

PLANNED CARE SURGICAL FLOW PROGRAMME

Aim

In order to improve access for our patients for both emergency surgery and elective surgery, we aim to seek approval from the Board to progress with implementation of work as part of the Planned Care Surgical Flow Programme, specifically the level of investment associated with:

- Providing a 1.5 combined emergency theatre resource & 3.5 elective theatre resource
- Implementing a combined/interchangeable elective surgical ward, with 5 day smoothing bringing back our sendaways

Background

NHS Borders is one of four NHS Boards in Scotland on the final year of a three year programme to improve patient flow sponsored by the Scottish Government. The Institute for Healthcare Optimization (IHO) are supporting the project.

In December 2014, a stakeholder event was held with representation from medical and surgical services as well as members of the Executive Team in order to agree the priorities for the organisation.

The workstreams to be considered were:

- Workstream 1: Reengineering theatres
- Workstream 2: Reengineering surgical inpatient flow
- Workstream 3: Reengineering medical inpatient flow

Agreement was reached to focus on ensuring both reengineering theatres and the surgical footprint to ensure they meet the capacity and demand needs of NHS Borders. NHS Borders therefore made the decision to focus on theatres and surgical inpatient flow, specifically:

- Improving access to theatres for both emergency and scheduled patients
- Spreading our elective inpatient admissions evenly across the week which will identify the appropriate number of beds required for our elective patients

Summary

In order to improve access for our patients to both emergency and elective theatres, we are proposing to implement the following:

- Provide a 1.5 combined emergency theatre resource & 3.5 elective theatre resource
- Implement a combined/interchangeable elective surgical ward, with 5 day smoothing (spreading our elective inpatient admissions evenly across the week) and bring back our sendaways (patients who are currently sent to the Golden Jubilee or private hospitals for their surgery)

Implementation of these options would mean that NHS Borders will achieve both quantitative and qualitative benefits which have been experienced in other health boards that IHO have worked with.

The associated resource implications for implementation are:

Recurring Costs	
Theatre Workstream recurring costs	£567k
Surgical Flow Workstream recurring costs	£26k
TOTAL	£593k

Non Recurring Costs	
Theatres Workstream non recurring costs	£230k
TOTAL	£230k

Cost reduction (sendaways)	£1.3m
-----------------------------------	--------------

The potential yearly recurring saving to the organisation would be:

Potential Annual Recurring Saving	
Repatriation of sendaways	£1.3m
Theatres Workstream costs	-£567k
Surgical Flow Workstream costs	-£26k
TOTAL	£707k

Recommendation

The Board is asked to **approve**:

- The costs associated with the implementation of a 1.5 combined emergency theatre option
- The costs associated with the implementation of a combined/interchangeable elective surgical ward in ward 9 bringing back our sendaways

Policy/Strategy Implications	None
Consultation	All surgical specialties have been involved throughout across medical, nursing & AHP staff. Partnership also represented on the Project Team. Guidance also sought from Scottish Government, IHO and Health Protection Scotland throughout project. Paper has also been through PACS Clinical Board & Strategy Group. Details of proposed combined ward also taken through BGH Clinical Governance Group.
Consultation with Professional Committees	N/A
Risk Assessment	Risks are highlighted in the paper and risk register is kept regularly maintained by the Programme Manager.

Compliance with Board Policy requirements on Equality and Diversity	Equality Impact Assessment completed.
Resource/Staffing Implications	Resource implications are described throughout the paper.

Approved by

Name	Designation	Name	Designation
Jane Davidson	Chief Executive	Katie Morris	General Manager – Planned Care & Commissioning

Author(s)

Name	Designation	Name	Designation
Karen Maitland	Service Improvement Facilitator – Planned Care	Chris Richard	Head of Service for Anaesthetics
Brian Magowan	Head of Service for Obstetrics & Gynaecology	Ali Mehdi	Head of Service for Orthopaedics
Martin Berlansky	Head of Service for General Surgery		

PLANNED CARE SURGICAL FLOW PROGRAMME UPDATE

Contents

Aim	2
Summary	2
Background & Assessment	4
Section 1 - Improving access to theatres for both emergency and scheduled patients.....	6
(a) Preferred option & reasons	7
(b) Risks & implications of implementation of the preferred option	7
(c) Timescales for Implementation for the preferred option	8
(d) Resource implications	8
Section 2 - Incorporating a smoothed elective inpatient flow which will identify the appropriate number of beds required for our elective patients	9
(a) Combined Elective Ward Concerns/Option Appraisal	9
(b) Preferred option & reasons	10
(c) Risks & implications of implementation of the preferred option	10
(d) Timescales for Implementation of preferred option	12
(e) Resource implications	12
Recommendation	Error! Bookmark not defined.
Appendix 1 – Performance Metrics	13
Appendix 2 – IHO Surgical Flow Project Team.....	16
Appendix 3 – Overview of IHO’s Variability Methodology	17
Appendix 4 – Details of options for improving access to theatres for both emergency and scheduled patients.....	18
Appendix 5 – Details of options for incorporating a smoothed elective inpatient flow which will identify the appropriate number of beds required for our elective patients ..	22
Appendix 6 – Results from non financial option appraisal	28
Appendix 7 – Results from financial option appraisal	29
Appendix 8 – Final Nursing Skill Mix used for Financial Appraisal.....	30

PLANNED CARE SURGICAL FLOW PROGRAMME UPDATE

Aim

In order to improve access for our patients for both emergency surgery and elective surgery, we aim to seek approval from the Board to progress with implementation of work as part of the Planned Care Surgical Flow Programme, specifically the level of investment associated with:

- Providing a 1.5 combined emergency theatre resource & 3.5 elective theatre resource
- Implementing a combined/interchangeable elective surgical ward, with 5 day smoothing bringing back our sendaways

Summary

NHS Borders is one of four NHS Boards in Scotland on the final year of a three year programme to improve patient flow sponsored by the Scottish Government. The Institute for Healthcare Optimization (IHO) are supporting the project.

In December 2014, a stakeholder event was held with representation from medical and surgical services as well as members of the Executive Team in order to agree the priorities for the organisation.

The workstreams to be considered were:

- Workstream 1: Reengineering theatres
- Workstream 2: Reengineering surgical inpatient flow
- Workstream 3: Reengineering medical inpatient flow

Agreement was reached to focus on ensuring both reengineering theatres and the surgical footprint to ensure they meet the capacity and demand needs of NHS Borders. NHS Borders therefore made the decision to focus on theatres and surgical inpatient flow, specifically:

- Improving access to theatres for both emergency and scheduled patients
- Spreading our elective inpatient admissions evenly across the week which will identify the appropriate number of beds required for our elective patients

This is in line with the following principles in the NHS Borders Clinical Strategy:

1. Services will be safe, effective and high quality
2. Services will be person-centered and seamless
3. Services will be delivered as close to home as possible
4. Admission will be brief and smooth
5. Services will be delivered efficiently, within available means

From the outset of the project there has been good clinical engagement across all of the surgical specialties. Details of the project have also been shared with:

- Primary, Acute & Community Services Clinical Board – 27 July 2016
- Clinical Executive Strategy Group – 11 August 2016
- BGH Clinical Governance Group – 7 September 2016

- BGH Participation Group – 8 September 2016
All of whom are in support of the project.

In order to improve access for our patients to both emergency and elective theatres, we are proposing to implement the following:

- Provide a 1.5 combined emergency theatre resource & 3.5 elective theatre resource
- Implement a combined/interchangeable elective surgical ward, with 5 day smoothing (spreading our elective inpatient admissions evenly across the week) and bring back our sendaways (patients who are currently sent to the Golden Jubilee or private hospitals for their surgery)

Implementation of these options would mean that NHS Borders will achieve both quantitative and qualitative benefits which have been experienced in other health boards that IHO have worked with. Specifically these are:

Quantitative:

- Achieve 98% compliance with urgency classification timeframe
- Achieve 100% reduction in our sendaways
- Achieve a reduction in our elective hospital cancellation rate from our current 4.65% weekly average for 2016 to below the Scottish national average of 2.1%
- Increased elective theatre utilisation rates from an average of 61% to 85%
- Reduce patient boarding, ensuring patients are placed in the appropriate place and receive the optimal level of care

Our quantitative measures are being monitored through the production of our agreed performance metrics, the details of these measures are contained within Appendix 1.

