Session Utilisation

ListType	Number of Cases	Avg Case Time (mins)	Utilisation (Planned Time)	Utilisation (inc. Non Plan Time)
DC	4,483	36.21	71.02%	76.95%
EL	2,286	86.9	73.26%	92.89%
EL/DC	1,498	56.42	76.83%	89.04%

### Current Non Elective and Maternity Demand and Session Utilisation

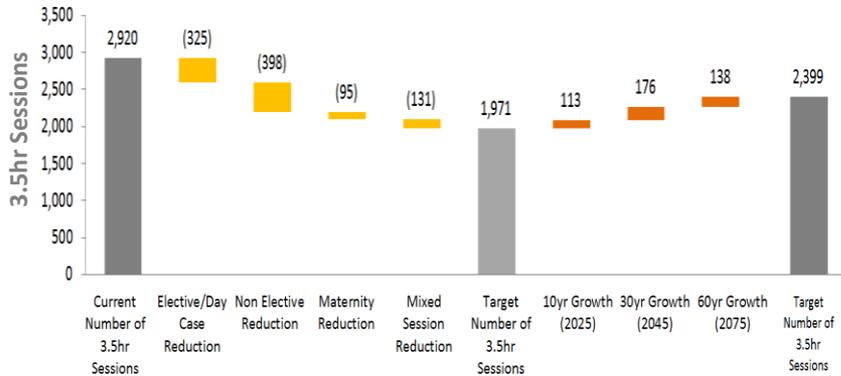
ListType	Number of Cases	Avg Case Time (mins)	Utilisation (Planned Time)	Utilisation (inc. Non Plan Time)
NEL	956	84.45	26.50%	52.33%
Maternity	128	77.8	12.79%	28.90%
NEL/Maternity	105	87.89	36.63%	45.41%

# Theatre Analysis

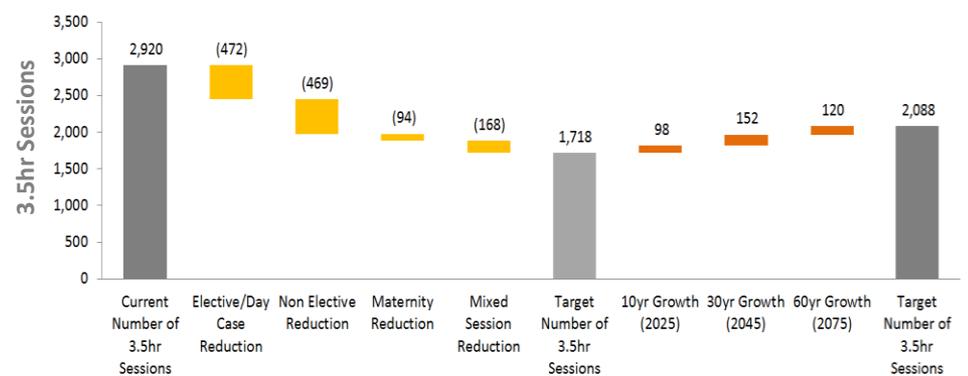
## Opportunity (3.5 hour sessions)

By achieving a theatre utilisation of 80%, and after factoring in demographic growth Jersey Hospital could save **521 3.5 hour theatre sessions**. Furthermore, by achieving a utilisation of 90%, the hospital could save **832 3.5 hour theatre sessions**.

