

**Unscheduled Care Review Report**

**Recommendation:-**

It is recommended that the contents of this report are noted by the board and considered for implementation across the relevant parts of NHSGGC, and associated HSCPs, to improve unscheduled care performance in line with board priorities and Scottish Government targets.

**Purpose of Paper:-**

The following report provides a high level summary of the key recommendations to deliver a targeted work programme for 2017/18 that will improve unscheduled care performance in NHSGGC. An interim unscheduled care report was produced in November 2016 to capture the initial phase of the Board Review which focused initially on the delivery of short term actions in advance of increased winter demand. This overview details a number of additional recommendations on further improvement actions to be progressed in 2017/18.

**Key Issues to be considered:-**

- Current unscheduled care performance
- Current unscheduled care demand
- Proposed approaches to improving unscheduled care performance
- Proposed delivery of unscheduled care change
- Key report recommendations

**Any Patient Safety /Patient Experience Issues:-**

Yes

**Any Financial Implications from this Paper:-**

Yes

**Any Staffing Implications from this Paper:-**

Yes

**Any Equality Implications from this Paper:-**

No

Board Official

**Any Health Inequalities Implications from this Paper:-**

No

**Has a Risk Assessment been carried out for this issue? If yes, please detail the outcome:-**

No

**Highlight the Corporate Plan priorities to which your paper relates:-**

Improved Unscheduled Care Performance

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**Date** – 20/06/17

# **Unscheduled Care Report**

## **May 2017**

# **Performance Improvement Programme**

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## Unscheduled Care Final Report - Overview and key recommendations

The following report provides a high level summary of the key recommendations to deliver a targeted work programme for 2017/18 that will improve unscheduled care (UC) performance in Greater Glasgow & Clyde (GGC). An interim report<sup>2</sup> was produced in November to capture the initial phase of the Board Review and project work which had focused initially on the delivery of short term actions in advance of increased winter demand. This overview details a number of additional recommendations on further improvement actions to be progressed in 2017/18.

### Background – Interim Report

The Interim Report<sup>2</sup> details the initial unscheduled care collaborative (UCC) work which began in May 2016 and concentrated on projects to improve performance in advance of increased winter demand. These included:

- Analysis of current activity
- The resulting resource requirements and gap analysis
- Opportunities for improvement in the efficiency of inpatient processes
- Opportunities to smooth demand by scheduling patient attendance

The main conclusion of the report was that current ways of working were resulting in an excessive demand on inpatient resources. Based on the acute bed complement, and against a bed occupancy target of 85%, overflow into non-acute beds resulted in a calculated occupancy of 106% at Queen Elizabeth University Hospital (QEUEH), 104% at the Glasgow Royal Infirmary (GRI) and 97.5% at the Royal Alexandra Hospital (RAH). This drives inefficient patient flow, higher levels of ‘boarding’ and delays in delivering timely access to treatment for new patients.

The report also highlighted the variable performance in the Acute Assessment Units (AUs) with regards to direct patient discharge and recommended that this should be a focus for future improvement.

During this initial phase of the Programme, a number of improvements have already taken place and are fully documented in the Interim Report<sup>2</sup>, these include:

- Rolling out of the ‘Exemplar ward’ initiative piloted at QEUEH to the other two main acute sites
- Rollout of an enhanced electronic patient management system to all three AUs
- A new, more efficient process for generating Immediate Discharge Letters is in place on all three sites
- Escalation plans have been instituted on all sites
- Pilot projects to offer scheduled attendance for emergency patients are underway in GRI and RAH

## **Final Report – Further Demand Analysis**

Since the interim report<sup>2</sup>, the project team, whilst continuing to support work streams previously identified, has undertaken further work in a number of other areas. The most significant of these has been a detailed analysis of demand by specialty and condition. We have established that NHSGGC has a higher use of acute inpatient care than both the rest of Scotland in general and, specifically the boards of Lothian and Tayside. The Emergency inpatient admission rate is 7.5% higher than the rest of Scotland and total inpatient beds days are 9.5% higher (as presented at the Acute Division Leadership Event on 31<sup>st</sup> Oct 2016). We can identify high acute admission rates across a range of specialties, but of particular note are general medicine, geriatric medicine, respiratory medicine and general surgery.

Data comparisons from the 9 month period between Apr 16 and Dec 16 show that the percentage of patients presenting to ED's, MIU's and AU's in GGC who are subsequently admitted was 30.5%. This is 4.1% higher than the equivalent figure from NHS Lothian at 26.4%. When translated into site specific differences between the Royal Infirmary Edinburgh (RIE) and the three largest GGC sites of GRI, QEUH and RAH these differences are significant. If GGC major inpatient sites were to replicate the RIE admission rates they would reduce admissions by 12,989, or 14% of the total admissions, over the 9 month period.

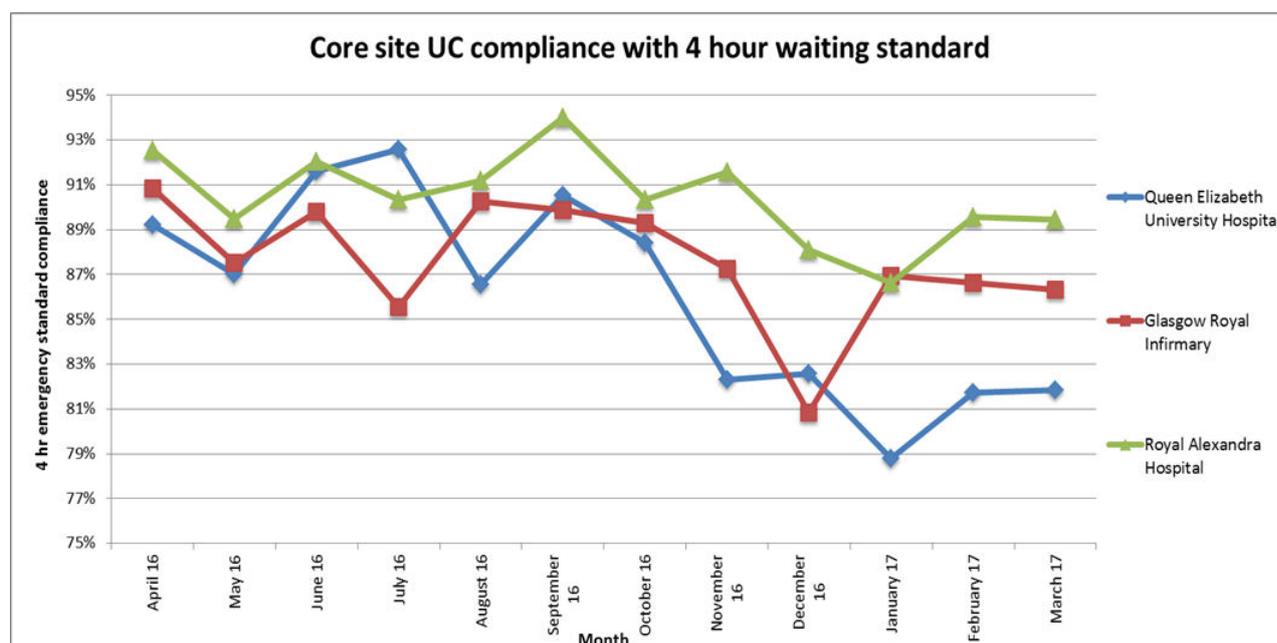
This insight has led to a number of other subsequent analyses to further understand the difference in the emergency models and the completion of a more detailed analysis of both patient pathways and high volume conditions being treated within our EDs and AUs. This work is provided in detail in subsequent sections of this report. To avoid duplication the Executive Summary focuses on the key recommendations for targeted improvement and references where more supporting detail can be found.

## **Current Performance**

Unscheduled care in the NHSGGC area is delivered across 9 acute sites consisting of Emergency Departments (EDs), Assessment Units (AUs) and Minor Injury Units (MIUs).

A performance summary for the GGC sites for the April 16 to March 17 is shown in the figure 1 below. GGC continues to underperform against the 95% standard, delivering 92.1% at Board level with the three largest acute inpatient sites particularly challenged.

Figure 1 – Core site UC compliance performance



In addition to the on-going performance challenges, the data shows that reorganisation and set up of dedicated MIUs has had a significant impact on reported performance. This is because MIUs are not included in the performance metrics of the GRI, QEUH & RAH sites.

- Unscheduled Care Performance excluding the three larger emergency inpatient sites is 98.7% compliant and delivers 39% of GGC’s activity (163,962 patients)
- Incorporating the 31,173 patients from the Victoria Infirmary MIU to reported QEUH activity would improve South Sector compliance to 89.6% (+3.5%)
- Incorporating the 19,224 patients from Stobhill Hospital MIU to reported GRI activity would improve North Sector compliance to 91.0% (+ 3.4%)

Although this is purely an outcome of counting it does illustrate the impact of the service changes on reported performance. The weekly performance reported to the public provides only the major inpatient site detail and there is inconsistency when comparing to other Boards.

Table 1 - NHSGGC 12 month performance summary

	Board	Main Acute Sites			Other sites
	NHSGGC	QEUH	GRI	RAH	
Overall 4 hour compliance Performance	92.1%	86.1%	87.6%	90.5%	98.7%
Total attendances	419,812	94,967	91,896	68,987	163,962
Attendances waiting over 4 hours	33,229	13,169	11,366	6,575	2,118
% >4 hour wait	7.9%	13.9%	12.4%	9.5%	1.3%
Attendances over 8 hours	1571	816	378	320	57
% >8 hour wait	0.4%	0.9%	0.4%	0.5%	<0.1%
Attendances over 12 hours	119	101	13	3	2
% >12 hour wait	<0.1%	0.1%	<0.1%	<0.1%	<0.1%

## Key Recommendations – Board 2017/18 UC Improvement Programme

This section details the recommendations for a Board wide improvement plan for 2017/2018 and beyond. A key driver of the review has been to isolate variation where it exists and to look both internally and externally for examples of service design and professional practice guidance that has resulted in a more efficient, effective and timely response for patients.

The Project Team has identified a number of areas where targeted work is most likely to deliver improvements in unscheduled care performance and patient flow. If fully implemented we anticipate this will deliver a combination of admission reduction, bed day reduction, time of day flow improvements and more consistent delivery of treatment pathways and processes across GGC's inpatient hospital sites. A short summary of the key recommendations is provided below and full details are available in the relevant sections of the report.