Qualitative:

- Provide better care for our patients
- Improve the work environment
- Increase staff satisfaction and retention

A benchmark of staff and patient experience was captured at the start of this project which can be compared following implementation of the proposed options.

The Project Team will also be monitoring the following balancing measures to ensure that there is no increase in these following implementation:

- Referral rates
- Conversion rates
- Infection rates
- Safety Incidents

The associated resource implications for implementation are:

Recurring Costs	
Theatre Workstream recurring costs	£567k
Surgical Flow Workstream recurring costs	£26k
TOTAL	£593k

Non Recurring Costs	
Theatres Workstream non recurring costs	£230k
TOTAL	£230k

Cost reduction (sendaways)	£1.3m
-----------------------------------	--------------

The potential yearly recurring saving to the organisation would be:

Potential Annual Recurring Saving	
Repatriation of sendaways	£1.3m
Theatres Workstream costs	-£567k
Surgical Flow Workstream costs	-£26k
TOTAL	£707k

The Project Team (see appendix 2) are fully supportive of implementation of the agreed options and would like to highlight to the Board that there are some rate limiting factors before we can achieve full implementation and thereafter the associated benefits, these are:

- Recruitment of additional 4.77wte Band 5 theatre nursing staff to support increased emergency theatre resource
- Recruitment of additional 2wte consultant anaesthetists to support increased emergency theatre resource

Some improvements in patient care have already been agreed and implemented by the Project Team. These improvements have been implemented without any additional investment and are as follows:

- Reduced pre-admissions for orthopaedics from week commencing 15 August 2016. This can increase access for 80 additional admissions per year.
- Smoothed inpatient procedures across the week from week commencing 26 September 2016. This can increase access for 48 additional admissions per year.

The implementation of the combined/interchangeable elective ward also requires no investment and is scheduled for implementation from Wednesday 7 December 2016.

The following section sets out in more detail the background to the project and the modelling options provided by IHO that were considered by the Project Team.

Background & Assessment

In 2015, NHS Borders cancelled elective inpatient procedures for 175 of our patients. 50 of these cancellations were due to an emergency taking priority and 125 of these were due to a lack of available hospital bed. An example of how this affects patients of NHS Borders is described below from a patient complaint:

Mr J arrived at the BGH for his orthopaedic operation at 7:30am having fasted as required and arranged for the necessary time off work. At 12 noon, he was advised that due to a lack of available beds, his operation was now cancelled and he was told to return home and await a new date for surgery. Mr J had to wait another 2 weeks until he finally received his operation.

A Project Team was established in early 2015 to lead this work. The Project Team is made up of clinical and managerial representatives and meets weekly with the aim of leading this piece of work and executing the project plan.

In order for IHO to model what options could be available to NHS Borders to make improvements in our theatres and surgical inpatient wards, we provided 2 years worth of retrospective data and a 13 week prospective dataset. The prospective dataset period was from 22 June 2015 to 20 September 2015 and included details of all our emergency and elective surgical activity through theatres and our wards. IHO then applied their Patient Flow Methodology to this data and the results were presented to NHS Borders on 2 February 2016 in the form of modelling options. An overview of IHO's variability methodology that has been used throughout this project is included within Appendix 3.

This paper has been comprised into sections as follows:

- Section 1** Improving access to theatres for both emergency and scheduled patients. Details of the modelling options received with detail on associated risks, timescales and costs for implementation.
- Section 2** Incorporating a smoothed elective inpatient flow which will identify the appropriate number of beds required for our elective patients. Details of the modelling options received with detail on associated risks, timescales and costs for implementation.

Section 1 - Improving access to theatres for both emergency and scheduled patients

In order to establish the required emergency and elective capacity for our theatres an urgency classification was developed to identify the demand on our theatres in relation to the urgency of a patients operation needing to take place.

The following urgency classification was introduced, working with clinical colleagues to ensure that patients had access to an emergency theatre within a clinically acceptable time to avoid harm.

In June 2015, the Project Team agreed the following urgency classification:

- A <45 minutes
- B < 2 hours
- C < 8 hours
- D < 24 hours
- Expedited < 5days

In order to ensure that these timeframes are met, a compliance review process was established which identifies whether the consultants are categorising patients in line with the guidelines. A daily review process is in place with the Theatre Coordinator and Heads of Service to ensure booking surgeons are applying the appropriate urgency classification based on the procedure required and patient condition. The Theatre Coordinator does not accept any bookings for emergency surgery without an urgency classification.

Prior to implementation of the urgency classification system, NHS Borders did not record a time a patient was booked for emergency surgery so we were unable to report on compliance. Following implementation we reported an average 81% compliance rate in the first 3 months. From the latest performance metrics we have produced, we are now reporting an average 88% compliance rate between April to June 2016. Through increasing our emergency theatre operating resource and ensuring this is protected from our elective theatre resource, we would increase our compliance to 98%.

The implementation of the urgency classification system helped identify what our emergency theatre capacity should look like as an analysis of this data was used by IHO to develop modelling options for NHS Borders to consider. These modelling options were presented to us in early February 2016.

The options for improving our theatres were:

- Option 1: A combined emergency theatre for all specialties
- Option 2: A combined emergency theatre for all specialties plus separate orthopaedic trauma sessions
- Option 3: A combined emergency theatre plus separate obstetrics sessions

All of these options were presented with detail on the effect on our theatre utilisation rate, compliance rate and the average number of days between non compliance events. Non-compliance refers to the patient not being able to get into a theatre

within the required urgency classification, e.g. for a D case, which requires to be in theatre within 24 hours, non-compliance would be where a patient waits longer than this i.e. longer than clinically acceptable to avoid harm. This is outlined in more detail in Appendix 4.

(a) Preferred option & reasons

In summary, the three options considered were:

- Option 1: Combined Emergency Theatre for all specialties
- Option 2: Combined Emergency Theatre for all specialties plus separate orthopaedic trauma sessions
- Option 3: Combined Emergency Theatre plus separate obstetrics sessions

The recommended option for implementation is:

- Option 1: Combined Emergency Theatre for all specialties
This option provides a 1.5 combined emergency theatre resource & 3.5 elective theatre resource

The reasons for this recommendation are:

- A higher utilisation rate of emergency theatres
- A relatively low incidence of patients being unable to access our emergency theatres within the required urgency classification across all specialties.

(b) Risks & implications of implementation of the preferred option

The project risk register includes the following risks and associated mitigating actions:

- Medium Risk: Nursing staffing resource required to staff both elective and emergency theatre sessions
 - Currently, we have four theatre nurses on an anaesthetic training course starting in September 2016 who will be trained by April 2017. This currently means that we are using 1.86 wte agency staff on average to bridge the shortfall in skills. Once trained we will be fully established to deliver the current model.
 - In the new model we need an additional four theatre nurses, whilst we recruit to these posts the number of agency staff would have to increase to accommodate the additional theatre lists required by this project up to four nurses up until the end of March 2017.
 - Once appointed one of the nurses would need to be anaesthetically trained. The training course for this nurse would begin in April 2017 and they would be fully trained by April 2018. Whilst this nurse is being trained it would be necessary to continue with 1 wte agency nurse.
- Medium Risk: Anaesthetic staffing resource required to staff both elective and emergency theatre sessions
 - Recruitment for consultant anaesthetists in NHS Borders is currently challenging with the service already utilising NHS Locums and in addition agency locums to cover two additional consultant anaesthetic vacancies. Attempts are being made to recruit from overseas but this is taking time due to immigration protocols. This is consistent with

recruitment difficulties throughout Scotland. Due to a lack of permanent consultant anaesthetists, we are therefore asking for permission to utilise locum anaesthetists to fill the two additional consultant posts which this model proposes. In the costs we have made the assumption that locum costs will be required for a minimum of 2 years from implementation in November 2016 due to a national shortage of anaesthetists. It should be noted that there is no guarantee that we will be able to secure NHS locums at this level for this time period and this will be reviewed depending on circumstances.

- Medium Risk: Impact on ASDU storage space given additional equipment requirements for when we repatriate our sendaways
 - Assessment of equipment requirements underway– the output of this is anticipated by end November 2016.