### 3.5hr Session Savings at 80% Utilisation

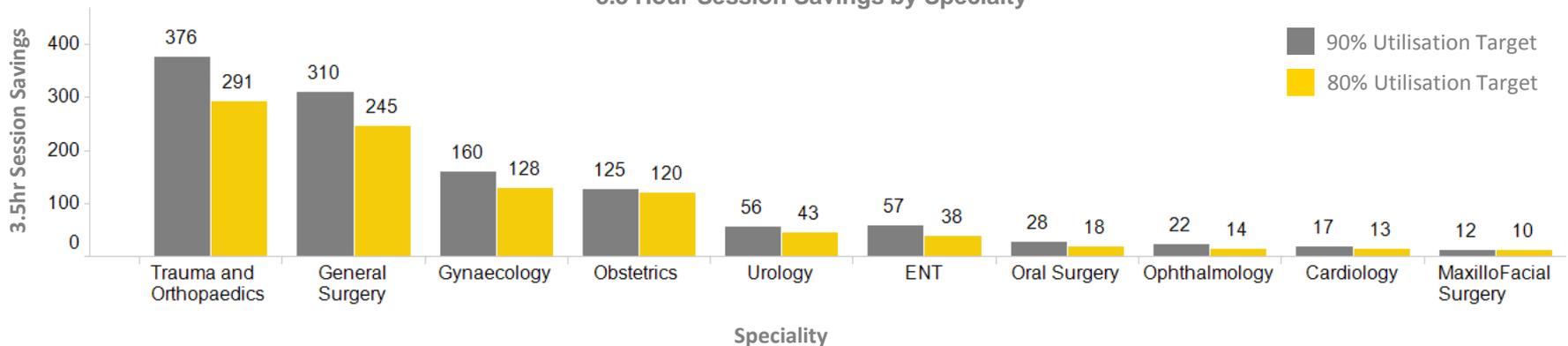


### 3.5hr Session Savings at 90% Utilisation



The graph below highlights the key target areas for Jersey Hospital by demonstrating the top 10 session saving opportunities by speciality.

### 3.5 Hour Session Savings by Speciality

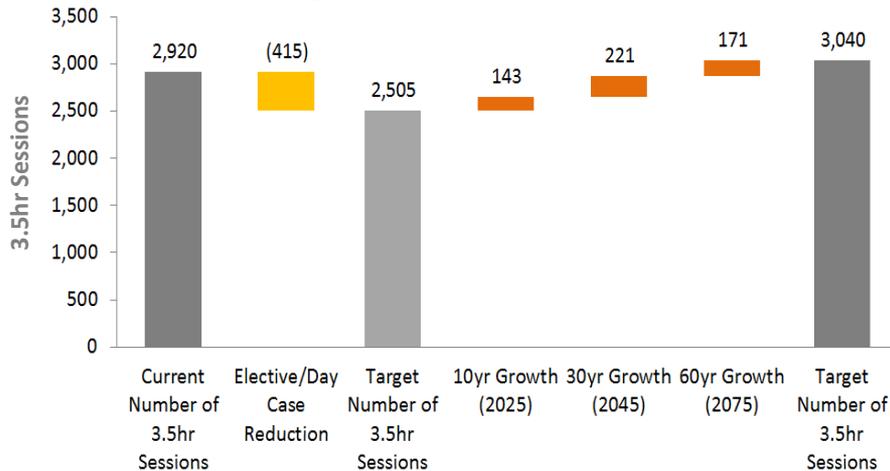


# Theatre Analysis

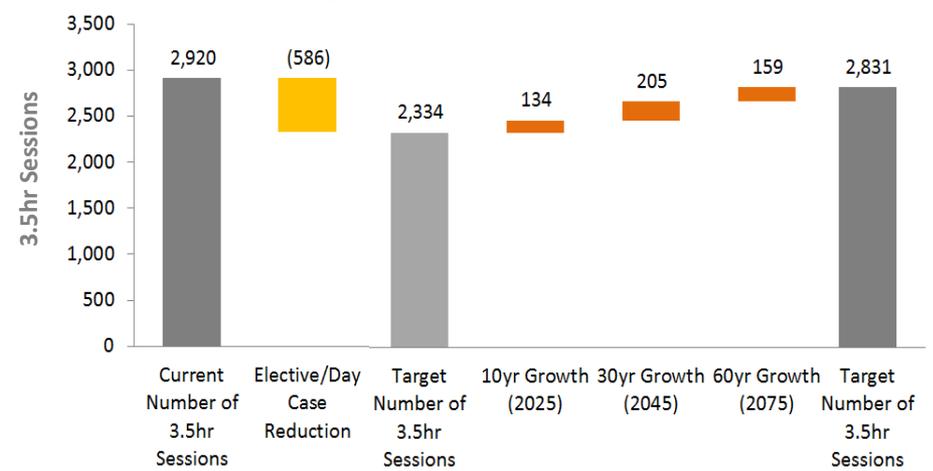
## Opportunity (3.5 hour sessions, excluding non elective and maternity sessions)

By achieving a theatre utilisation of 80% for elective and day case sessions, and after factoring in demographic growth Jersey Hospital would need an additional **120 3.5 hour theatre sessions**. By achieving a utilisation of 90%, the hospital could save **89 3.5 hour theatre sessions**.