### Alternatives to Admission by providing Condition Specific Pathway Alternatives

- Achieve targeted reduction of short stay (Zero/1 Day) Inpatient episodes to reduce congestion and bottlenecks. We currently report 18,038 zero/1 day Emergency Inpatient Admissions at GRI, QEUH and RAH (excluding AU same day discharges); approximately 15% of total annual admissions.
- Introduce joint ambulatory care clinical pathways to provide consistent care and alternatives to admission for both GP-referred and ED patients.
- Develop ambulatory care pathways for high volume conditions initially targeting Acute Abdominal Pain, Chest Pain, Cellulitis, Self-Harm, Falls and Seizure
- Introduce a dedicated emergency pathway for frail elderly patients utilising early Frailty Screening, Comprehensive Geriatric Assessment and appropriate resources to achieve early discharge

### Emergency Department Processes

- Improve Minors flow by providing a protected pathway and options to ensure efficient service delivery. This will maintain compliance for 52% (220,526) of all ED activity including the dedicated MIU's.
- Enact early senior clinical input and diagnostic screening to support decision making and improve the effectiveness of patient streaming ('Triage Plus')
- Ensure that all GGC Hospitals adopt the same triage category coding system so that patients are effectively streamed to the most appropriate clinical area for treatment. This will also provide more consistent and transparent metrics to support Sector and Board escalation plans through standard reporting.
- Ensure that ambulatory care pathways are consistently implemented across Emergency Departments and Assessment Units

### Management of Current Inpatient Capacity

- Embed efficient inpatient management processes as embodied in the 'Exemplar Ward' concept in all ward areas (this will incorporate Daily Dynamic Discharge).
- Develop Criteria Led Discharge processes and ensure they are consistently applied to improve weekend discharge rates and increase numbers of planned discharges during the week days

- Facilitate enhanced co-operation between the Discharge Lounge, Transport and Pharmacy services to improve both the discharge process and discharge rates (this will include the development of the 'transport hub' concept).
- Undertake 'Day of care' audits across all major acute sites to provide a snap shot of bed utilisation and inform the development of both in and out of hospital solutions to minimise in-patient delays.

### Escalation

- Build on current Sector Escalation plans to develop a Board wide Escalation Policy. This will include the development of standard metrics to be applied across all sites and ensure that escalation decisions are clear, transparent and effectively communicated to stakeholders including the Scottish Ambulance Service

### eHealth/IT

- Introduce Microstrategy dashboard for Assessment Units to improve patient safety and provide better flow analysis on the stages of the patient journey
- Develop 'Live Bed State' dashboard to provide electronic data to support flow coordination and bed management processes and reduce manual system dependencies ('hub' concept)
- Develop TrakCare solutions to improve patient safety and escalation of care starting with NEWS/GAPS recording systems and the development of 'senior clinical assessment Icon'

### Delivery of UC change

- Ensure the proposed transformational infrastructure embodies the recommendations of the NHS Scotland Director of Performance as outlined in the 6-EA forward plan for 2017/2018. The Unscheduled Care Project should be reconstituted as a continuing programme of work with the recommended governance structure outlined in Figure 4.1
- Oversight and sponsorship for the programme should reside with a Board Steering Group, with representation from the Acute Division and the IJBs, and chaired by the Chief Executive
- The overarching board wide work programme should be led by the Deputy Medical Director with the direction for UCC performance delivery across NHSGGC set by the Board Steering Group
- Ensure that Sector Delivery Groups, with responsibility for local performance improvement activity continue to operate effectively and report to the Board Programme Delivery Group,
- The UCC Board Programme Delivery Team led by the Deputy Medical Director should continue to co-ordinate and support the boardwide unscheduled care agenda, as directed by the Board Steering Group

## Benefits Summary from Unscheduled Care Demand & Capacity Analysis

The following describes the opportunities to be achieved if the recommendations in this report are delivered. As these are system wide, it is difficult to provide precise impact figures, and for this reason we have provided a range of benefits that reflect the various analyses. The potential benefits are provided in a table at the end of this section along with a RAG status to reflect an assessment of how achievable these will be.

### Demand / Supply imbalance

The bed occupancy comparison calculated using bed days (Section 2, Table 2.6 & 2.7) demonstrates that occupancy levels for emergency medical activity are at an unsustainable level. Based on current ways of working, current demand drives inpatient activity requiring between 247 and 374 beds in excess of what is available (dependent on whether elective surgical capacity could be realigned).

It is considered neither clinically appropriate, practically achievable nor financially viable to address this imbalance by increasing inpatient bed numbers. We believe that better patient experience and outcomes can be achieved through service redesign to provide more care in an outpatient setting or away from hospitals entirely.

### Admission Conversion Rate Reduction

Analysis of the Board's emergency attendance admission conversion rate was completed and compared with other large acute sites in Lothian and Tayside (Section 2, Tables 2.1, 2.2 & 2.3). As GGC's emergency model differs from other sites, we agreed to benchmark against the Royal Infirmary Edinburgh (RIE) as it is a hospital of similar size and capacity to the large acute sites in Glasgow. This led to analyses that reflect a range of options to target admission reduction.

We have made two assumptions for the admission reduction calculation

1. The target to reduce the admission conversion rate between GGC and Lothian should, in the first instance, be halved: the gap between Boards is between 5.4% and 10.9% (depending on the model used), therefore we have set a target to deliver between 2.7% and 5.4%.
2. The LOS associated with these admissions has been estimated as 3.7 days using the planning assumptions derived for the Acute Sector reorganisation, therefore:

- **The target number of reduced admissions is between 8,589 and 23,580. Applying the assumptions above would generate savings of between 58 and 159 beds worth of activity.**

### Ambulatory Emergency Care Pathway Development

An important mechanism to deliver the reduction in admissions described above is the better use of Ambulatory Emergency Care (AEC) treatment pathways. Analysis of admissions that can be considered for such pathways was completed using the relevant ICD-10 codes and following the guidance provided in the AEC Directory 2016 (Table 3.1). This was a first step to identify the potential opportunity for developing alternatives to inpatient admission. From this we identified the high volume pathways and quantified short stay admissions to focus efforts on where a positive impact on performance can be achieved. **This showed the potential to reduce admissions by up to 8,228 patients.**

In addition we analysed the number of admitted patients with zero or 1 day LOS. Excluding same day discharges from the AUs there are 18,038 such patients representing 15% of total admissions. **Our target would be to reduce this by 50% to 9,019.**

### Delayed Discharge

One of the key elements of HSCPs' commissioning intentions is to reduce demand for acute care. This is based on work framed by collective agreement in a range of areas where changes in community and primary care services could be expected to reduce or reshape demand for acute care. This includes a target to eliminate Delayed Discharges across HSCPs

- **The aim is to eliminate Delayed Discharges across HSCPs. This will avoid 35,701 bed days generating 96 beds worth of activity**

### Nursing Home Admissions

From the analysis of nursing/care homes in the NHSGGC we have highlighted those with highest hospital admission to bed ratio. Of the 149 nursing homes, 20 are responsible for 30% of all hospital admissions and 49 are responsible for 60% of all admissions. We have also identified high volume conditions related to these hospital admissions which will allow HSCP's to progress targeted support and pathway development.

- **The aim is to reduce nursing/care home bed day usage by 30% from 29,280 to 14,640 to generate 24 inpatient hospital beds worth of activity**

### Associated Process/Flow Improvements

**ED >4 hour wait reduction** – the introduction of a combined AEC service where patients are streamed post triage and assessment from both ED and AUs is likely to result in a reduced number of delays. There are currently 7,005 patients who may be suitable for AEC pathway management across GRI, QEUH and RAH.

- **The aim is to reduce > 4 hour waits for AEC conditions by 50% to 3,503 patients which equates to 11.3% of the annual total**

**Pre noon Discharges** - the purpose of the exemplar ward project is to improve the quality and efficiency of patient management at ward level, and as a result increase the number of patient discharges earlier in the day. Work will continue to embed this across all inpatient wards.

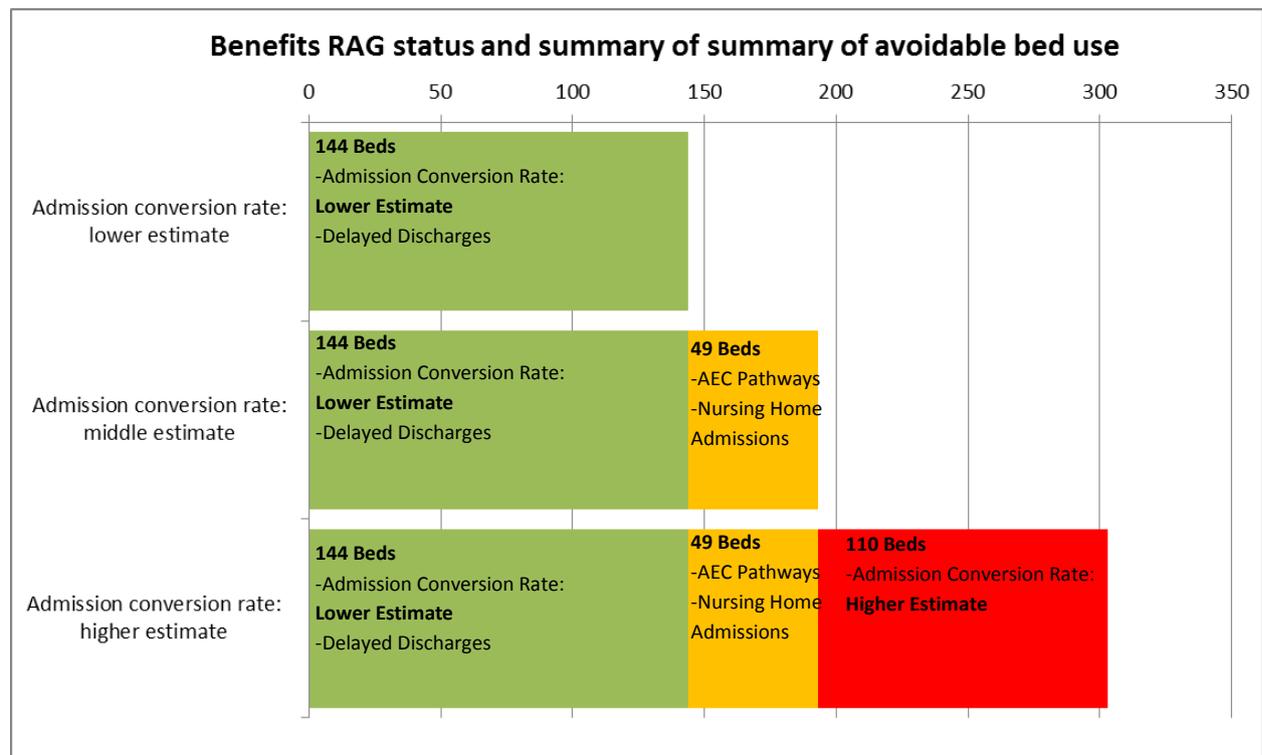
- **The aim is to increase AM discharges by 5% to improve patient flow**

### Primary Care / HSPCs

Although the report is dominantly concentrated on secondary care, we believe that there is significant potential for primary care / HSCPs to contribute by reducing demand on hospital-based services. HSCP's have been developing their commissioning intentions and associated plans across a range of services with the aim of reducing demand for acute care. This work was framed by collective agreement in several areas where changes in community and primary care. The intention is to bring those strands of work together as an important component of the delivery of improvements to unscheduled care. This should be a major focus of the next phase of work.

## Benefits RAG Status and Summary of avoidable bed use

The following table reflects our assessment of the degree of difficulty in realising the benefits.



## Benefits Summary - Conclusion

The above describes opportunities to improve the demand / supply imbalance through the introduction of pathway and process change that would **result in between 144 and 303 beds worth of current inpatient activity being released**. This illustrates that within our existing service provision there is scope to improve compliance with the 4 hour standard by adapting existing good practice and developing more efficient pathways for patients.

The journey towards achieving an improved unscheduled care performance will be closely monitored via a new performance metrics dashboard, as described in **APPENDIX 1**. The dashboard, which is in the final stages of development, will reflect board wide and site specific progress in achieving the unscheduled care performance aims associated with the above recommendations and will be updated on a monthly/yearly basis.