(c) Timescales for Implementation for the preferred option

Implementation is aimed for as soon as possible after we have sourced the required additional staff which is currently proving problematic. We are confident that we will be able to recruit to theatre nurses, subject to any staff leaving. Due to the national shortage of consultant anaesthetists we are not confident in recruiting to permanent posts.

A plan to appoint agency nurses and locum anaesthetists is recommended as outlined in the previous section to mitigate against this risk.

(d) Resource implications

The associated resource required would be:

Theatres Workstream Costs	
Additional 4.77wte Band 5 Nurses in Theatres	£144k
Additional 2wte Consultant Anaesthetists	£200k
Additional theatre supplies and ASDU consumables Broken down as follows: Orthopaedic prosthetics £180k ASDU consumables (replacement instruments, wrapping and cleaning solutions) £10k	£190k
Upgrade of an existing Orthopaedic middle grade to a consultant post to appropriately cover rota due to changes to theatre schedule	£33k
TOTAL recurring costs	£567k
Additional cost of agency nursing staff (1wte) related to IHO project September 2016 to September 2017	£30k
Additional cost of Locum Consultant Anaesthetists (2 wte) usage based on 2 years November 2016 to November 2018 until recruitment	£200k
TOTAL non recurring costs	£230k

Section 2 - Incorporating a smoothed elective inpatient flow which will identify the appropriate number of beds required for our elective patients

IHO presented options to ensure the best use of our elective bed footprint ensuring appropriate access for our patients. Modelling options received covered the number of beds required and number of cases that can be completed each day for each of the following variations:

- Combined/interchangeable elective surgical beds (this would be one elective ward area where the beds would become interchangeable between specialties)
- 5, 6 or 7 day smoothing
- Repatriation of our sendaways

All of these options were presented with detail on the effect on our admission schedule, occupancy rate and the percentage of time that a bed would not be available for an elective patient. This is outlined in more detail in Appendix 5.

(a) Combined Elective Ward Concerns/Option Appraisal

The concept of a combined elective ward has been anxiety provoking with our clinicians, particularly from the orthopaedic service, due to the potential infection control concerns of having mixed specialities in the same ward setting.

We sought advice from Health Protection Scotland (HPS) to help address our concerns and they have got back to us with some informal advice in order to move forward with the project. A formal response from HPS will be available by March 2017. However, the Project Team were keen to progress without further delay.

Due to this potential delay in waiting for a formal response from HPS, we have addressed these concerns locally with our Consultant Microbiologist, Infection Control Manager and Heads of Service. They have agreed a strict set of rules that would need to be applied when considering scheduling and patient placement within this ward setting. They have also agreed which procedures they would allow to be in the same bay as other types of procedures.

Once we had the agreed rules, we applied these against the same dataset used for our modelling options in order to analyse what the bed footprint would need to look like in order to accommodate all the elective patients in the one area. The result of this analysis was that 2 six-bedded bays and 5 side rooms would be required in order to accommodate and appropriately isolate patients accordingly. The nursing staff for the elective setting would also need to be separate from the unscheduled beds for infection control purposes.

On 20 June 2016, we carried out an option appraisal exercise to establish the most appropriate location for this ward. The options considered were:

1. Status Quo – Separate elective beds provided over wards 7, 9 & 16
2. 2 bays and 5 side rooms in ward 7
3. 2 bays and 5 side rooms in ward 9
4. 2 bays in ward 16 plus 5 side rooms in ward 7
5. 2 bays in ward 16 plus 5 side rooms in ward 9

The result of the option appraisal, based on the lowest cost per benefit point, was that the configuration and location of the combined elective ward will be:

- Option 3: 2 bays and 5 side rooms in ward 9

The results from the non financial option appraisal are contained within Appendix 6 and the financial option appraisal results are contained within Appendix 7. Full details of the draft nursing skill mix used for the financial appraisal are contained within Appendix 8.

(b) Preferred option & reasons

In summary, the options considered were:

- Combined/interchangeable elective surgical beds (this would be one elective ward area where the beds would become interchangeable between specialties)
- 5, 6 or 7 day smoothing
- Repatriation of our sendaways

The recommended option for implementation is:

- Implement a combined/interchangeable elective surgical ward, with 5 day smoothing and bring back our sendaways in ward 9

The reasons for this are:

- A combined/interchangeable ward provides ringfenced elective beds with a higher occupancy rate.
- The additional resource required with implementing a 6 or 7 day smoothing option would be far greater than any potential gains. For 1 additional bed – consultant, AHPs, theatre staff and anaesthetic consultants would need to be employed for 1 or 2 days – this is a significantly higher financial cost than the savings associated with 1 bed.
- Bringing back our sendaways is much better for our patients as they are being treated closer to home.
- The main drivers for the decision making were to find the appropriate balance between the required resource and occupancy rates for our inpatient beds.
- It was also key to find the right balance between the level of required resource and the percentage of time no bed will be available.
- Ward 9 came out as the preferred option for the combined ward due to the matching of the current footprint with future footprint requirements.

(c) Risks & implications of implementation of the preferred option

The project risk register includes the following risks and associated mitigating actions:

- Low Risk: Nursing skill mix concerns for moving to a combined elective ward setting.
 - Working with Senior Charge Nurses and Clinical Nurse Manager to agree nursing competency framework for a mixed surgical ward setting. Nursing competencies are in place for each of the separate specialties which have been collated into one competency framework

to reflect nursing across all the specialties. Training plan and potential shadowing/cross cover arrangements have also been agreed prior to implementation. Partnership/union representatives are also being involved in any discussions relating to the nursing staff.

- Medium Risk: Infection control concerns for moving to a combined elective ward setting.
 - Working closely with local Infection Control colleagues and we have sought national advice on how we would manage a mix of surgical specialities within a combined elective ward setting. The Scottish Government have spoken with Health Protection Scotland (HPS) on our behalf to get their view. They have advised that on implementing a combined elective ward we would need to carry out appropriate active surveillance. HPS and the Scottish Government have agreed to support us with this. HPS were asked for a formal response but are unable to do so until a full systematic literature review of practice is carried out which would take around 9 months. We have mitigated against this risk with advice from our local infection control team – see above for detail.

- Medium Risk: Treatment Time Guarantees – the implementation of a smoothed operating schedule may have a short term adverse impact on our waiting times targets as we smooth cases throughout the week.
 - We are mitigating against this by planning capacity now and we will continue to monitor and escalate any issues through to the Director of Acute Services through the weekly treatment time guarantee reporting. Since implementation of the smoothed schedule, there have been no reported adverse impact on treatment time guarantees as a result of the smoothing.

- Medium Risk: Additional Allied Health Professional (AHP) staff required to support the number of patients who will be returning to NHS Borders for treatment who were previously sent away.
 - Approximately 4 additional inpatients per week will receive their elective procedures at NHS Borders. AHP support, specifically Physiotherapists and Occupational Therapists (OT's), will need to be increased to ensure patients received the appropriate care during their stay.

- Medium Risk: Location of combined elective ward in Ward 9 means that there are changes required to the configuration of our orthopaedic trauma beds. Orthopaedic trauma will be in the remaining 15 beds in Ward 9 and also utilise beds in Ward 7 when required. There is concern on the impact on our orthopaedic geriatric patients with them being split over two wards as they will be managed by two separate ward teams.
 - Contain orthopaedic geriatric patients to Ward 9 where possible and use Ward 7 beds for minor orthopaedic trauma. On occasions when the orthopaedic geriatric patient numbers exceed the 15 beds in Ward 9, Ward 7 will require to be used for these types of patients. The Clinical Nurse Manager and Head of Service for Department of

Medicine for the Elderly are reviewing the current format of the board rounds to ensure these are adapted to capture patients who are over the two ward locations.

(d) Timescales for Implementation of preferred option

Implementation of the combined elective ward is scheduled for the 7 December 2016. In July 2016, the project team with Central Booking Team started to look at smoothing our elective inpatient schedule. Changes to smoothable cases within the current operating model have been made from week commencing 26 September 2016.

(e) Resource implications

The associated required investment would be:

Surgical Flow Workstream Costs	
Additional 0.32wte Band 6 & 0.32wte Band 3 Physio's	£20k
Additional 0.09wte Band 6 & 0.09 wte Band 3 OT's	£6k
TOTAL recurring costs	£26k
Repatriation of our sendaways (includes all Golden Jubilee, private hospitals and Synaptik costs) – based on the average cost of the last two years (figure also includes £170k received from Scottish Government for Waiting Times allocations)	£1.3m
TOTAL cost reduction	£1.3m

The associated cost reduction to the organisation through implementation of this project would be from the surgical waiting times costs that the organisation has been consistently spending on a yearly basis.