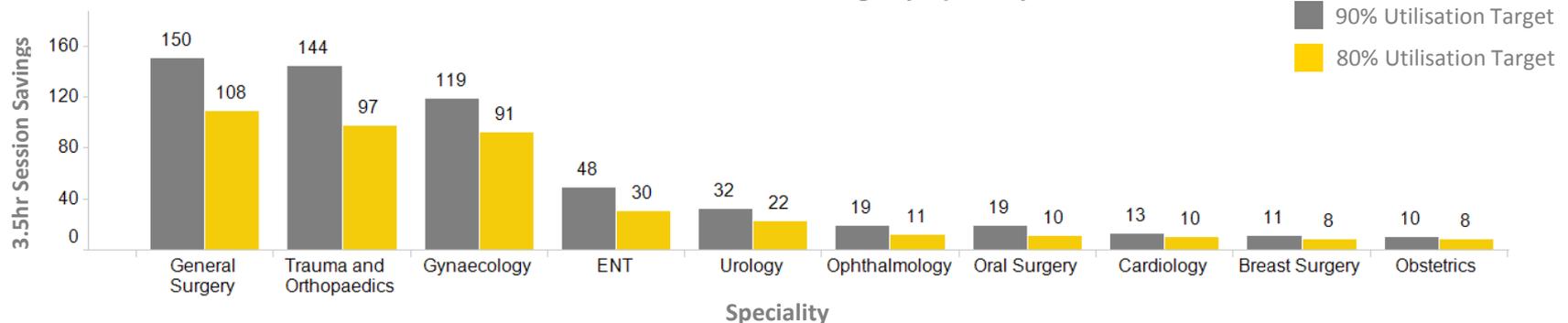
### 3.5hr Session Savings at 80% Utilisation



### 3.5hr Session Savings at 90% Utilisation



### 3.5 Hour Session Savings by Specialty

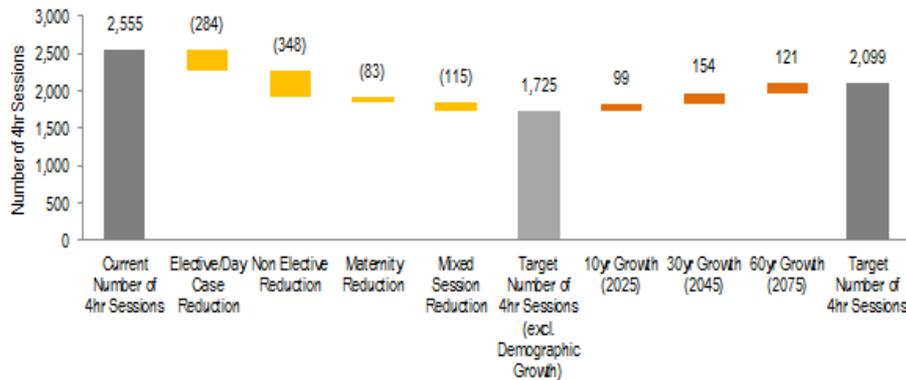


# Theatre Analysis

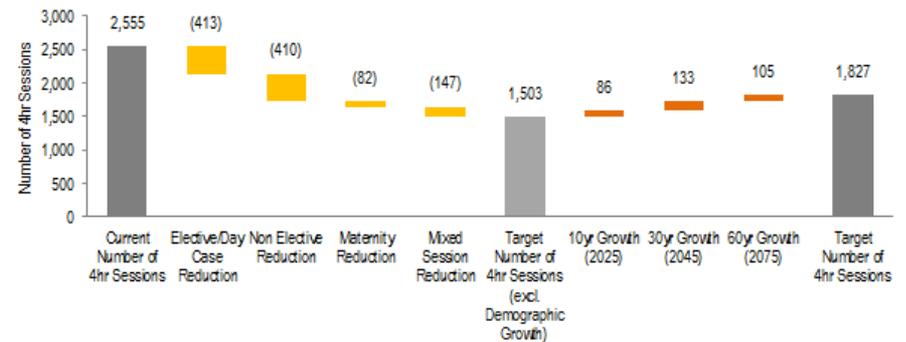
## Opportunity (4 hour sessions)