The high level metrics the performance dashboard will monitor are outlined below:

- Hospital LOS
- Unscheduled care attendances/admissions
- AEC discharges
- Frail and elderly admissions
- Hospital boarding
- Other key metrics

This summary contains references to the main body of the report where more detailed analysis is provided.

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## Section 1 –NHSGGC unscheduled care current performance status

### 1.1 Unscheduled Care Performance Targets

Improving unscheduled Care across Scotland is a key priority for Scottish Government and local health boards. Nationally, we aim to ensure that 95% of patients attending an Emergency Department (ED) seen, treated and discharged or admitted with four hours, ultimately working towards 98%. NHSGGC acknowledges the importance of this target, commonly referred to as the 95% unscheduled care compliance standard, as a marker of both the quality of care delivered in our EDs and the efficiency of our services. As such, NHSGGC is continually striving to improve unscheduled care performance across the board via a dedicated unscheduled care programme of work with the aims of:

- Delivering the national targets;
- Reducing demand for unscheduled care;
- Reducing and reshaping the resources consumed by unscheduled activity in the Acute Division

### 1.2 Current strategy to deliver better Unscheduled Care

NHSGGC's unscheduled care strategy is based on the national 6 Essential Action (6-EA) Programme outlined below.

<b>Essential Action 1</b>	Clinically Focussed and Empowered Hospital Management
<b>Essential Action 2</b>	Hospital Capacity and Patient Flow (Emergency and Elective) Realignment
<b>Essential Action 3</b>	Patient Rather Than Bed Management – Operational Performance Management of Patient Flow
<b>Essential Action 4</b>	Medical and Surgical Processes Arranged to Improve Patient Flow through the Unscheduled Care Pathway
<b>Essential Action 5</b>	Seven Day Services Appropriately Targeted to Reduce Variation in Weekend and Out of Hours Working
<b>Essential Action 6</b>	Ensuring Patients are Optimally Cared for in their Own Homes or Homely Setting

The 6-EA programme is delivered at sector level. Each sector has responsibility to incorporate the principles of the 6-EA programme into their local UCC programme plan and develop a programme of work that addresses and improves specific areas of unscheduled care performance. In summer 2016, the Chairman commissioned a Board Programme of Improvement work to expedite opportunities in advance of winter 2016/17. This led to a revised governance structure and a more robust approach to managing and delivering change. Consequent to this, sector level improvement work has been supported at board level via an overall GGC UCC Implementation plan and UCC Project Team, led by the Deputy Medical Director. This provides programme and project assistance to each sector in the areas of:

- Data & eHealth Improvement work

- Emergency process redesign
- Clinical pathways across primary / secondary care
- Governance / Project Structure

The UCC Project Team also leads on specific board wide projects that span either the NHSGGC Acute sectors or primary/secondary care boundaries.

### **1.3 NHSGGC's UCC Governance Structure**

In light of the importance of unscheduled care performance to the overall health of the local population, in the summer of 2016 NHSGGC Chairman highlighted the need for a robust governance structure to guide the outputs of the UCC programme and deliver the strategy. This section describes the current structure however; the report goes on to make further recommendations to enhance the governance arrangements in 2017/18.

#### **UCC Programme Board**

The UCC Programme board, chaired by the Chief Executive and sponsored by the Chairman, was established in June 2016. The structure was designed to align to existing UCC Sector groups, supported by local UCC Clinical Leads. The Deputy Medical Director for the Board was appointed to lead this programme with support provided from colleagues across various disciplines, including Public Health and Health Information & Technology, in addition to the UCC Clinical Leads, Sector Directors and their respective teams.

The governance structure was intended to provide assurance of the NHSGGC UCC Programme within the recent Sector redesign and provide oversight and coordination of local delivery plans, including the 6EA work plan.

#### **UCC Programme Board Membership**

Chief Executive, Chair

Board Directors of Medicine, Planning and Nursing

Deputy Medical Director, Programme Director

Acute Division Sector Directors

Representatives of HSCP Chief Officers

Representatives of Scottish Government

Other Stakeholders

#### **GGC UCC Implementation Group**

In addition, a UCC Board Implementation Group was established to facilitate Board wide support for unscheduled care, helping to develop, design, implement and deliver a programme of work across GGC. This group liaises with identified clinical representatives to ensure that leadership, guidance, engagement and communication is in place to support the UCC plans at a local level. The members of this group actively sponsor the delivery of the programme of work, agreed by the Programme

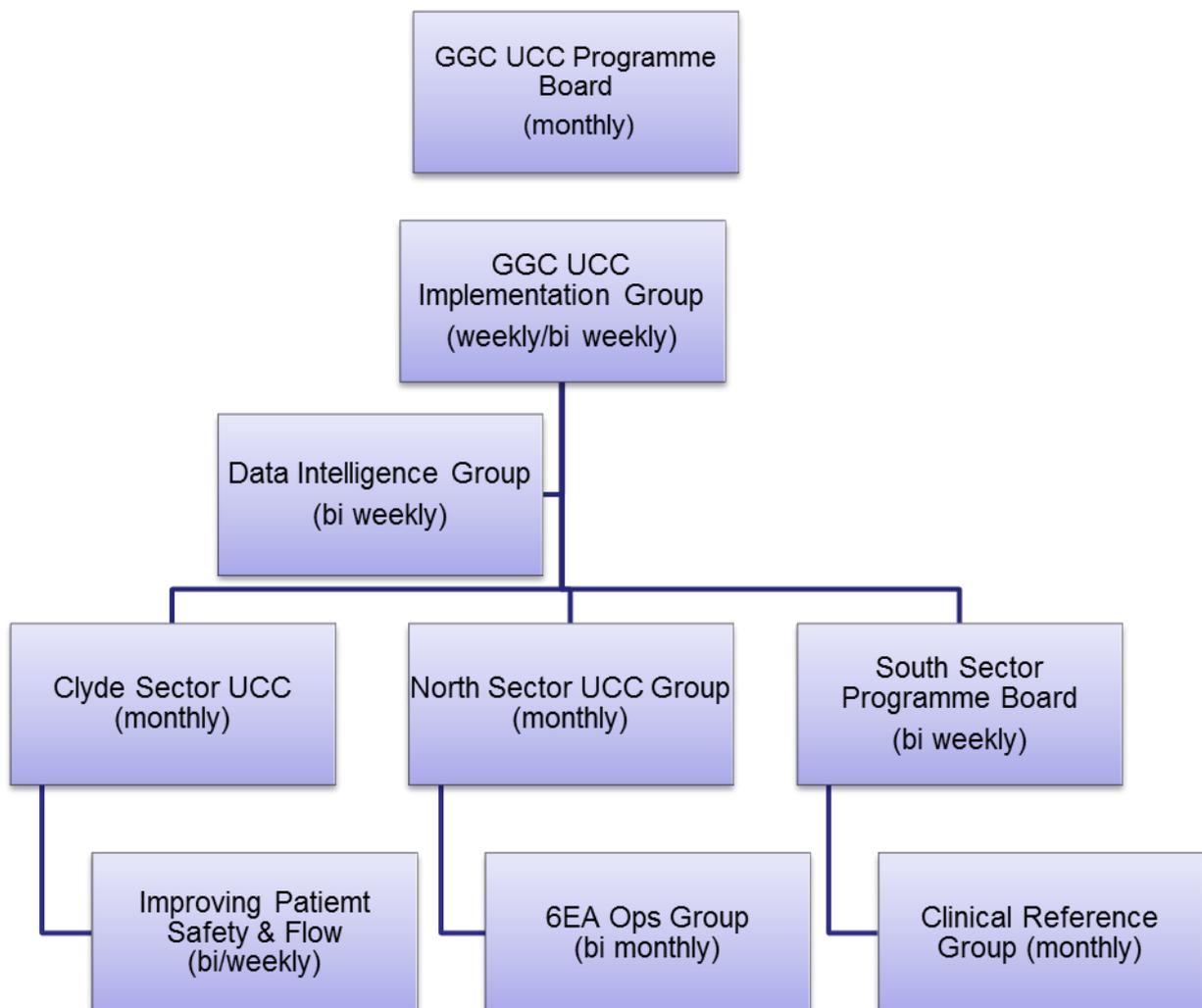
Board and the Sector Directors, with the support of their local Sector UCC Groups. As the programme is system wide, the group has identified areas of collaboration across Primary Care, Secondary Care and the Scottish Ambulance Service (SAS) to develop UCC opportunities and recommendations.

**GGC UCC Data Intelligence group**

A Data Intelligence subgroup was also established to develop demand and capacity modelling to inform decision making on how best to prioritise our UCC efforts. This work includes integrating the National Basic Building Blocks methodology within the quarterly information governance as described in the 16/17 6EA guidance.

The full programme governance structure is indicated in figure 1.1., recommendations for further enhancement for 2017/18 are provided in Section 4 figure 4.1.

Figure 1.1 – UCC Governance structure



## 1.4 Unscheduled Care - Summary of Current Board Performance

### 1.4.1 NHSGGC Board UC performance Summary

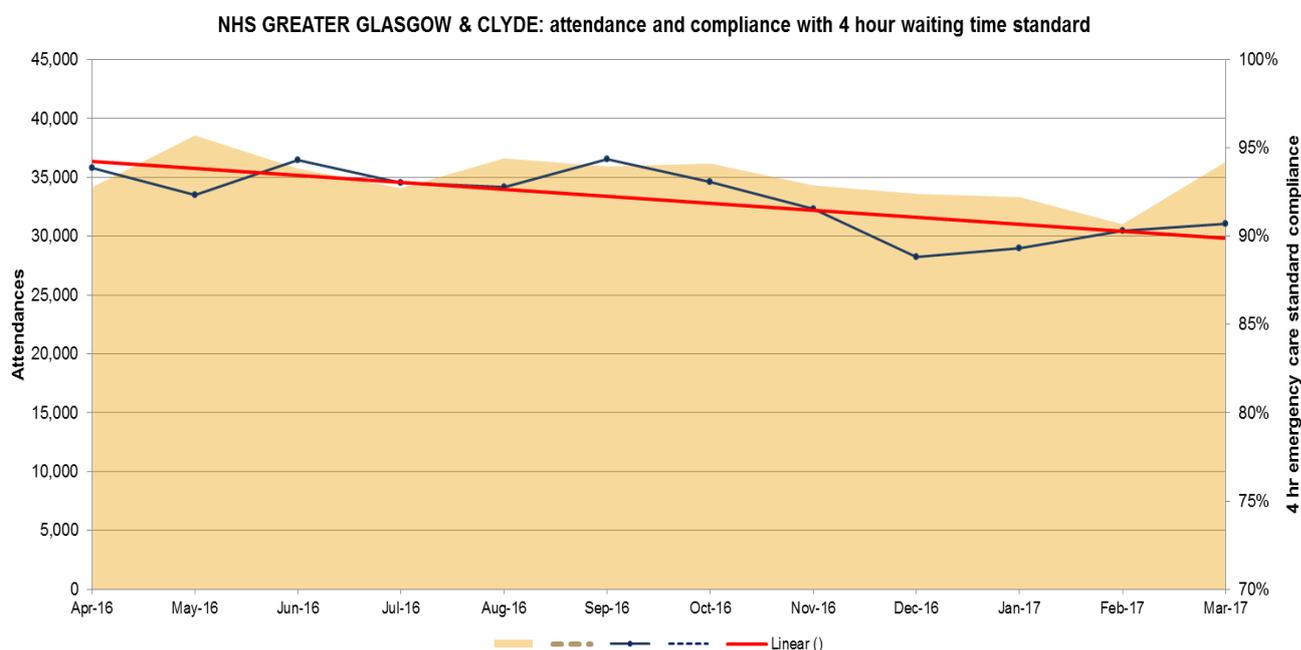
Unscheduled care in the NHSGGC area is delivered across 9 acute sites consisting of Emergency Departments (EDs), Assessment Units (AUs) and Minor Injury Units (MIUs).