Based on the last two years, the organisation has spent the following on surgical waiting times. This includes inpatient, outpatient and travel costs:

Whilst NHS Borders has no recurring funding related to Waiting Times, over the past 2 years, NHS Borders has committed approximately £1.3million additional funding in each year in order to ensure achievement of the Treatment Time Guarantee in surgical specialties. NHS Borders is awaiting confirmation from the Scottish Government regarding the level of investment they will provide NHS Borders in future years.

Appendix 1 – Performance Metrics

Theatres Workstream Metrics

	Metric	Type of Cases	How Measured	Categories
1	Case Volume	All Cases	Number of Cases Performed Per Week	Immediate/Urgent Expedited Elective Total
2	Case Volume Detail	All Cases	Number of Cases Performed Per Week	"A" Cases "B" Cases "C" Cases "D" Cases Expedited Urgent-Elective or Semi-Elective Non-urgent Elective Total
3	Elective List Utilisation	All Cases Performed During Planned List Time	<u>Numerator</u> : Total Number of Case Minutes* Occuring Within Planned Elective List Time <u>Denominator</u> : Total Number of Minutes in Planned Elective Lists (Exclude lists cancelled more than 6 weeks in advance)	Due to Elective Cases Due to Expedited Cases Due to Immediate/Urgent (A-D) Cases Total
4	Immediate/Urgent Area Utilization Within Core Working Hours	All Cases Performed During Core Working Hours	<u>Numerator</u> : Number of Case Minutes* Performed in Assigned Immediate / Urgent Theatres Within Core Working Hours <u>Denominator</u> : Number of Theatre Minutes in Immediate/Urgent Theatres within Core Working Hours	Due to Elective Cases Due to Expedited Cases Due to Immediate/Urgent Cases Total
5	Weekday Overruns	Elective and Expedited Non-Holiday Weekday Cases	Count and % of Elective and Expedited Case Minutes* outside of Planned List or Session Hours (as % of total Case minutes for these cases)	# of Case Minutes Outside of Planned List or Session Hours % of Case Minutes Outside of Planned List or Session Hours
6	Average Waiting Time (WITHIN CORE WORKING HOURS)	Immediate / Urgent and Expedited Cases Booked Within Core Working Hours	Average of Booking Time*** to Actual Anaesthesia Start Time by Classification. Exclude Outliers**	"A" Cases "B" Cases "C" Cases "D" Cases Expedited Overall

7	Average Waiting Time (OUT OF CORE WORKING HOURS)	Immediate / Urgent and Expedited Cases Booked Outwith Core Working Hours	Average of Booking Time*** to Actual Anaesthesia Start Time by Classification. Exclude Outliers**	"A" Cases
				"B" Cases
				"C" Cases
				"D" Cases
				Expedited
				Overall
8	Average Time from Admission to Booking	ONLY Orthopaedics, Urgency <24hours ("D" or "E")	Average of Admission to Booking Time*** for Orthopaedics <24hrs Cases ("D" or "E" cases, depending on board; exclude outliers>72 hrs)	Orthopaedics Urgency <24hours Cases ("D")
9	Waiting Time Compliance (WITHIN CORE WORKING HOURS)	Immediate / Urgent and Expedited Cases Booked Within Core Working Hours	Percent of Cases with Anaesthesia Start within Maximum Wait Time Limit by Classification. Exclude Outliers**	"A" Cases
				"B" Cases
				"C" Cases
				"D" Cases
				Expedited
				Total
10	Waiting Time Compliance (OUT OF CORE WORKING HOURS)	Immediate / Urgent and Expedited Cases Booked Outwith Core Working Hours	Percent of Cases with Anaesthesia Start within Maximum Wait Time Limit by Classification. Exclude Outliers**	"A" Cases
				"B" Cases
				"C" Cases
				"D" Cases
				Expedited
				Total
11	Causes of Waiting Time Non-Compliance	Non-Compliant Immediate/Urgent and Expedited Cases	Number of Non-compliant Immediate/Urgent Cases By Non-Compliance Reason	Surgeon not available
				Anaesthetist not available
				Theatre not available
				Equipment not available
				Theatre staff not available
				Patient not ready
				All other reasons
				Total
12	Elective Case Cancellations	Elective Cases	Number of elective cases that are cancelled to accommodate Immediate / Urgent or Expedited cases in Theatre	Due To Immediate / Urgent Cases
13	Median Post-Op Length of Stay	Immediate, Urgent and Expedited cases	Median Length of Stay from Left-theatre Date & Time to Discharge Date & Time	Immediate / Urgent - Compliant
				Immediate / Urgent - Noncompliant
				Expedited - Compliant
				Expedited - Noncompliant
14	Cost of Overruns	All Cases	Cost of Unplanned Overrun Staffing	Cost of Unplanned Overrun Staffing

Surgical Flow Workstream Metrics

1	Smoothable, Surgical and Total Admissions to Inpatient Week
2	Number and Percent of Smoothable Patients who were Boarded Outwith by Week
3	Number of Smoothable Cancellations, by Week
4	Average Recovery Area Wait and Percent of Patients with Excessive Wait for Inpatient Admissions by Week
5	Daily Smoothable Admissions
6	Average Smoothable Admissions
7	Smoothable Patient Census
8	All Patient Census
9	Nursing Spend Against Budget: Total, Bank and Agency

Appendix 2 – IHO Surgical Flow Project Team

Names	Position
Anderson, Geoff	Senior Charge Nurse - Ward 7
Allen, Gina	Project Support Officer
Berlansky, Martin	Head of Service – General Surgery
Brydon, Grace	Senior Charge Nurse – Ward 9
Burns, Pauline	Scottish Government
Byers, Sheena	Central Booking Office
Chapple, Yvonne	BGH Partnership Chair
Cockburn, Janice	Deputy Director of Finance
Cross, Gillian	Physiotherapist
Finch, Shona	Clinical Nurse Manager
Gourlay, Irene	Senior Charge Nurse ITU
Grant, Stuart	Clinical Nurse Manager
Henderson, Wendy	Central Booking Office
Jones, Laura	Head of Quality and Clinical Governance
Lakie, Kirk	Senior Finance Manager
Litster, Steve	Waiting Times Manager
Love, David	Consultant Anaesthetist
Love, Lisa	Senior Charge Nurse - Main Theatres
Magowan, Brian	Head of Service – Obs & Gynae
Maitland, Karen	Service Improvement Facilitator -Planned Care
Maltman, Laura	IM&T Project Support
McCuaig, Rosemary	Occupational Therapist
McLaren, John	Employee Director
McRitchie, Hamish	Associate Medical Director for BGH
Mehdi, Ali	Head of Service - Orthopaedics
Morris, Katie	General Manager - Planned Care and Commissioning
NarrainenPoulle, Thiyagaraj	Consultant Surgeon- Obs & Gynae
Patterson, June	Theatre Coordinator
Richard, Chris	Head of Service - Anaesthetists
Rodger, Faye	Consultant Surgeon - Obs & Gynae
Rintoul, Brian	Charge Nurse - PSAU
Scott, Louise	Information Systems Administrator
Simpson, Anne	Senior Charge Nurse - Ward 16
Thomson, Susie	Project Manager - IM&T
Todd, Alison	Senior Charge Nurse - DPU
Todd, Louise	Charge Nurse – Theatre Recovery
Urquhart, Bill	Clinical Information Coordinator
White, Lisa	Charge Nurse - Ward 7

Appendix 3 – Overview of IHO’s Variability Methodology

IHO Approach - IHO Variability Methodology®

The IHO brings together the science of operations management, clinical knowledge, analytic skills, and an understanding of organizational behavior. Each of these elements is potent in itself, but it is the combination that drives substantive and lasting improvements in healthcare delivery. IHO Variability Methodology® services are based on our unique three-phase approach for patient-flow redesign for hospitals and other healthcare delivery organizations:

Phase I: Reengineering the OR (~12 months)

OR redesign aimed at determining appropriate OR resources needed for scheduled and unscheduled surgical flows. Phase I benefits include:

- Shorter waiting times for surgery for unscheduled patients
- Reduced bumping of elective surgeries
- Reduced OR overtime
- Higher OR prime-time utilization
- Greater surgical throughput (increase in overall surgical volume) or reduced cost/surgical case
- Improved patient safety
- Improved patient and provider satisfaction

Phase II: Redesigning Surgical Inpatient Flow (~9 months)

Redesign of the elective surgical schedule so as to smooth flow to downstream inpatient units. Phase II benefits include:

- Decrease in waiting times for placement in an inpatient bed for surgical patients thereby reducing overall hospital length of stay
- Increase in percentage of patients placed in the preferred unit based on their condition
- Additional increases in surgical throughput beyond what is achieved in Phase I
- Additional decreases in nursing overtime beyond what is achieved in Phase I
- Improvements in inpatient quality and patient safety

Phase III: Reengineering Medical Inpatient Flow (~9 months)

Determination of specific bed and staffing needs for major hospital units. Phase III benefits include:

- Proper allocation of bed capacity to maximize the availability of the right bed for medical and surgical patients, thereby reducing waiting times, ED boarding, patient misplacement, and the likelihood of medical errors
- Proper allocation of bed capacity and nursing resources, thereby decreasing nursing stress and improving the quality of patient care
- Proper allocation of bed capacity to reduce inpatient length of stay, thereby reducing the number of disallowed hospital days and increasing patient throughput
- Improvements in patient safety



Benefits

The expected benefits following implementation of the IHO Variability Methodology® include:

- ❖ Reduced waiting times, delays, ED overcrowding, and overall hospital length of stay
- ❖ Reduced mortality, medical errors, hospital acquired infections, and readmissions
- ❖ Reduced bumping/cancellation of elective surgeries
- ❖ Reduced OR overtime and higher OR prime time utilization
- ❖ Greater surgical throughput (increase in overall surgical volume) or reduced cost/surgical case
- ❖ Proper allocation of resources (i.e. bed capacity, nurse staffing) to maximize patient throughput
- ❖ Improvements in patient safety
- ❖ Improved patient and provider satisfaction

Appendix 4 – Details of options for improving access to theatres for both emergency and scheduled patients

Option 1: Combined Emergency Theatre Option

Table 1 below shows the possible number of theatres required during weekdays, overnight and weekends.

Table 1

Time Period	Scenario Combined 1	Scenario Combined 1.5	Scenario Combined 2	Scenario Combined 3	Scenario Combined 4
Weekday Day Time	1	1.5	2	2	2
Weekday After Hours	1	1	1	2	2
Weekday Overnight	1	1	1	1	1
Weekend Day Time	1	1	1	1	2
Weekend Overnight	1	1	1	1	1

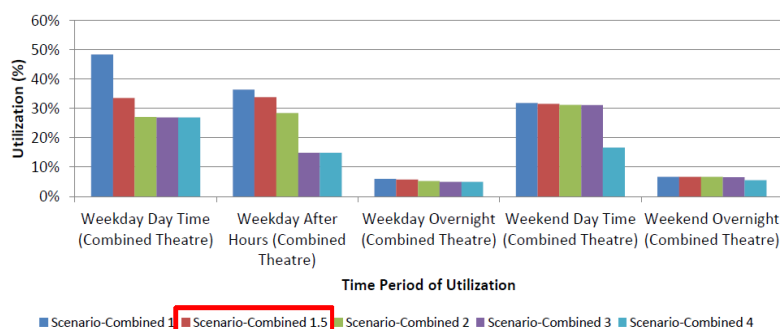
Each of the above scenarios were then assessed to establish:

- The difference in utilisation rates in each scenario
- The number of days between a patient not being able to access an emergency theatre within the required urgency classification in each scenario.

The difference in utilisation rates in each scenario

Chart 1 shows the utilisation rate for the emergency theatres for all urgency classifications (A, B, C and D). The combined emergency theatre options shows the impact that the level of resource applied would have on our utilisation rates, with the result being the higher the level of resource, the lower the utilisation rate. It is important to find the right balance between the level of resource against the utilisation rate bearing in mind that emergency theatres need to have a much lower utilisation rate than elective theatres to enable appropriate access for patients.

Chart 1



The number of days between a patient not being able to access an emergency theatre within the required urgency classification in each scenario

Table 2 shows the number of days between a patient not being able to access an emergency theatre within the required urgency classification. The higher the resource, the greater chance the urgency classification is met.

Table 2

Case Urgency	Scenario Combined 1	Scenario Combined 1.5	Scenario Combined 2	Scenario Combined 3	Scenario Combined 4
A	28.4	29.5	32.5	43.6	117.0
B	81.5	86.1	99.2	156.0	1403.8
C	18250.0	NA	NA	NA	NA
D	3650.0	18250.0	NA	NA	NA
Overall	20.9	21.9	24.5	34.0	108.0

Option 2: Combined Emergency Theatre - Separate Orthopaedic Trauma

Table 3 below shows the possible number of theatres required during weekdays, overnight and weekends.

Table 3

Time Period	Scenario Separate Ortho 1	Scenario Separate Ortho 2	Scenario Separate Ortho 3
Weekday Day Time (Ortho)	0.5	1	0.5
Weekday Day Time (Non Ortho)	1	1	1
Weekday After Hours (Combined)	1	1	2
Weekday Overnight (Combined)	1	1	1
Weekend Day Time (Combined)	1	1	1
Weekend Overnight (Combined)	1	1	1

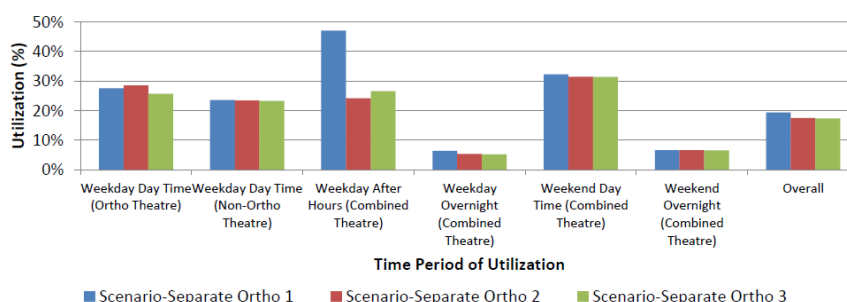
Each of the above scenarios were then assessed to establish:

- The difference in utilisation rates in each scenario
- The number of days between a patient not being able to access an emergency theatre within the required urgency classification in each scenario.

The difference in utilisation rates in each scenario

Chart 2 below shows the utilisation rate for the emergency theatres for all urgency classifications (A, B, C and D). The separate orthopaedic trauma session option provides lower utilisation rates across both the combined and trauma sessions than the fully combined alternatives and reduces access for some of the other specialities into emergency theatres.

Chart 2



The number of days between a patient not being able to access an emergency theatre within the required urgency classification in each scenario

Table 4 below shows the number of days between a patient not being able to access an emergency theatre within the required urgency classification. The separate orthopaedic trauma session option results in a greater incidence of patients not being able to access theatre within the required urgency classification.

Table 4

Case Urgency	Scenario Separate Ortho 1	Scenario Separate Ortho 2	Scenario Separate Ortho 3
A	17.8	21.2	24.8
B	63.6	93.6	141.5
C	1303.6	2607.1	18250.0
D	651.8	9125.0	NA
Overall	13.4	17.2	21.1

Option 3: Combined Emergency Theatre - Separate Obstetrics

Table 5 below shows the possible number of theatres required during weekdays, overnight and weekends.

Table 5

Time Period	Scenario Separate Obstetrics 1	Scenario Separate Obstetrics 2
Weekday Day Time (Obstetrics)	1	1
Weekday Day Time (Non Obstetrics)	1	1
Weekday After Hours (Combined)	1	2
Weekday Overnight (Combined)	1	1
Weekend Day Time (Combined)	1	2
Weekend Overnight (Combined)	1	1

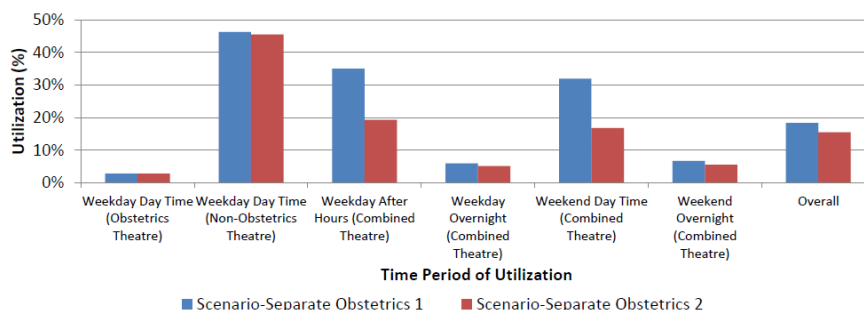
Each of the above scenarios were then assessed to establish:

- The difference in utilisation rates in each scenario
- The number of days between a patient not being able to access an emergency theatre within the required urgency classification in each scenario.