By achieving a theatre utilisation of 80%, and after factoring in demographic growth Jersey Hospital could save **456 four hour theatre sessions**. Furthermore, by achieving a utilisation of 90%, the hospital could save **728 four hour theatre sessions**.

4hr Session Savings at 80% Utilisation

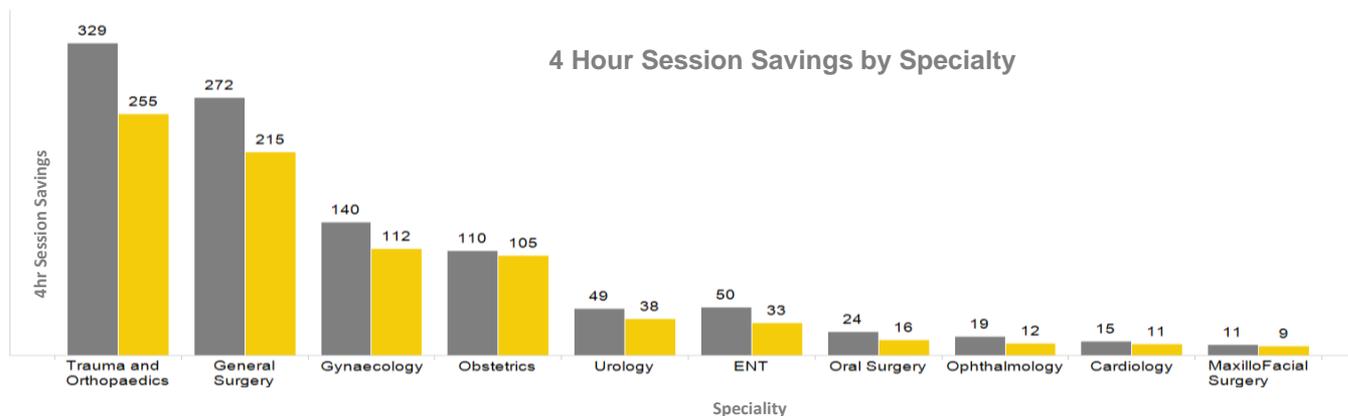


4hr Session Savings at 90% Utilisation



The graph below highlights the key target areas for Jersey Hospital by demonstrating the top 10 session saving opportunities by speciality.