Over a 12 month period, from March 2016 to April 2017, there have been 419,812 1<sup>st</sup> time emergency care attendances across NHSGGC measured against the 4 hour compliance standard, a figure that regularly fluctuates between 30,000 and 40,000 attendances per month (BBB data<sup>1</sup>-APPENDIX 2).

In that time unscheduled care compliance was 92.1%, 2.9% lower than the 95% performance target, with 33,229 breaches recorded.

The board's monthly position ranged from 88.8% in November 2016 to 94.4% in September 2016 as indicated in figure 1.2 below. There were also 1,571 instances where patients waited over 8 hours in EDs, and 119 where this wait exceeded 12 hours, corresponding to 0.4% and <0.1% of total attendances respectively.

Figure 1.2 - NHSGGC 12 month 4 Hour UC Performance



Nationally, NHSGGC's performance was lower than many other boards and it was the only board not to achieve a monthly performance compliance figure of 95% in any of the previous 12 months. The last time this figure was exceeded on a monthly basis was July 2015, when a performance of 95.2% was reported.

This performance summary indicates that NHSGGC continues to underperform against the 95% standard; however the three largest acute inpatient sites are recognised as being particularly challenged.

Despite this, **ISD data from April 16 to March 17<sup>6</sup>** indicates that the number of > 8 and >12 hour waits in GGC for UC attendances compares favourably with NHS Lanarkshire and Lothian, central belt boards with comparable demographic and unscheduled care pressures.

Table 1.1 - NHSGGC UC performance comparison with other NHS Scotland boards

	<b>NHSGGC</b>	<b>Lanarkshire</b>	<b>Tayside</b>	<b>Lothian</b>
Overall 4 hour compliance Performance	92.1%	92.5%	98.8%	94.1%
Total attendances	419,812	198,692	106,620	269,057
Attendances waiting over 4 hours in ED	33,229	14,939	1,275	15,879
% >4 hour wait	7.9%	7.5%	1.2%	5.9%
Attendances over 8 hours in ED	1,571	1,611	16	2,808
% >8 hour wait	0.4%	0.8%	<0.1%	1.0%
Attendances over 12 hours in ED	119	363	0	841
% >12 hour wait	<0.1%	0.2%	<0.1%	0.3%

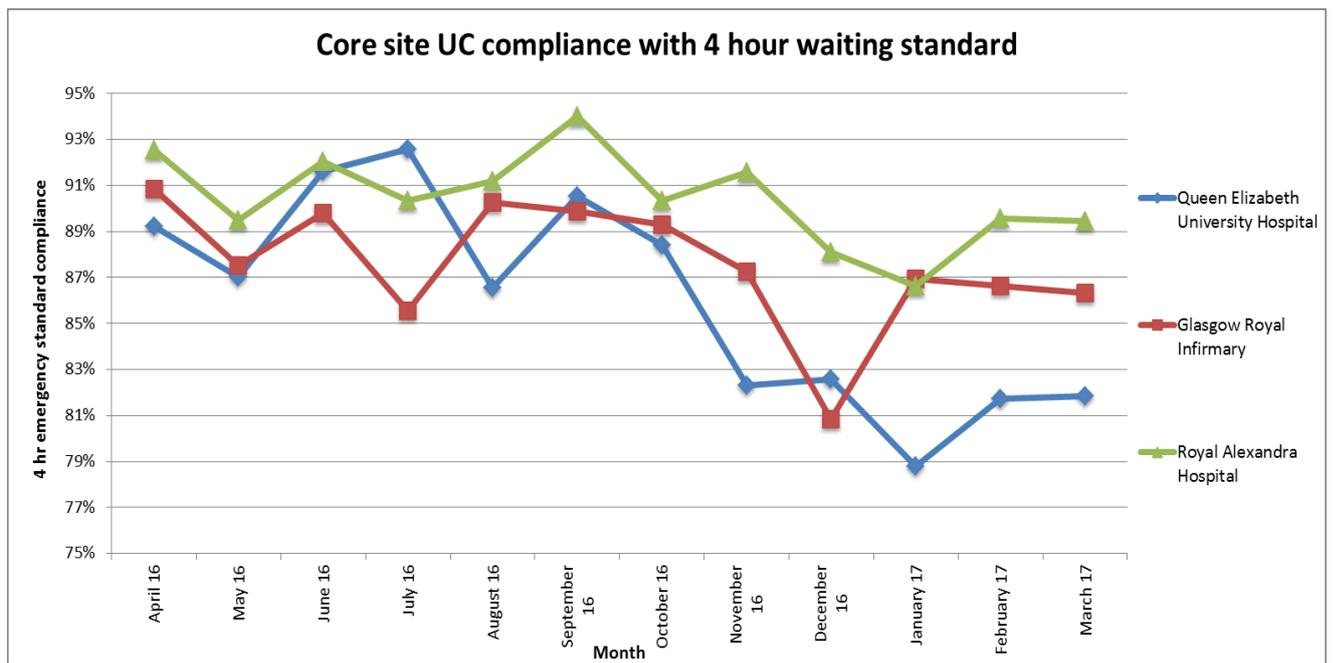
In addition to ED, there were also 68,413 attendances to AUs across NHSGGC, bringing total unscheduled care attendances to 488,225 for the 12 month period.

#### **1.4.2 Site specific UC performance**

UC performance compliance at the main acute sites in NHSGGC over the last 12 months (April 16 – March 17) is displayed in figure 1.3 below<sup>1</sup>. The data demonstrates that 4 hour compliance is not static and fluctuated on a monthly basis, both within and between sites. While overall the graphs indicate a downward trend in performance for period, this is likely confounded by the winter pressures experienced by the core sites from November 16 onwards.

In the 6 months prior to the winter period monthly performance across the RAH, QEUH and GRI sites fluctuated between a minimum of 86% and maximum of 94%. However, following the onset of winter, monthly performance only exceeded 90% on one occasion, in the month of November 16 at the RAH.

Figure 1.3 - 12 month ED performance at NHSGGC core sites



The UC performance key metrics summary for the largest NHSGGC sites for the April 16 to March 17 period is indicated in table 1.2 below. The data suggests the reorganisation and set up of dedicated Minor Injury Units (MIUs) has had a significant impact on reported performance as minor injury patients are not reported in the core site metrics.

- When excluding the 3 largest emergency inpatient facilities in GGC, board wide performance is 98.7% compliant whilst delivering 39% of GGC’s activity (163,962 patients)
- Incorporating the 31,173 patients from the Victoria Infirmary MIU to QEUH would improve South Sector compliance to 89.6% (+3.5%)
- Incorporating the 19,224 patients from Stobhill Hospital MIU to GRI would improve North Sector compliance to 91.0% (+ 3.4%)

Table 1.2 - NHSGGC 12 month performance summary

	Board	Main Acute Sites			Other sites
	NHSGGC	QEUH	GRI	RAH	
Overall 4 hour compliance Performance	92.1%	86.1%	87.6%	90.5%	98.7%
Total attendances	419,812	94,967	91,896	68,987	163,962
Attendances waiting over 4 hours	33,229	13,169	11,366	6,575	2,118
% >4 hour wait	7.9%	13.9%	12.4%	9.5%	1.3%
Attendances over 8 hours	1571	816	378	320	57
% >8 hour wait	0.4%	0.9%	0.4%	0.5%	<0.1%
Attendances over 12 hours	119	101	13	3	2
% >12 hour wait	<0.1%	0.1%	<0.1%	<0.1%	<0.1%

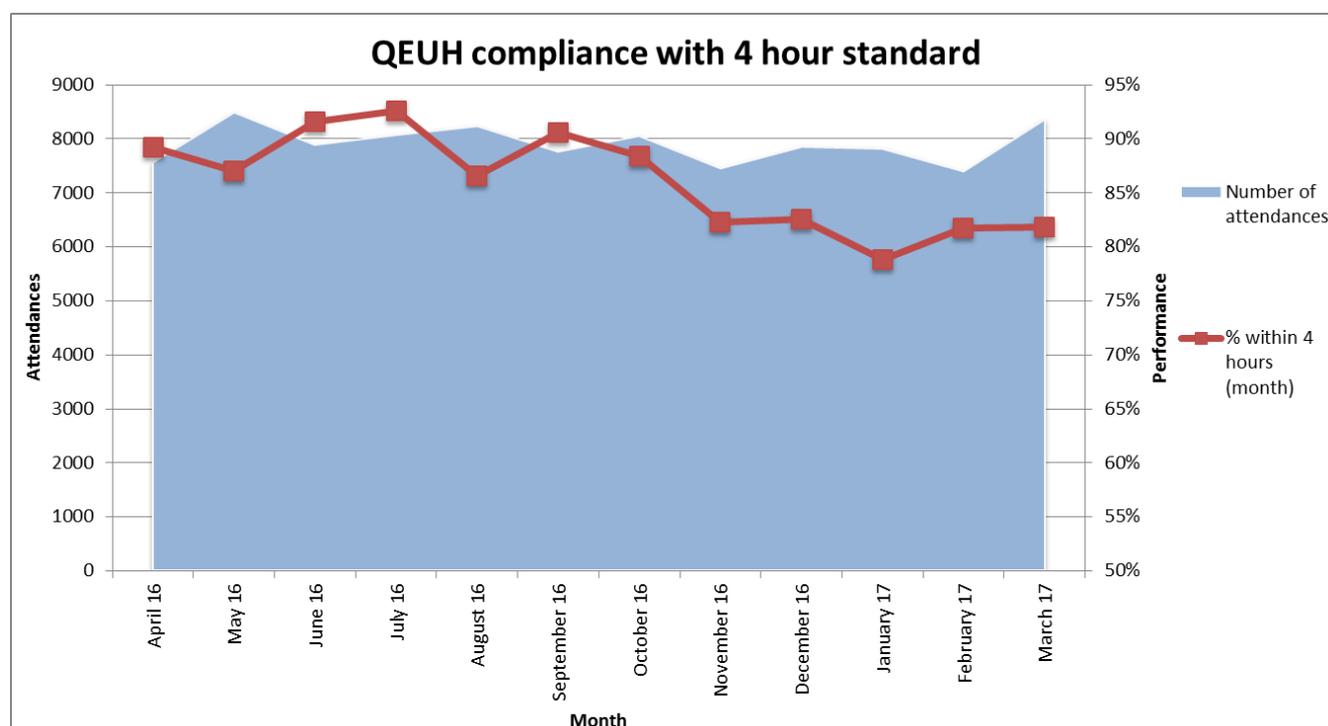
### 1.4.2.1 QEUH UC activity, performance and 4 hour waits

Average QEUH 4 hour ED compliance was 86.1% over the 12 month period from April 16 to March 17. Performance peaked in July 16 at 92.6% and was lowest in January 17 averaging at 78.7% for the month. Overall a downward trend was recorded as shown in figure 1.4.