The difference in utilisation rates in each scenario

Chart 3 shows the utilisation rate for the emergency theatres for all urgency classifications (A, B, C and D). The separate obstetrics session option provides much lower utilisation rates in the obstetrics theatre and increased utilisation in combined theatre sessions.

Chart 3



The number of days between a patient not being able to access an emergency theatre within the required urgency classification in each scenario

Table 6 shows the number of days between non compliance events for cases booked any time other than weekday daytime. The separate obstetrics session

results in a greater incidence of patients not being able to access theatre within the required urgency classification.

This again highlights that increased variation affects our level of utilisation, efficiency and in turn results in more patients not being able to access emergency theatres appropriately.

Table 6

Case Urgency	Scenario Separate Obstetrics 1	Scenario Separate Obstetrics 2
A	23.8	56.2
B	68.1	380.2
C	2027.8	NA
D	1303.6	NA
Overall	17.2	48.9

Appendix 5 – Details of options for incorporating a smoothed elective inpatient flow which will identify the appropriate number of beds required for our elective patients

Combined/interchangeable elective surgical beds

This option would see all of our inpatient elective specialties provided in a single unit.

Table 7 shows the variation, on average, of our current inpatient admissions by day of week across all our surgical wards. The combined ward scenario analyses the effect of combining of all our surgical inpatients (wards 7, 9 and 16) into one surgical unit with interchangeable beds based.

Table 7

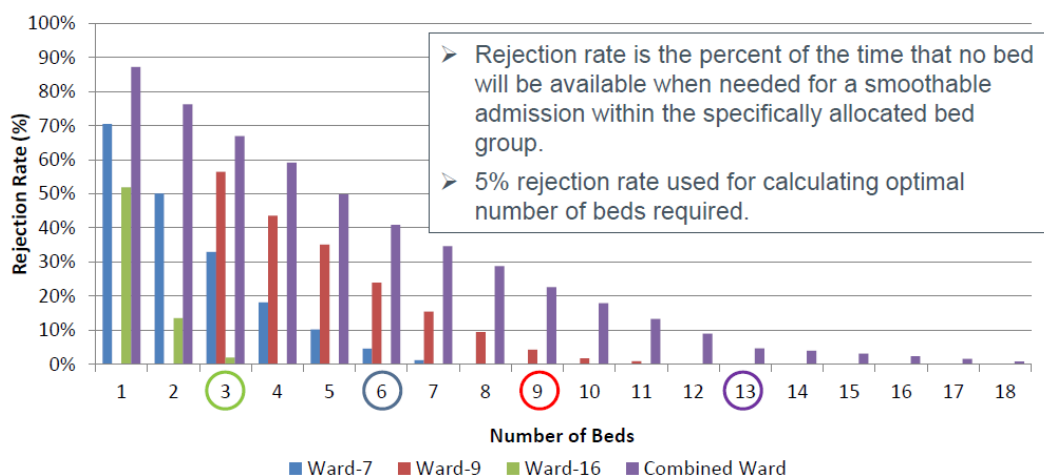
Current Admission Schedule by Day of Week				
Day of week	Ward 7	Ward 9	Ward 16	Combined
Sun	0.1	0.7	0.1	0.8
Mon	2.8	1.5	0.5	4.8
Tues	0.8	2.0	1.0	3.8
Wed	2.2	1.5	1.2	4.9
Thurs	0.8	2.0	0.3	3.1
Fri	0.2	1.1	0.9	2.2
Sat	0.0	0.2	0.0	0.2
Total	6.8	9.0	4.0	19.8

Percentage of time no bed will be available for an elective admission

Chart 4 shows the difference in the percentage of time no bed will be available for an elective admission. This is shown for our current baseline position of separate elective inpatient wards and the combined ward setting.

This shows that, if each specialty remained within each ward the following number of beds would be required: 3 beds for gynaecology, 6 beds for general surgery and 9 beds for orthopaedics. A total of 18 beds. By combining all specialties into one ward this shows that 13 beds would be required.

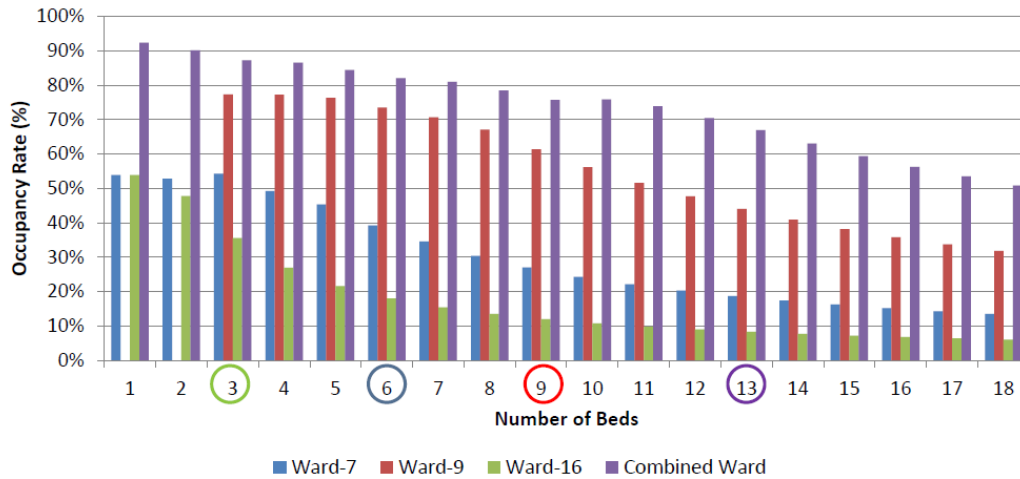
Chart 4



Occupancy Rate by Number of Beds

Chart 5 below shows the difference in occupancy rates between our baseline position of separate elective inpatient wards as a comparison to a combined ward setting. A combined ward setting provides a much better occupancy rate than our current position of having the elective beds in separate ward areas.

Chart 5



Baseline & Combined Ward Summary

Table 8 highlights the number of elective inpatient beds we are currently working out of and provided a comparison to a combined elective ward setting. By combining our elective ward, we would be working with a higher volume of patients and by making the beds interchangeable between specialities, our occupancy rate will increase which would equate to a saving of 5 beds.

Table 8

Scenario	Optimal no. of beds required per ward	Total optimal number of beds	% of time no bed available	Occupancy Rate	Average Census	Daily Average Admissions	Average LOS (in days)
Baseline (Separate Wards)							
Baseline (Ward 7 Only)	6	18	4.5%	39.2%	2.4	1.0	2.51
Baseline (Ward 9 Only)	9		4.3%	61.3%	5.7	1.3	4.45
Baseline (Ward 16 Only)	3		1.9%	35.5%	1.1	0.6	1.88
Combined Ward							
Combined Ward	13	13	4.7%	66.9%	9.2	2.8	3.27

5, 6 or 7 day smoothing

A smoothable case is a planned surgical admission into one of our inpatient wards. Table 9 shows that by smoothing elective admissions, i.e. spreading these throughout the week, less pressure is put on our inpatient beds on particular days of

the week. This table shows you the effect of smoothing by day of admission. The Daily Smoothing Target is the total number of smoothable cases admitted per day across all specialties and assumes all patients are admitted on the day of surgery. A cancellation rate of 10.5% has also been accounted for in the total volume of cases, which is based on our current cancellation rate.