4 Hour Session Savings by Speciality

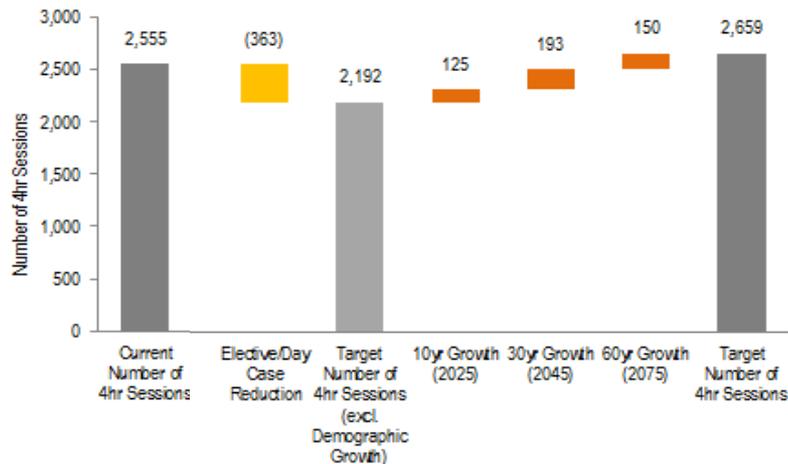


# Theatre Analysis

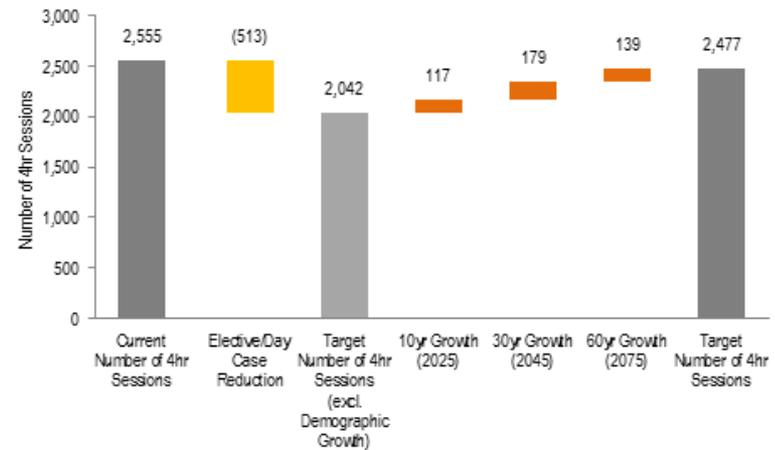
## Opportunity (4 hour sessions, excluding non elective and maternity sessions)

By achieving a theatre utilisation of 80% for elective and day case sessions, and after factoring in demographic growth Jersey Hospital would need an additional **104 four hour theatre sessions**. By achieving a utilisation of 90%, the hospital could save **78 four hour theatre sessions**.

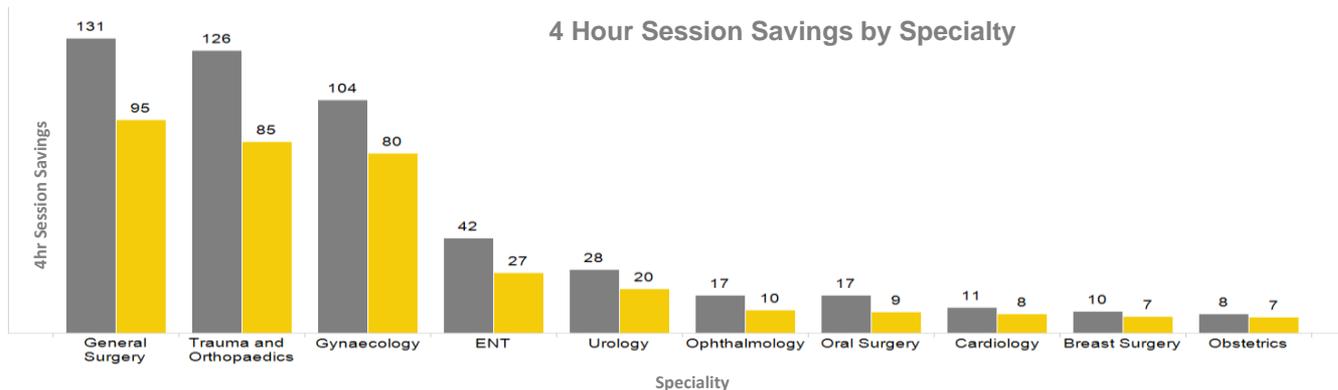
### 4hr Session Savings at 80% Utilisation



### 4hr Session Savings at 90% Utilisation



### 4 Hour Session Savings by Speciality



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# Outpatient Analysis

## Benchmarking Assumptions and Methodology

### Data

- The Outpatient Analysis is based on the following data sources provided by Jersey Hospital:-
  - 1) *Consultant Led Clinics Summary sheet 06102013.xlsx*
  - 2) *Copy of Outpatient\_All\_Attendance\_2013\_PainAdjusted.xlsx*
  - 3) *Outpatient Rooms.xlsx*
  - 4) Specialty models for Cardiology, ENT and Gynaecology
- Paediatric Cardiology has been excluded from the Cardiology analysis as it forms part of the Paediatrics specialty model.
- Gynaecology Oncology has been included in the Gynaecology analysis as it forms part of both the Gynaecology and Oncology speciality models.
- Consultant led activity was identified by filtering the 'Resource (clinician)' field of the *Copy of Outpatient\_All\_Attendance\_2013\_PainAdjusted* spreadsheet, by Consultant/Junior Doctor names (obtained from the specialty models)

### Demographic growth

- Using population forecasts provided to EY by Jersey Hospital (sourced back to 2011 Census), the following overall demographic growth rates have been used.