During the 12 months there were a total of 94,667 ED attendances at the QEUH, peaking at 8,492 attendances in May 16. 13,169 of these attendances waited over 4 hours and were classed as breaches, corresponding to 13.9% of the total activity.

In addition to ED activity, 28,686 attendances at the QEUH Immediate Assessment Unit (IAU) were reported over the April 16 –March 17 period, bringing total UC attendances to 123,653 for the site.

Figure 1.4 – QEUH 12 month ED performance



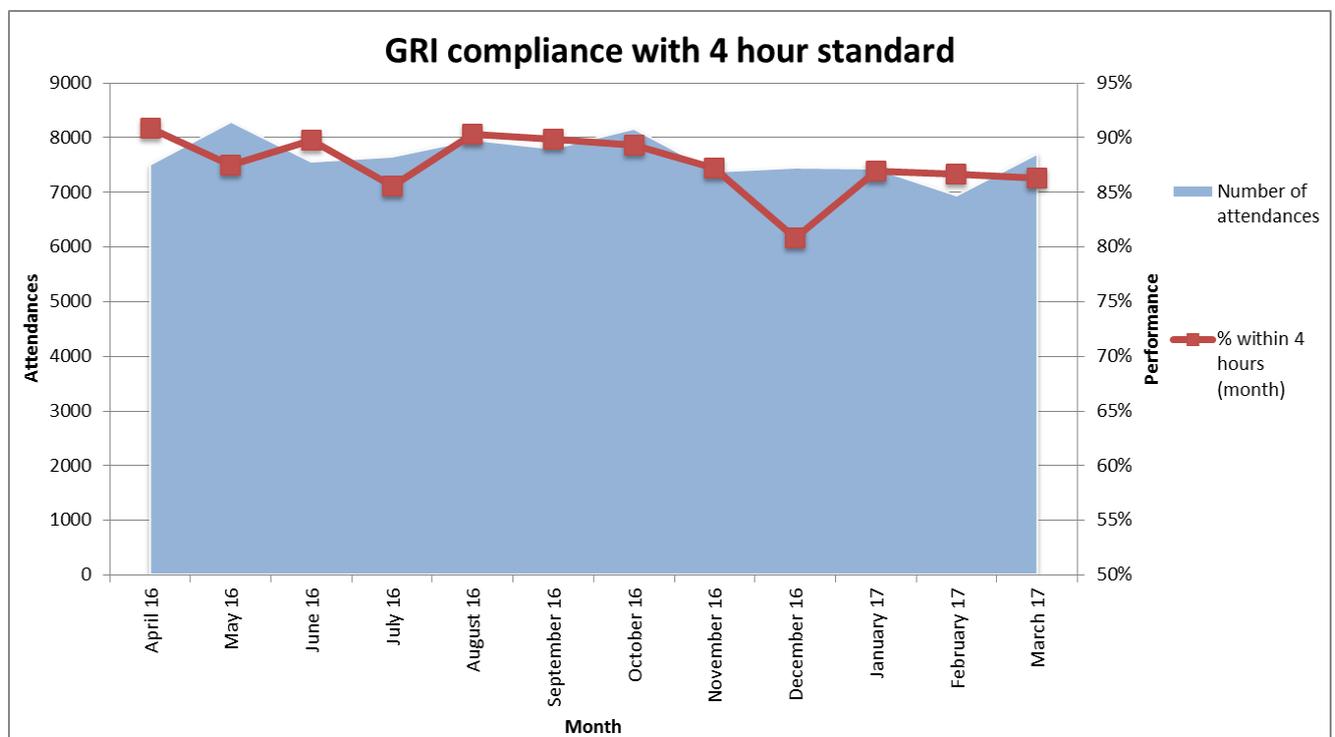
### 1.4.2.2 GRI UC activity, performance and 4 hour waits

Average GRI 4 hour ED compliance was 87.3% over the 12 month period from April 16 to March 17. Performance peaked in April 16 at 90.8% and was lowest in December 16, averaging at 80.9% for the month. Overall, performance was fairly static, with the exception of the December 16 as shown in figure 1.5.

During the 12 months there were a total of 92,399 ED attendances at the GRI site, peaking at 8,291 attendances in May 16. 11,739 of these individuals waited over 4 hours, corresponding to 12.7% of total attendances.

In addition to ED activity, 22,282 attendances at the GRI Acute Assessment Unit (AAU) were reported over the April 16 –March 17 period, bringing total UC attendances to 114,278 for the site.

Figure 1.5– GRI 12 month ED performance



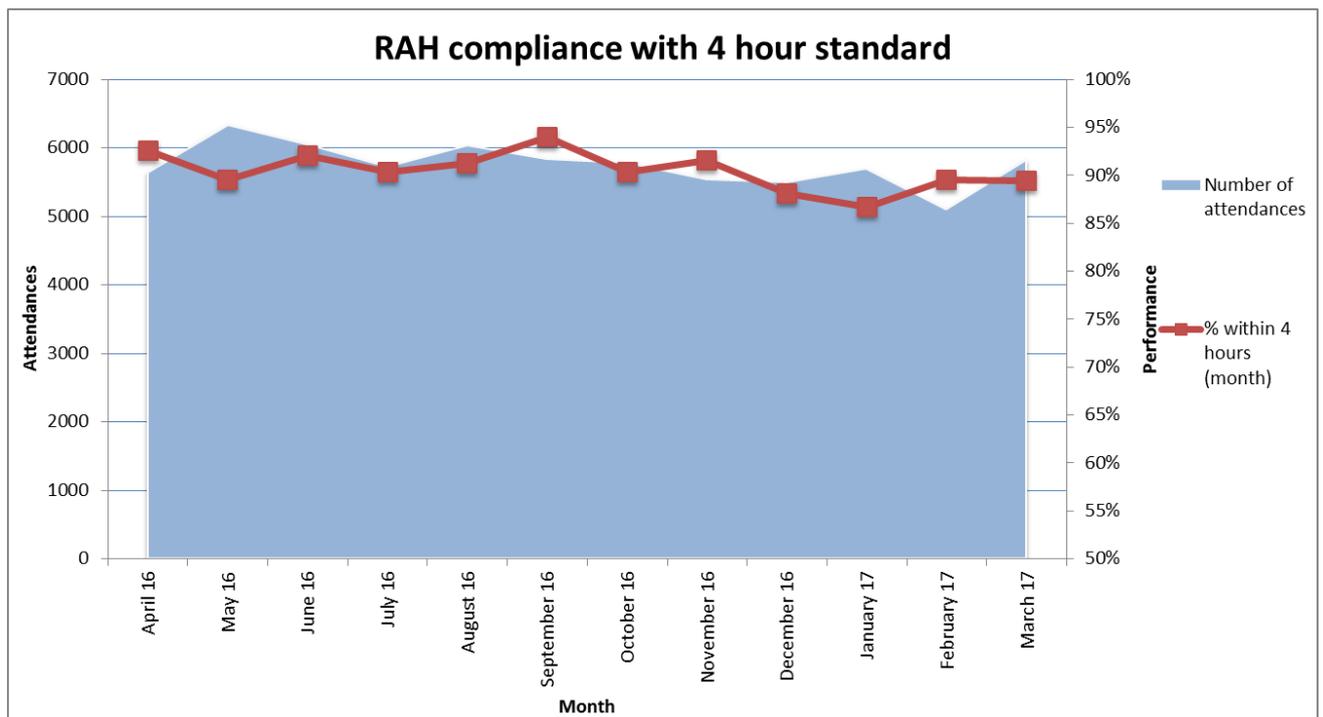
### 1.4.2.3 RAH UC activity, performance and 4 hour waits

Average RAH 4 hour ED compliance was 90.4% over the 12 month period from April 16 to March 17. Performance peaked in September 16 at 94.0% and was lowest in January 17 averaging at 86.6% for the month. Overall, performance was fairly static, with the exception of the 16/17 winter period as shown in figure 1.6

During the 12 months there were a total of 69,304 ED attendances at the RAH site, peaking at 6,328 attendances in May 16. 6,672 of these attendances waited over 4 hours over the 12 months, corresponding to 9.6% of total attendances.

In addition to ED activity, 11,219 attendances were reported between the RAH’s Medical and Surgical Assessment Units (MAU/SAU) over the April 16 –March 17 period, bringing total UC attendances to 80,206 for the site.

Figure 1.6 – RAH 12 month ED performance



## Section 2 - Current Demand

The following section outlines the current NHSGGC unscheduled care demand in relation to the key metrics of: admissions, LOS and bed requirements.

### 2.1 Admission Rates

The admission rates of the main NHSGGC acute sites were examined over a nine month period from April to December 2016. Analysis of the board's Emergency Attendance admission conversion rate was then compared with other large acute sites in Lothian and Tayside.

The analysis, outlined below, indicates that NHSGGC's core hospital ED admission rate is 31.8% for the 9 month period, with Lothian reporting 26.4% and Tayside admitting 25.6%, figures that are significantly lower.

Table 2.1 - ED Admission Conversion Rate for Core Hospitals

IRH Excluded	Greater Glasgow & Clyde Core Sites			Royal Inf Edinburgh		Ninewells	
	ED Admissions	ED Attendances	% ED Admissions	Reduced ED Admits @ 27%	% of Total ED Admits @ 27%	Reduced ED Admits @ 30%	% of Total ED Admits @ 30%
<b>ED April to December 2016</b>							
GRI	22005	69802	32%	(2,930)	-13%	(1,250)	-6%
QEUH	22550	71386	32%	(3,037)	-13%	(1,317)	-6%
RAH	16941	52392	32%	(2,622)	-15%	(1,372)	-8%
<b>GG&amp;C</b>	<b>61496</b>	<b>193580</b>	<b>31.8%</b>	<b>(8,589)</b>	<b>-14%</b>	<b>(3,940)</b>	<b>-6%</b>
RIE	24488	89629	27%				
St Johns	9226	41687	22%				
Western General	9917	34177	29%				
<b>Lothian</b>	<b>43631</b>	<b>165493</b>	<b>26.4%</b>				
Ninewells	10965	36922	30%				
Perth	3389	19199	18%				
<b>Tayside</b>	<b>14354</b>	<b>56121</b>	<b>25.6%</b>				

The GRI, QEUH and RAH all have an approximate ED conversion rate for the period of 32%. If these sites were to deliver the same ED admission conversion rate as Ninewells Hospital (30%), the actual admissions for GRI, QEUH and RAH (excluding IRH) would reduce by 3,940 (-6%) from 61,496 to 57,556. If these sites were able to deliver the same ED admission conversion rate as the RIE (27%), the only other acute site in Scotland that matches the size and scale of the hospitals in NHSGGC, the actual ED admissions for all 3 NHSGGC sites would reduce by 8,589 (-14%) from 61,496 to 52,907.

This data highlights that significant opportunities exist to reduce hospital admissions across the board, with a corresponding reduction in bed days. If we assume only a 1 day Length of Stay (LoS) for any reduction in admissions, this would result in 31.2 beds per days saved if we delivered RIE's 27%, and 14.3 beds per day if we delivered Ninewells' 30% conversion rates.

However, if we assume a target 3.7 day LoS, and only 50% of the reduction in admissions, it would result in 60 beds per day saved if we delivered RIE's performance, and 26.5 beds if we delivered Ninewells'. This is clearly a significant reduction even using conservative estimates.