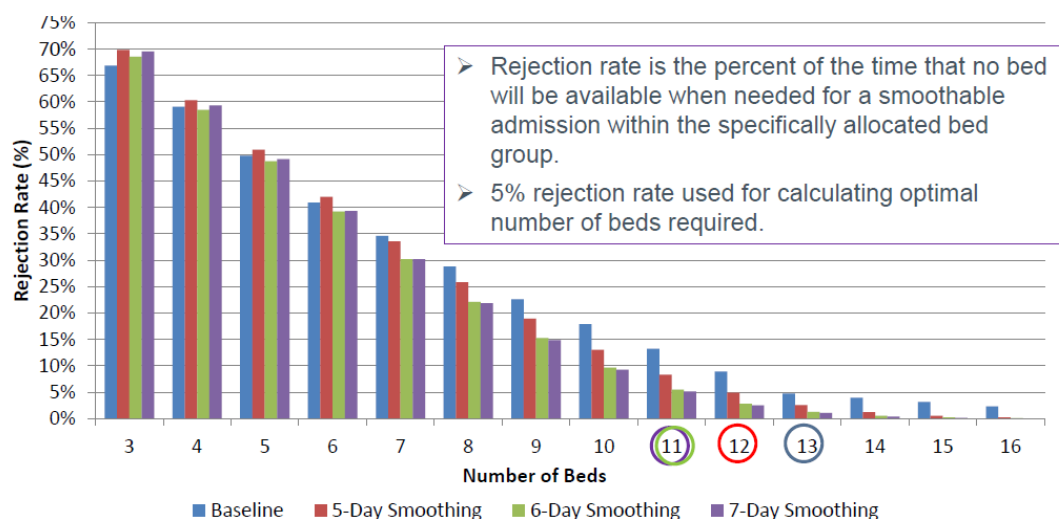
Table 9

Current Admission Schedule by Day of Week				
DOW	Combined Ward (Baseline)	Daily Smoothing Target		
		5 Day Smoothing	6 Day Smoothing	7 Day Smoothing
Sun	0.8	0	4	3
Mon	4.8	4	3	3
Tues	3.8	4	3	3
Wed	4.9	4	3	4
Thurs	3.1	4	4	3
Fri	2.2	6	5	3
Sat	0.2	0	0	3
Total	19.8	22	22	22
Cancellation	2.3	10.5% of Case Volume		

Percentage of time no bed will be available (with smoothing)

Chart 6 highlights the impact that 5, 6 or 7 day smoothing in a combined ward has on the percentage of time no bed will be available as a comparison to a baseline combined ward position. The percentage of time that no bed will be available decreases when more beds are used as there are more beds available for patients to be admitted into. The percentage of time no bed will be available decreases more when inpatient admissions are also smoothed.

Chart 6

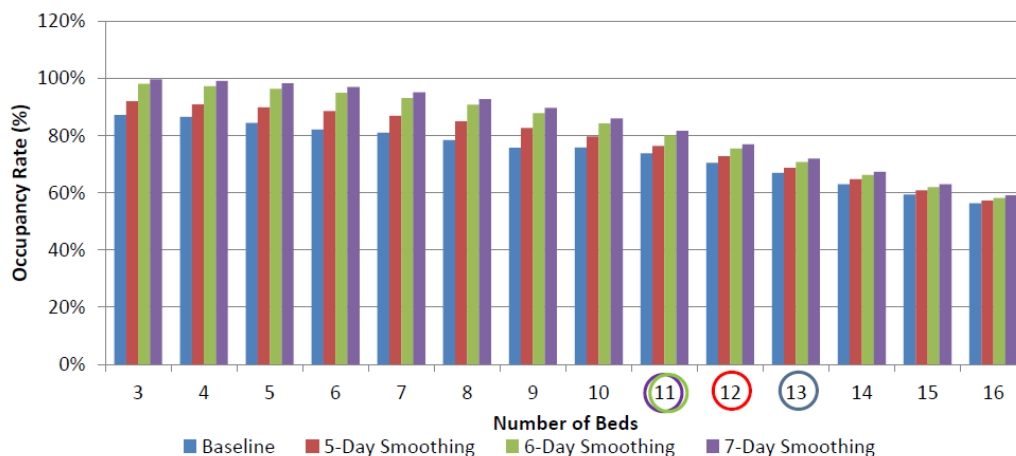


Occupancy Rate by Number of Beds (with smoothing)

Chart 7 highlights the impact that 5, 6 or 7 day smoothing in a combined ward has on our bed occupancy rate as a comparison to a baseline combined ward position. Smoothing elective flow into the ward increases the occupancy rates as patients are

admitted more evenly across the week. Smoothing also reduces the number of cancellations as there are less peaks and troughs of admissions.

Chart 7



Overall Results: 5, 6 or 7 Day Smoothing, Combined Ward

Table 10 shows that by combining our elective ward we could save 5 beds. The potential impact from 5 day smoothing is an additional saving of 1 elective inpatient bed with increased occupancy. 6 or 7 day smoothing has the potential to save 2 elective inpatient beds with a further increase in occupancy rates, however, this is not deemed to be cost effective due to the increase in the resource required to support.

Table 10

Scenario	Optimal number of beds	% of time no bed available	Occupancy Rate	% of days with Census between 7 & 11	Daily Census		Daily Admissions	
					Average	Standard Deviation	Average	Standard Deviation
Combined Ward (for comparison: no smoothing)								
Combined Ward	13	4.7%	67%	54%	9.2	3.8	2.8	2.3
5, 6 & 7 Day Smoothing								
5 Day Smoothing	12	4.9%	73%	65%	9.2	2.7	2.8	1.6
6 Day Smoothing	11	5.5%	80%	73%	9.3	2.3	2.8	1.0
7 Day Smoothing	11	5.1%	82%	75%	9.5	2.2	2.8	0.6

Repatriation of our sendaways

In order to bring back our sendaways, IHO have advised that we would need 1 additional bed as detailed below:

Table 11 shows the effect of smoothing by day of admission with the inclusion of our sendaways. A cancellation rate of 10.5% has also been accounted for in the total volume of cases which is based on our current cancellation rate.

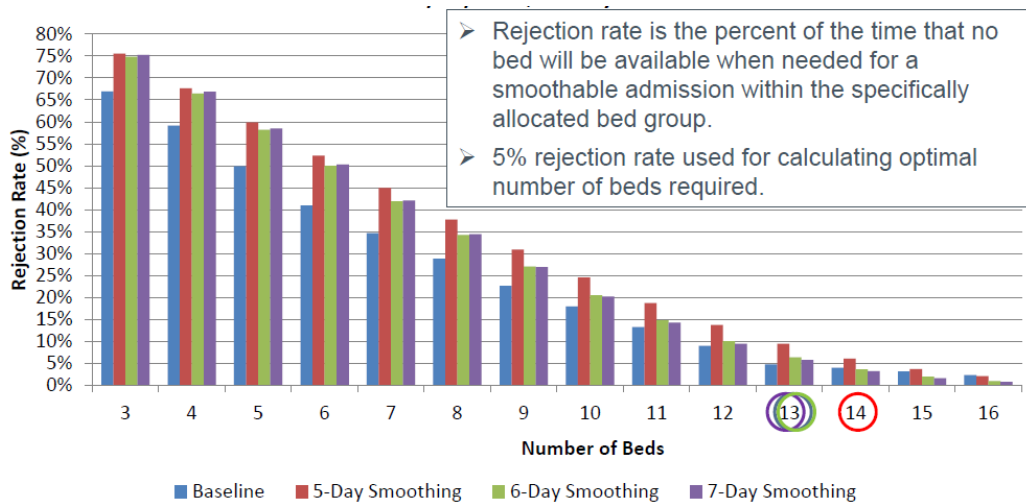
Table 11

Current Admission Schedule by Day of Week				
DOW	Combined Ward (Baseline)	Daily Smoothing Target		
		5 Day Smoothing	6 Day Smoothing	7 Day Smoothing
Sun	0.8	0	4	3
Mon	4.8	5	4	4
Tues	3.8	5	4	4
Wed	4.9	5	4	3
Thurs	3.1	5	4	4
Fri	2.2	6	6	4
Sat	0.2	0	0	4
Total	19.8	26	26	26
Cancellation	2.3	10.5% of Case Volume		
Sendaways	2.8	Included in Daily Smoothing Target		

Percentage of time no bed will be available (with smoothing & sendaways)

Chart 8 highlights the impact that 5, 6 or 7 day smoothing in a combined ward bringing back our sendaways has on the percentage of time no bed will be available as a comparison to a baseline combined ward position. The percentage of time that no bed will be available decreases when more beds are used as there are more beds available for patients to be admitted into. The percentage of time no bed will be available in this instance now increases when sendaways are included as we are admitting more patients.