Growth Rate	10yr (2025)	30yr (2045)	60yr (2075)
Total Population	5.7 %	8.4 %	6.1 %

- All future capacity estimates include demographic growth alone, no other factors (i.e. DNA rates etc.) have been included.

### Methodology and Benchmarking

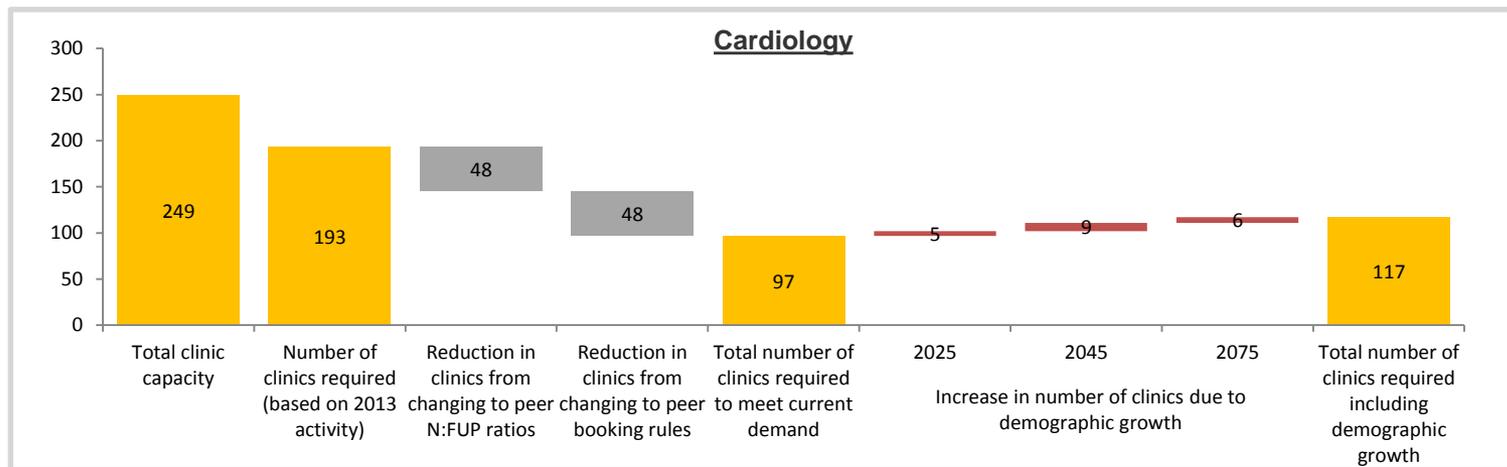
- The outpatient analysis has been undertaken across three specialities – Cardiology, ENT and Gynaecology and the inferences drawn have been applied across all specialities
- The analysis is undertaken on Consultant led activity, which appears to account for 84% of the overall activity.
- In the absence of data related to N:FUP ratios and booking rules for non consultant led activity, we were unable to benchmark this to peer group standards and therefore have excluded this from our analysis.
- The outpatient clinic capacity has been derived from the Consultant Led Clinics Summary sheet 06102013, using the 'Number of Clinicians' field and assumes that all clinics run 42 weeks a year. For e.g. 3 for Cardiology on a Tuesday PM would imply  $3 \times 42 = 126$  clinics a year
- The outpatient demand has been based on actual patients seen (derived from the activity data source: *Copy of Outpatient\_All\_Attendance\_2013\_PainAdjusted*) and factors in DNA rates across the three specialities (obtained from the *Consultant Led Clinics Summary sheet 06102013*) to give total current demand
- The rural peer group used for benchmarking is "Small Acute" hospitals that are based in rural areas and are of similar size to Jersey Hospital
- Opportunity is calculated where the new to follow up ratios and subsequently, booking rules exceed the peer benchmark.