A similar pattern emerges when the scope of the analysis is extended to include AUs and MIUs (Lothian only), as indicated in tables 2.2 and 2.3 below. Table 2.3 incorporates all emergency activity by rolling up the MIU's into the Core Hospitals (e.g. VOL included in RAH) to ensure that we have considered the wider impact of infrastructure in the admissions analysis.

**Table 2.2- Combined ED and Assessment Unit (AU) Summary – Lothian**

ED & AU's April to December 2016	Greater Glasgow & Clyde Core Sites			Royal Inf Edinburgh	
	ED & AU Admissions	ED & AU Attendances	% ED & AU Admissions	Reduced ED Admits @ 27%	% of Total ED Admits @ 27%
GRI	30994	84251	37%	(7,966)	-26%
QEUH	38160	93821	41%	(12,506)	-33%
RAH	18812	57461	33%	(3,108)	-17%
<b>GG&amp;C</b>	<b>87966</b>	<b>235533</b>	<b>37.3%</b>	<b>(23,580)</b>	<b>-27%</b>
RIE	24488	89629	27%		
St Johns	9226	41687	22%		
Western General	9917	34177	29%		
<b>Lothian</b>	<b>43631</b>	<b>165493</b>	<b>26.4%</b>		

**Table 2.3 Total Emergency Attendances including ED, AU's & MIU's - Lothian**

ED, AU & MIU's April to December 2016	Greater Glasgow & Clyde Core Sites			Lothian Rate	
	All Emergency Admissions	All Emergency Attendances	% All Admissions	Reduced Total Admits @ 26.1%	% of Total Admits @ 26.1%
GRI inc Stobhill	30994	98667	31.4%	(5,225)	-17%
QEUH inc Vic & West	38160	125716	30.4%	(5,319)	-14%
RAH inc VOL	20808	70319	29.6%	(2,444)	-12%
<b>GG&amp;C</b>	<b>89962</b>	<b>294702</b>	<b>30.5%</b>	<b>(12,989)</b>	<b>-14%</b>

The above data indicates that across all EDs, AUs and MIUs, NHSGGC acute sites consistently admits a greater percentage of unscheduled care attendances than comparable facilities in Lothian. If processes in NHSGGC unscheduled care were altered to reflect the models operating elsewhere, it is likely that many admissions observed under the current system in NHSGGC could be avoided. For example, RIE operates a combined triage and assessment model where all emergency patients are initially received, triaged and, following a high level assessment, streamed to the appropriate area to deliver their care (single front door).

The detail of how this opportunity might translate into admission reductions and bed savings are summarised below for the QEUH, GRI and RAH sites. If GGC hospitals delivered the same conversion rate as Lothian (26.1%), the actual admissions for the GRI, QEUH and RAH combined would reduce by 12,989 (-14%) from 89,962 to 76,973 (excluding IRH). In addition, a conservative bed day calculation based on total emergency attendance suggests that we could reduce daily Inpatient demand by between 47 and 87 admissions per day using the model in operation at the RIE.

Table 2.4 - Potential impact of reduced admission rates- Summary

Opportunity Bed Reduction using RIE/Lothian	ED & AU Attendance (exc MIU's)				ED, AU and MIU Attendance			
	ED & AU admits	% admit reduction	@ 1 Bed Day	@ 50% of 3.7 Bed Days	ED, AU & MIU (all)	% admit reduction	@ 1 Bed Day	@ 50% of 3.7 Bed Days
Glasgow Royal Infirmary	(7,966)	-26%	(29)	(54)	(5,225)	-17%	(19)	(35)
Queen Elizabeth University Hospital	(12,506)	-33%	(45)	(84)	(5,319)	-14%	(19)	(36)
Royal Alexandra Hospital	(3,108)	-17%	(11)	(21)	(2,444)	-12%	(9)	(16)
<b>Total</b>	<b>(23,580)</b>		<b>(86)</b>	<b>(159)</b>	<b>(12,989)</b>		<b>(47)</b>	<b>(87)</b>

## 2.2 Length of Stay and Bed Requirements

A dataset was obtained from ISD detailing activity for both emergency and elective care across NHSGGC hospitals for a period from 31<sup>st</sup> July – 31<sup>st</sup> March 2016. Bed numbers for NHSGGC were also obtained and validated internally over the same time period.

Using this data, comparisons were made regarding LoS and the bed occupancy based on current board performance to establish a baseline for analysis of future improvement options.

In analysing this data, a number of assumptions /decisions have been made, these are outlined in **APPENDIX 3**.

The analysis indicates a comparable LoS between the QEUH and GRI sites. Emergency LoS at RAH is significantly higher.

Table 2.5 -Current length of Stay comparison table

Length of stay (days)	QEUH	GRI	RAH
Emergency Medical	4.2	4.4	5.5
Emergency Total	4.2	4.5	5.4
Elective Total	4.2	3.8	3.8

The bed requirement outcomes are derived from the number of bed days utilised over the same time period (275 days). The accepted standard for maximum bed occupancy to support effective and efficient care is 85%. The data, displayed in table 2.6, indicates that as a board, current levels of demand and performance require more emergency medical beds than are currently provided, and that total bed occupancy is above optimal.

Table 2.6 – Bed and occupancy comparison table

<b>QEUH</b>	Emergency Medical	Total
Bed requirement	843	1111
Actual beds	795	1192
Occupancy	<b>106%</b>	<b>93.2%</b>
<b>GRI</b>	Emergency Medical	Total
Bed requirement	589	808
Actual beds	565	837
Occupancy	<b>104%</b>	<b>96.5%</b>
<b>RAH</b>	Emergency Medical	Total
Bed requirement	326	471
Actual beds	335	537
Occupancy	<b>97.5%</b>	<b>87.7%</b>

Based on current unscheduled care demand and performance levels, a net increase of 247 beds would be required across the board. This equates to an increase in Emergency / Medical beds of 374 and a reduction in elective beds of 127, as indicated in table 2.7.

Taking a proxy of the winter beds costs being £1.5m for a 24 bedded unit, the direct costs associated with the additional beds would be in excess of £15m per year. Even with a recalculation to a target 3.7 day LoS (which was identified as best practise during the NHSGGC reorganisation) across all of GGC, we would still require an additional 12 beds, and any potential reduction in elective beds would inevitably have a negative impact on GGC's waiting time targets, which are currently outperforming the national average.

Table 2.7 – Emergency and elective bed requirements

	Bed Requirement	Therefore Beds Required at 85% Occupancy	Actual Beds	Increase / Decrease
<b><u>QEUH</u></b>				
Emergency Beds	843	992	795	197
Elective Beds	268	315	397	(82)
<b>Total</b>	<b>1,111</b>	<b>1,307</b>	<b>1,192</b>	<b>115</b>
<b><u>GRI</u></b>				
Emergency Beds	589	693	565	128
Elective Beds	219	258	272	(14)
<b>Total</b>	<b>808</b>	<b>951</b>	<b>837</b>	<b>114</b>
<b><u>RAH</u></b>				
Emergency Beds	326	384	335	49
Elective Beds	145	171	202	(31)
<b>Total</b>	<b>471</b>	<b>555</b>	<b>537</b>	<b>18</b>
Emergency Beds Total	1758	2,069	1,695	374
Elective Beds Total	632	744	871	(127)
<b>Consolidated Total</b>	<b>2,390</b>	<b>2,813</b>	<b>2,566</b>	<b>247</b>

The baseline analysis presented in section 2 assumes that there is no change in our service configuration or current level of efficiency and is intended to reflect the 'do nothing' scenario without leveraging any change on current demand or LoS.

In light of the above data, the underlying principles to support efficiency changes within emergency care domain, as recommended in the November 16 UCC Interim report<sup>2</sup>, as follows:

- Reducing patient demand by smoothing or providing alternatives to admission
- Reducing LoS by increasing the efficiency of our processes across the hospital system
- Reconfiguration capacity and/or resources to accommodate demand

Potential options to address these recommendations are outlined in section 3.

## Section 3 - Approaches to improving UC Performance

This section details the recommendations to be included in the improvement plan for next year and beyond. A key driver of the review has been to isolate variation where it exists and to look both internally and externally for examples of service design and professional practice guidance that has resulted in a more efficient and effective services for patients.

The Project Team has identified and isolated areas for targeted improvement most likely to deliver improvements in unscheduled care performance and patient flow.

- **3.1 Alternatives to admission** – How we plan to reduce demand on AUs
- **3.2 ED processes** – How we can improve flow when patients arrive to use our services
- **3.3 Management of Current Capacity** - How we are improving patient management when they are admitted
- **3.4 Escalation** – If things go wrong, how we are going to address it
- **3.5 ehealth/IT** – How we can make the most out of our IT services to support the changes we are proposing

Each section is concluded with a series of key recommendations. The areas we have recommended, if fully implemented, will deliver a combination of admission reduction, bed day reduction, time of day flow improvements and a greater consistency of treatment pathways and processes across GGC's major inpatients sites.

These are referred to within the narrative of each sub-section and supported with appropriate data and insights in the content.

### **3.1 Alternatives to admission**

Given the documented unscheduled care demand and capacity pressures highlighted in previous sections, the focus of future work lies in identifying opportunities that will improve the management of patients in acute settings. This strategy must include the prioritisation and streaming of patients to the most appropriate areas to deliver their care, and developing pathways that offer alternatives to hospital admission.

NHSGGC data shows there are significant numbers of zero/1 day LoS patients being managed as inpatients in our acute sites, and a targeted reduction of these short stay patients would reduce congestion and bottlenecks.

This will require that pathways are developed incorporating a number of elements. These include 'hot clinics'; direct access for GP's to clinics with dedicated diagnostic slots; professional to professional calls; the provision of Frailty clinics and access to day hospital appointments; ambulatory care management within the hospital setting.

Admission rates should be reduced by offering a combination of the above options to ensure that the appropriate level of care can be provided away from the front door emergency service provision. These changes will help protect receiving resources/beds and reduce overall hospital admissions.

### **3.1.1 Optimised triage and assessment process**

An opportunity of particular importance is the proposed development of a common process for emergency patient triage and 1<sup>st</sup> Assessment that provides access to common clinical treatment pathways for GP and ED patients alike. This requires the development of consistent targeted triage and rapid consultant assessment process for both groups of patients.

We understand that establishing a Combined Assessment Area at the RIE has provided an effective pathway for streaming patients following triage and assessment, and this will be worth exploring once common care pathways are established.

Managing all unscheduled care attendances in this way is designed to optimise turnaround times and enable prioritisation of acuity and management of risk over entry route by a single, specialised core team handling targeted and timely patient triage. This is followed by the streaming of patients to designated areas, and is model currently employed to good effect in Lothian.

The consequence of this model is that all patients are prioritised before being streamed appropriately and their initial journey managed as ED attendances. In addition, this allows the joint use of Ambulatory Emergency Care (AEC) Pathways for all emergency attendances, irrespective of arrival route, a key component of the avoiding admission strategy as described in the next section.

### **3.1.2 Enhanced targeting of ambulatory care conditions**

It will be important to ensure that patients are consistently managed on ambulatory care pathways where clinically appropriate.