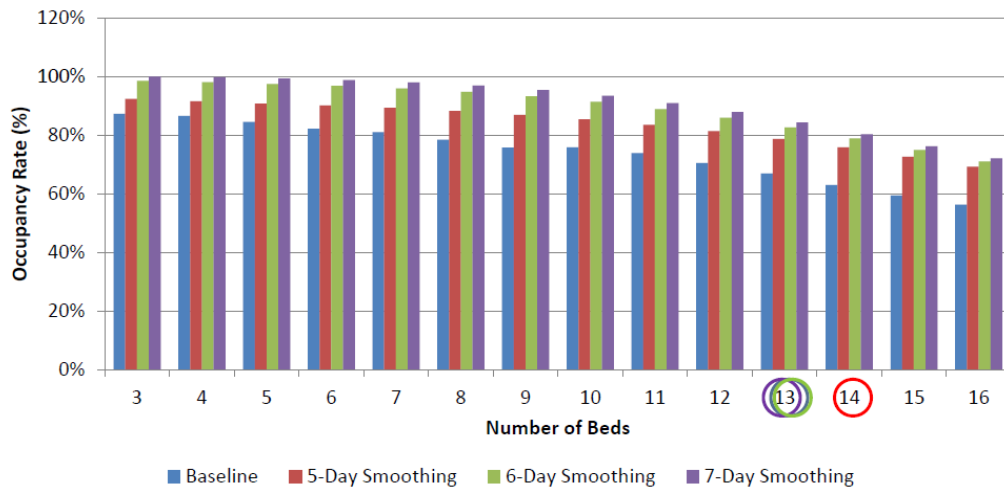
Chart 8



Occupancy Rate by Number of Beds (with smoothing & sendaways)

Chart 9 highlights the impact that 5, 6 or 7 day smoothing in a combined ward bringing back our sendaways has on our bed occupancy rate as a comparison to a baseline combined ward position. Occupancy rate is further increased when our sendaways are included.

Chart 9



Overall Results: 5, 6 or 7 Day Smoothing, Combined Ward (Including Sendaways)

Table 12 shows that compared to a combined ward with no smoothing, we would require an additional 1 more bed to accommodate our sendaways if we introduced 5 day smoothing. There would be no change in the required number of beds for 6 or 7 day smoothing.

Table 12

Scenario	Optimal number of beds	% of time no bed available	Occupancy Rate	% of days with Census between $\pm 20\%$ from Average	Daily Census		Daily Admissions	
					Average	Standard Deviation	Average	Standard Deviation
Combined Ward (for comparison: no smoothing, no sendaways)								
Combined Ward	13	4.7%	67%	54%	9.2	3.8	2.8	2.3
5, 6 & 7 Day Smoothing (Including Sendaways)								
5 Day Smoothing	14	6.1%	76%	66%	11.3	3.1	3.3	1.9
6 Day Smoothing	13	6.3%	83%	77%	11.5	2.5	3.3	1.2
7 Day Smoothing	13	5.7%	84%	79%	11.6	2.4	3.3	0.7

Appendix 6 – Results from non financial option appraisal

Criteria	Group	Option 1	Option 2	Option 3	Option 4	Option 5
		Weighted Score	Weighted Score	Weighted Score	Weighted Score	Weighted Score
Safety - 20% - Does the option avoid injury and harm to patients from healthcare that is intended to help them?	A	80	80	80	60	60
	B	80	60	60	60	60
Timeliness - 15% - Does the option reduce waits and sometimes harmful delays for both those who receive care and those who give care?	A	30	60	60	60	60
	B	30	60	60	45	45
Effectiveness - 10% - Does this option allow the service to be based on best practice and provide sustainability in future years?	A	20	35	40	30	30
	B	20	40	40	30	30
Efficiency - 10% -Does the option avoid waste, including waste of equipment, supplies, ideas, and energy?	A	20	50	50	40	40
	B	20	40	40	30	30
Equity - 15% - Does the option provide care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location or socio-economic status?	A	60	75	75	75	75
	B	75	75	75	75	75
Patient Centredness - 20% - Does the option provide care that is responsive to individual personal preferences, needs and values and assures that patient values guide all clinical decisions?	A	40	80	80	80	80
	B	60	80	80	60	60
Ability To Deliver - 10% - Does this option have an impact on any component of NHS Borders health services ability to deliver?	A	20	40	40	30	30
	B	20	40	40	30	30
TOTAL		575	815	820	705	705

Appendix 7 – Results from financial option appraisal

Option 1			
Status Quo			
Nursing staff requirement			
WTE	Cost	Weighted Score	Cost per benefit point
80.58	2,334,826	575	4061

Option 2			
Electives Ward 7			
Nursing staff requirement			
WTE	Cost	Weighted Score	Cost per benefit point
80.58	2,333,810	815	2864

Option 3			
Electives Ward 9			
Nursing staff requirement			
WTE	Cost	Weighted Score	Cost per benefit point
80.58	2,334,945	820	2847

Option 4			
Electives Ward 16/7			
Nursing staff requirement			
WTE	Cost	Weighted Score	Cost per benefit point
97.19	2,764,868	705	3896

Option 5			
Electives Ward 16/9			
Nursing staff requirement			
WTE	Cost	Weighted Score	Cost per benefit point
97.18	2,708,316	705	3842

Appendix 8 – Final Nursing Skill Mix used for Financial Appraisal

			Option 1		Option 2		Option 3		Option 4		Option 5	
			Status Quo		Electives Ward 7		Electives Ward 9		Electives Ward 16/7		Electives Ward 16/9	
			wte	cost	wte	cost	wte	cost	wte	cost	wte	cost
Ward 7 Elective /Emergency	20955	Band 2	9.88	207035			9.88	207035			9.88	207035
	31119	Band 5	20.25	630160			20.25	630160			20.25	630160
	38341	Band 6	2	76682			2	76682			2	76682
	46000	Band 7	1	46000			1	46000			1	46000
Ward 7 Elective	20955	Band 2			5.19	108756			5.19	108860		
	31119	Band 5			11.87	369383			5.19	161661		
	46000	Band 7			1	46000						
Ward 7 Emergency	20955	Band 2			4.79	100374			4.69	98279		
	31119	Band 5			8.28	257665			15.06	468652		
	38341	Band 6			2	76682			2.00	76682		
	46000	Band 7							1.00	46000		
Ward 9 Elective/Emergency	20955	Band 2	11.69	244964	11.69	244964			11.69	244964		
	31119	Band 5	19.82	616779	19.82	616779			19.82	616779		
	38341	Band 6	1	38341	1	38341			1	38341		
	46000	Band 7	1	46000	1	46000			1	46000		
Ward 9 Elective	20955	Band 2					6.49	135998			2.56	53645
	31119	Band 5					13.04053	405808			5.19	161508
	46000	Band 7					1	46000				
Ward 9 Emergency	20955	Band 2					5.19	108756			9.13	191319
	31119	Band 5					6.79	211298			14.63	455271
	38341	Band 6					1	38341			1	38341
	46000	Band 7									1	46000
Ward 16 Elective/Emergency	20955	Band 2	2.66	55740	2.66	55740	2.66	55740				
	31119	Band 5	9.28	288784	9.28	288784	9.28	288784				
	38341	Band 6	1	38341	1	38341	1	38341				
	46000	Band 7	1	46000	1	46000	1	46000				
Ward 16 Elective	20955	Band 2							7.79	163239	7.79	163290
	31119	Band 5							10.39	323326	10.39	323322
	46000	Band 7							1	46000	1	46000
	38341	Band 6							1	38341	1	
Ward 16 Emergency	20955	Band 2							5.18	108547	5.18	108547
	31119	Band 5							5.18	161196	5.18	161196
	46000	Band 7										
Totals			80.58	2,334,826	80.58	2,333,810	80.58	2,334,945	97.19	2,746,868	97.18	2,708,316

Weighted Option Appraisal Non Financial Score	575	815	820	705	705
Financial Option Appraisal Cost Per Benefit Point	4061	2864	2847	3896	3842