# Outpatient Analysis

## Outpatient clinics and Improvement Potential (1)

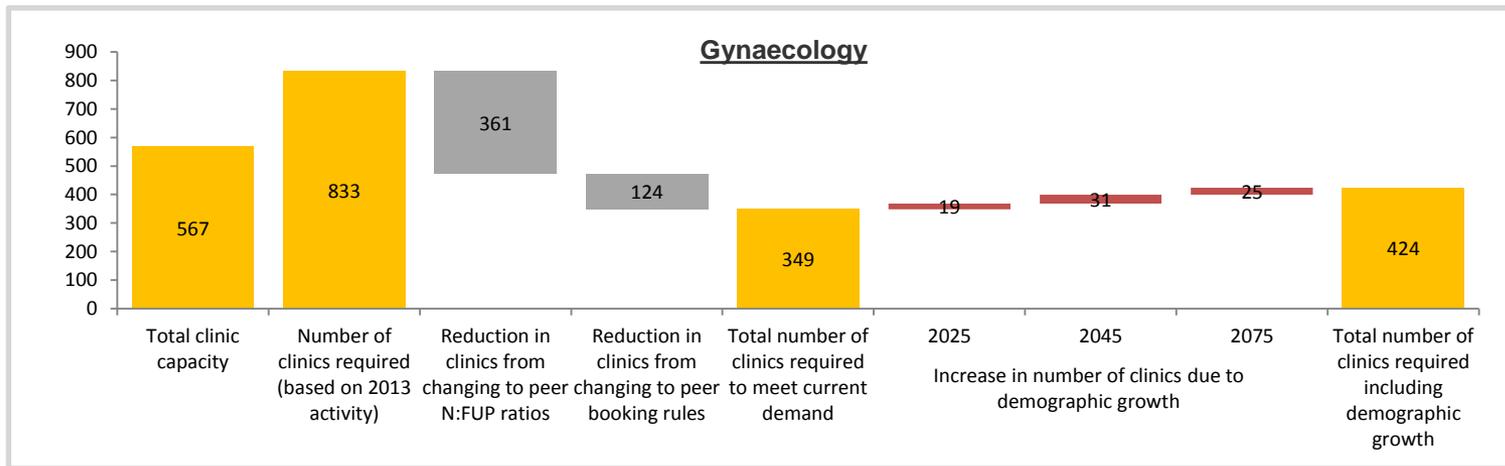
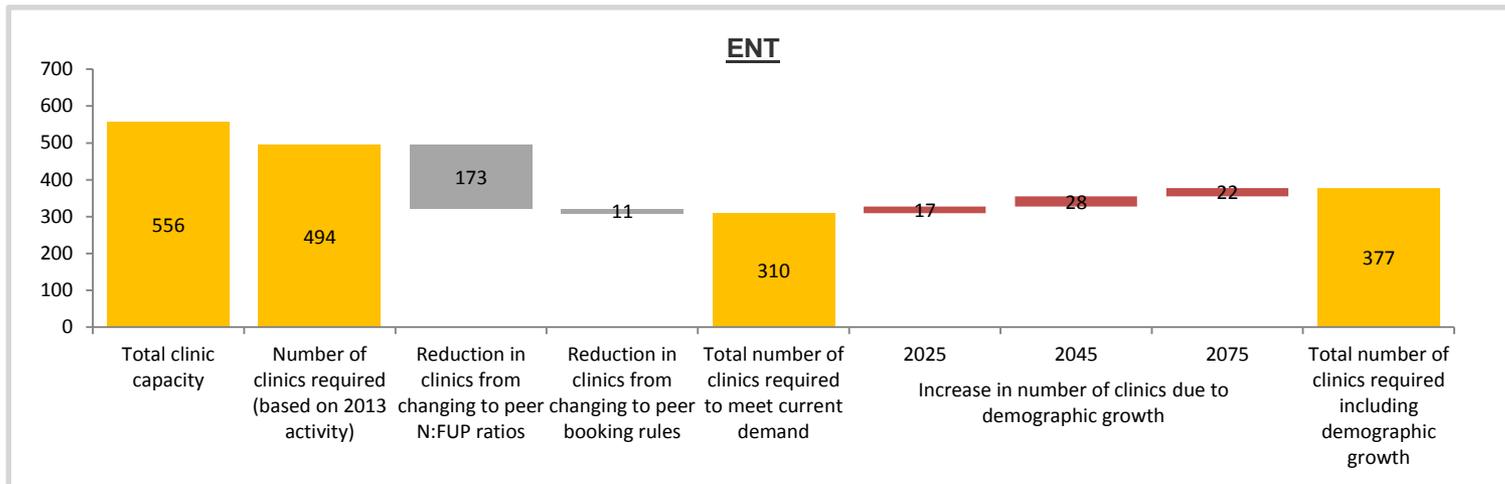
Based on analysis of actual 2013 outpatient activity, the graphs below illustrate the actual clinics held (2<sup>nd</sup> bar) at Jersey General Hospital in comparison with total clinic capacity (1<sup>st</sup> bar) and the potential reduction in the actual clinics if Jersey General Hospital were to: 1) change to peer N:FU ratios and 2) change to peer outpatient booking rules.