An example of this is the Chest Pain pathway, where patients often require >4 hours in hospital to conclude their management plan before a decision can be made to discharge or admit. This is due to the time associated with the rule 'out/in' chest pain Troponin test, which typically takes >3 hours. Adopting an AEC approach to this type of ED presentation would see the initially assigned ED doctor continue to assume overall responsibility for the care of the patient, however the patient would be on a designated AEC pathway and not waiting in ED, therefore not subject to the 4 hour standard.

This illustration is just one example of where adopting pathways for specific conditions could benefit both the patient and the service. NHSGGC wide data from January to December 2016 has demonstrated that we discharge 30,143 patients directly from ED with AEC conditions, 2,344 of these patients will wait > 4 hours prior to discharge and therefore will have breached. A further 19,885 patients are admitted from ED, with 5,042 of these patients having waited > 4 hours prior to admission.

We understand from the various models that are in place that if we could create a combined AEC pathway, or a model where patients were identified post triage and could be managed as 'ward attenders', that a proportion of these breaches would not exceed the >4 hour performance standard. These patients would be managed as AEC patients and receive a clinically appropriate and high quality care experience.

This model of care would also apply to patients receiving condition specific treatment through NHSGGC's AUs. To fully exploit AEC opportunities it will be essential to ensure site level collaboration between EDs and AUs to develop consistent and integrated pathways.

In light of this, we are recommending that we embark on a programme of targeted AEC pathway development, between EDs and AUs, with a view to establishing a service designed to manage the care of patients with specific conditions that fall under ambulatory care criteria. This would initially target high volume AECs such as Acute Abdominal Pain, Chest Pain, Self-Harm, Falls, Seizure and Cellulitis.

Data illustrating the scale of the opportunity these conditions would present across the three main acute sites is displayed in table 3.1 below. It indicates that in the Jan – Dec 16, 12 month period there was a total of 64,731 AEC presentations at our EDs and AUs. 36,570, or 56%, of these patients were subsequently discharged, resulting in 28,161 admissions. If we apply national data on the potential to treat these patients via dedicated AEC pathways it could have potentially resulted in 44,798 discharges or 8,228 few admissions. This equates to a significant opportunity to increase discharges and exploiting this in future should be seen as a board priority.

In addition, the data shows that 6,120 zero length of stays were recorded for potential AEC conditions, and 11,918 length of stays of 1 day or less, presentations that could be specifically targeted in future to limit the number of unnecessary hospital admissions and improve flow as a result. The site specific data corresponding to the AEC opportunity at the QEUH, GRI and RAH is outlined in **APPENDICIES 4 to 6**.

Table 3.1–Core sites ED and AU Ambulatory care opportunities

**Ambulatory Emergency Care Opportunity - Jan 2016 to Dec 2016**

<b>ED First Attendances</b>								
	QEUH		GRI		RAH		Totals	
Total AEC ED Attendances	23070		9510		11642		44222	
AEC ED Admissions	10999	48%	1109	12%	5160	44%	17268	39%
AEC ED Discharges	12071	52%	8401	88%	6482	56%	26954	61%
AEC Opportunity - Cumulative Effect of Condition Targets	16193		7024		8290		31507	
AEC ED Opportunity	4122	18%	0	0%	1808	16%	5930	13%
<b>AU First Attendances</b>								
	QEUH		GRI		RAH		Totals	
Total AEC AU inc ED Attendances (post Trak change)	8210		9111		3188		20509	
AEC AU Admissions	4198	51%	5299	58%	1396	44%	10893	53%
AEC AU Discharges (** All Zero LOS discharges**)	4012	49%	3812	42%	1792	56%	9616	47%
AEC Opportunity - Cumulative Effect of Condition Targets	5215		6033		2043		13291	
AEC Assessment Unit Opportunity	1203	15%	2221	24%	251	8%	3675	18%
<b>ED &amp; AU First Attendances</b>								
	QEUH		GRI		RAH		Totals	
Total AEC AU inc ED Attendances (post Trak change)	31280		18621		14830		64731	
AEC ED & AU Admissions	15197	49%	6408	34%	6556	44%	28161	44%
AEC ED & AU Discharges (** All Zero LOS discharges**)	16083	51%	12213	66%	8274	56%	36570	56%
AEC Opportunity - Cumulative Effect of Condition Targets	21408		13057		10333		44798	
<b>Total AEC Combined ED and AU Opportunity</b>	<b>5325</b>	<b>17%</b>	<b>844</b>	<b>5%</b>	<b>2059</b>	<b>14%</b>	<b>8228</b>	<b>13%</b>
Short Stay data below is specific to AEC conditions discharged with and AEC ICD10 code								
<b>All Short Stay &lt;=1 day Inpatients from ED, Transfers &amp; Other Admissions Plus 1 Day Admissions for AU's</b>								
	QEUH		GRI		RAH		Totals	
Short Stay - Zero days	2433		1994		1693		6120	
Short Stay - 1 day	4989		4869		2060		11918	
<b>Current Total of Short Stay Admissions</b>	<b>7422</b>		<b>6863</b>		<b>3753</b>		<b>18038</b>	

Close examination of the Emergency Department inpatient admissions resulting from several high volume AEC conditions at the QEUH, as demonstrated in table 3.1, highlights the scale of the opportunity to reduce admissions associated with implementing AEC pathways. Table 3.2 indicates that on a site by site basis we are able to identify specific conditions to target for pathway development work.

Out of the 43 ambulatory care condition pathways validated for use in the *Directory of Ambulatory Emergency Care for Adults*<sup>4</sup> targeting the 19 listed in table 3.2 equates to 91% of the total opportunity presented via AEC pathways, thus focusing resources where they have the most impact on ED admissions.

Table 3.2 – QEUH AU Ambulatory care opportunities

Queen Elizabeth University Hospital							
Number of emergency admissions with an Ambulatory Case Sensitive Diagnosis							
By admitting facility, length of stay group, diagnosis and age				<b>Potential Short Stay AEC Conditions for Joint Pathway Development</b>			
Admissions in 2016 (Jan to Dec)							
Condition	range	QEUH ED Activity Profile of AEC Opportunity					
Inpatient Admissions from Emergency Department with AEC Opportunity		ED Admit	Number who wait > 4 hours prior to admission	Remaining AEC Pathway Opportunity @ Upper Limit	Zero <=1day LOS	ED Admitted <65	ED Admitted >65
Acute Abdominal Pain Not Requiring Operative Intervent	> 90%	1887	460	1481	1105	1445	442
Falls including syncope or collapse	60 - 90 %	800	261	628	402	239	561
Seizure - either first or in known epileptic	60 - 90 %	520	156	406	271	379	141
Cellulitis	60 - 90 %	387	80	268	234	306	81
Renal/Ureteric Stones	60 - 90 %	262	66	218	0	237	25
Transient Ischaemic Attack	60 - 90 %	220	59	181	86	83	137
Stroke	10 - 30%	590	132	163	67	220	370
COPD	10 - 30%	1049	269	160	247	314	735
Lower Respiratory Tract Infections Without COPD )	30 - 60%	482	161	144	202	160	322
Congestive Cardiac Failure	30 - 60%	244	68	140	13	40	204
Gastroenteritis	60 - 90 %	156	48	110	84	83	73
Pulmonary Embolism	60 - 90 %	98	39	88	18	57	41
Deliberate Self Harm	60 - 90 %	90	24	74	715	83	7
		<b>6785</b>	<b>1823</b>	<b>4061</b>	<b>3444</b>	<b>3646</b>	<b>3139</b>
Condition	range	QEUH ED Activity Profile of other AEC <= 1 Day LOS Opportunity					
Upper Threshold for ED Already Achieved - Inpatient Admissions from Emergency Department above Upper AEC Opportunity with high volume <=1 Day LOS		ED Admit	> 4 hours	Remaining AEC Opportunity @ Upper	Zero <=1day LOS	ED Admitted <65	ED Admitted >65
Chest Pain	30 - 60%	1985	560	0	1092	927	1058
Acute Headache	30 - 60%	418	159	0	281	366	52
Gastro Intestinal Heamorrhage	10 - 30%	353	112	0	202	230	123
Head Injury	60 - 90 %	34	15	0	140	19	15
Asthma	10 - 30%	246	65	0	95	219	27
Community Acquired Pneumonia	10 - 30%	176	55	0	62	62	114
		<b>3212</b>	<b>966</b>	<b>0</b>	<b>1872</b>	<b>1823</b>	<b>1389</b>
Other AEC Pathways with Limited Opportunity		1002	252	61	706		
Total AEC Activity as per ICD10 Codes		<b>10999</b>	<b>3041</b>	<b>4122</b>	<b>6022</b>		

Similar condition based AEC opportunities exist at the GRI and RAH sites.

Based on the above evidence it is the view of the project team that phased introduction of common ambulatory care pathways is an appropriate way to treat a specific subset of patients arriving at our acute sites and this will facilitate a reduction in the number of patients breaching the 4 hour compliance standard. However, to effectively manage the patient journey through this model, it would require the redesign of front door processes to align more with the model employed at the RIE or a comparable, locally devised alternative.

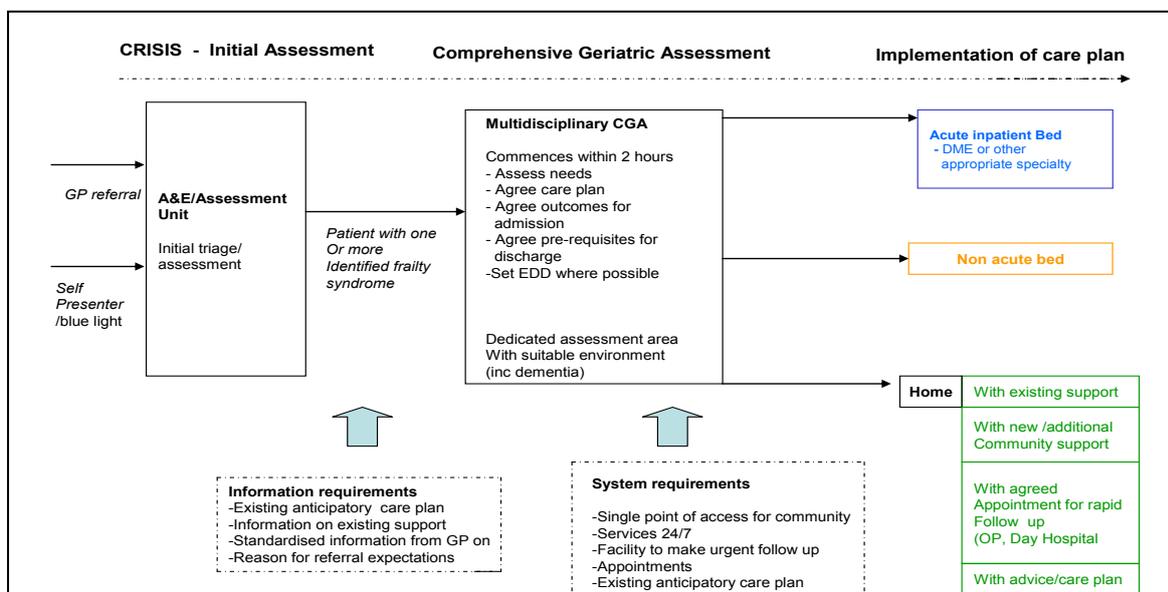
### 3.1.3 Frailty specific ED pathways

The introduction of new Ambulatory care pathways and the redesign of front door ED services also extends to the development of a dedicated frailty screening pathway as recommended in the Healthcare Improvement Scotland’s 2016 Older People in Acute Care report<sup>8</sup>.