The graphs also illustrate the potential increase in the number of clinics required, based on demographic growth over a 10-50 year time period as agreed.



# Outpatient Analysis

## Outpatient clinics and Improvement Potential (2)



# Outpatient Analysis

## Outpatient Consultation rooms

Based on data provided in *Outpatient Rooms.xlsx* and our analysis of actual 2013 outpatient activity, the table below indicates the total number of consultation rooms assigned across the 3 specialties and highlights the increase in the number of consultation rooms due to demographic growth if: 1) Jersey General Hospital continues to operate without any changes and 2) Jersey General Hospital starts to operate with new peer N:FU ratios. Both figures assume no reduction in the Did Not Attend (DNA) rates between now and 2075.

Number of consultation rooms required – across 3 specialties				
Year	2015	2025	2045	2075
Operating at current N:FU ratios	16	17	18	19
Operating at Peer N:FU ratios	8	8	9	13

The data analysed suggests that the consultation rooms assigned across the 3 specialties account for 15% of total number of consultation rooms. Therefore, if we were to extrapolate the figures above across all specialties, we would have:

Number of consultation rooms required – across all specialties				
Year	2015	2025	2045	2075
Operating at current N:FU ratios	107	113	122	130
Operating at Peer N:FU ratios	53	56	61	65

# Outpatient Analysis

## Overall Summary

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- Summarising our finding across the three specialities, if peer group N:FU ratios are achieved, Jersey General Hospital will require 34% less clinics than being held now. Equally, if Jersey General Hospital starts to operate at peer booking rule standards, it will require 14% less clinics. The combined impact of both of these factors together is an overall reduction by 48%.
- Amongst the various measures that Jersey General Hospital can take to reduce the number of outpatient clinics, the biggest driver appears to be the potential to reduce N:FU ratios. Based on 2013 data, apart from Orthopaedics, Urology and Sports Medicine, all specialities have a higher N:FU ratio than the peer group, highlighting this is an area for improvement and potential savings.
- Impact of demographic growth between 2015 and 2075 indicates that whilst the number of clinics will increase subsequently over the years, the overall impact of improved productivity, if peer standards are achieved, would result in net reduction in the number of clinics held by 37% by 2075.
- If this were to be replicated across all specialities, the result would be a reduction the total number of clinic capacity from 8000+ to approximately 5000 clinics, by 2075.
- Currently, Jersey Hospital has 107 consultation rooms across all specialties. If peer standards were achieved and after factoring in demographic growth, these could be reduced to 79 consultation rooms by 2075.

Area of Service	Simple consultation/ examination rooms	Function specific rooms	Multiple occupancy room
All outpatient activity	91	15	1*
Across the three specialties	11	5	-

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