This approach includes rapid frailty screening, early comprehensive geriatric assessment, a multidisciplinary team and targeted specialist nurse resources to coordinate/case manage frail patients for discharge and minimise admissions.

This should be an essential element of GGC’s future pathway development work and one that will play a major role in shifting the focus of care from a hospital setting to the community for appropriate patients, and ensuring that if hospitalisation is necessary, it is delivered on a short stay basis.

Figure 3.2 – Draft Frailty pathway model



We are required to establish consistency in both the approach and the application of the frailty assessment tool. This would ensure the tool is reliably repeated by clinical teams and across a broad spectrum of nursing roles/specialties boardwide.

Currently, frailty screening is seen as a function of Geriatric Medicine and is delivered through their Elderly Care Assessment Nurse (ECAN) resources that form part of a relatively small team across the Sectors. However, if we are to deliver timely frailty screening to ensure that patients are identified as frail and treated appropriately to minimise unnecessary admission, this task must be incorporated within the wider emergency care setup.

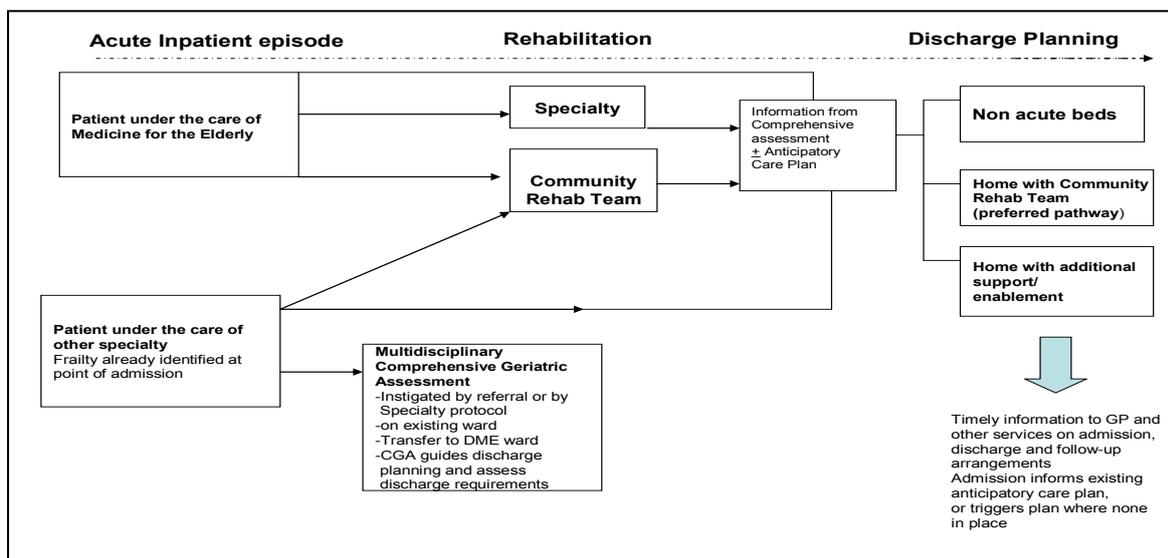
The development of the frailty AEC would also require a dedicated frailty area, and Multi-Disciplinary Frailty Team Resources at each site to expedite the management plan of low acuity patients who have screened positive for frailty but do not require urgent medical intervention, freeing up standard ED/AU capacity.

The above proposal requires a reliable CGA to establish the comprehensive needs of each individual patient. This should be considered joint responsibility of Acute, Primary Care and Community Services to ensure quicker transition to community services from a hospital setting when appropriate.

Finally, the pathway will require full engagement of all service providers and will be shaped initially by what services currently exist in the community to support patient care.

By developing and implementing the described pathway for frail and elderly emergency attenders it will allow early intervention and alternatives to admission to take place more effectively in EDs and AUs across NHS GGC, reducing complexity associated with providing appropriate treatment to frailty and elderly patients in acute settings. In addition, if admission is required, the above pathway will help expedite the repatriation of patients following an inpatient stay, the draft model for which is outlined below in figure 3.3 below.

Figure 3.3 – Frailty pathway repatriation process following inpatient stay



This model of care will also link in with the opportunities to reduce the levels of admissions from nursing homes as described in section 3.1.4 of this paper. Implementing changes in both areas would improve the quality of care delivered to frail and elderly patients both in hospitals and the community. Consequently, these factors would reduce numbers of avoidable admissions, improve ED flow and create additional bed capacity.

### 3.1.4 Nursing home opportunities

The development of Health and Social Care Partnerships (HSCPs) facilitates improved targeting of community services to ensure patients are treated in the most appropriate environment and hospital admissions are avoided when more suitable alternatives are available. This strategy aims to reduce the pressure on acute unscheduled care services where possible and improvement work is on-going targeted at reducing the number of nursing home hospital admissions of frail and elderly patients.

Evidence presented to the UCC Data intelligence group has established which nursing homes have a highest hospital admission to bed ratios. Of the 149 nursing homes, 20 are responsible for 30% of all hospital nursing home admissions and 49 are responsible for 60% of all admissions.

The data suggests that even a 10% reduction in hospital admissions from nursing homes would save 2,928 acute bed days per year. This is the equivalent of having 8 extra beds per day now available across the board and experiences in England and elsewhere suggests that significantly greater reductions are achievable.

A related review of nursing/care home activity also identified the high volume conditions related to hospital admissions to progress targeted pathway development, as indicated in table 3.3 below.

Table 3.3 - Diagnosis/Condition most frequently associated with hospital admission from nursing homes

Main Diagnosis on Admission	No. of Emergency Admissions	Percentage of Total Admissions	Cum % by diagnosis
J18:PNEUMONIA ORGANISM UNSPECIFIED	313	9.1	9%
J22:UNSPECIFIED ACUTE LOWER RESPIRATORY INFECTION	261	7.6	17%
N39:OTHER DISORDERS OF URINARY SYSTEM	256	7.5	24%
S72:FRACTURE OF FEMUR	202	5.9	30%
J69:PNEUMONITIS DUE TO SOLIDS AND LIQUIDS	201	5.9	36%
J44:OTHER CHRONIC OBSTRUCTIVE PULMONARY DISEASE	153	4.5	40%
T83:COMPLICATIONS OF GENITOURINARY DEVICES IMPLANTS AND GRAFTS	64	1.9	42%
R55:SYNCOPE AND COLLAPSE	57	1.7	44%
A41:OTHER SEPSIS	56	1.6	46%
N17:ACUTE RENAL FAILURE	55	1.6	47%
R07:PAIN IN THROAT AND CHEST	52	1.5	49%
K56:PARALYTIC ILEUS AND INTESTINAL OBSTRUCTION WITHOUT HERNIA	52	1.5	50%

The data demonstrates that 50% of all activity is derived from 12 main conditions, pneumonia being the most frequent and accounting for 9.1% of all admissions from nursing homes.

This data gives an indication of the opportunities that exist to target specific homes and conditions in order to reduce the impact of avoidable admissions on acute activity and improve unscheduled care capacity in the main hospital sites.

Other evidence indicating that 216 (or 9%) of all residents have 3+ admissions, and that 33 of these patients have been admitted 5 times or more in 12 months re-affirms the benefits that could be achieved by developing better pathways for nursing home patients through increased co-operation between acute and primary care.

This may involve increased co-operation between Primary Care, Community and Secondary Care and SAS to establish end-to-end condition-specific protocols that primary care colleagues could follow to ensure that patients receive the most appropriate care away from an acute setting, or reducing the patients LoS if admission to hospital is required.

### 3.1.5 Alternatives to admission key recommendations

- Targeted reduction of short stay (Zero/1 Day) Inpatient episodes to reduce congestion and bottlenecks.
- Single clinical treatment pathways for GP referred and ED patients to provide consistent care and alternatives to admission that will protect Receiving resources/beds and reduce overall admissions
- Targeted work based on data for high volume ambulatory care conditions starting with Abdominal Pain, Chest Pain, Self-Harm, Falls, Seizure and Cellulitis
- Deliver a dedicated emergency pathway for frail elderly patients through early Frailty Screening, Comprehensive Geriatric Assessment and appropriate resources to achieve early discharge.
- Work with HSCPs to reduce the number of patients admitted acutely from Care homes

## 3.2 ED processes

Examination of the ED process within acute sites across GGC has revealed several opportunities to improve pathways and enhance service delivery, in addition to the AEC pathway changes described earlier. This section highlights ED process issues affecting flow and proposed changes to address them.

The following data, based on the 6 month period from Sept 2016 and Feb 2017, details patient triage categories and ambulance analysis across the core sites slides.

### 3.2.1 Triage categories

Analysis of flow through triage categories highlights that there is significant variation in the Majors activity across the hospitals with GRI reporting 17% (7,698 patients) of total ED Attendances, the QEUH reporting 44% (20,089 patients) and the RAH and IRH reported 18% and 19% respectively. 20,089 Majors patients at the QEUH 11,695 (58%) were admitted and 8,394 (42%) discharged. In contrast, the other sites' admission rates for patients who were identified as Majors were higher, ranging between 61% and 68% as highlighted in table 3.4 below.

Table 3.4 – Core site attendances by triage categories

Sept 2016 to Feb 2017	Triage Cat 1-2 Majors					All other Triage Cat Non Majors				Total All Attendances	Total ED % Admitted
	Majors Admitted	Not Admitted	Majors Total	% of Majors Admitted	Majors % of Total Attendance	Admitted	Not Admitted	Non Majors Total	All Others % of Total Attendance		
GRI	5233	2465	7698	68%	17%	8800	28376	37176	83%	44874	31%
QEUH	11695	8394	20089	58%	44%	3210	22726	25936	56%	46025	32%
RAH	4057	2077	6134	66%	18%	7230	19842	27072	82%	33206	34%
IRH	1731	1101	2832	61%	19%	2331	10035	12366	81%	15198	27%
Total	22716	14037	36753	62%	26%	21571	80979	102550	74%	139303	32%

This suggests that Triage Categories are being used inconsistently across the hospitals. This is likely to have an impact on patient flow within the Emergency Department as the triage category decision facilitates how patients are streamed to various clinical areas to access the appropriate resources to deliver their care.

It therefore would be beneficial to review major/minors pathways and introduce Enhanced Triage+ processes and consistent recording at all ED sites. This would ensure early senior clinical input and diagnostic screening to support triage decision making and improve the effectiveness of patient streaming in line with Royal College of Emergency Medicine (RCEM) guidance<sup>7</sup>.

Although the total admission percentage is similar at the GRI and QEUH, the % of patients who are identified and subsequently discharged at QEUH having been identified as Majors Category 1-2 is significantly greater. This means there will be a significant difference in how clinical areas such as Resuscitation and Majors cubicles are being used, perhaps contributing to reduced flow at the QEUH site for patients classed as high acuity.

Therefore, triage categories, and the subsequent allocation of patients to pathways and the physical space options they occupy, should be reviewed to improve ED flow processes and ring fence service delivery for appropriate patients.

### 3.2.2 Ambulance analysis – Emergency Department

Ambulance attendances for ED are between 5% and 10% higher at the QEUH than at any other hospital. Here 37% of all ED attendances arriving by ambulance with the figure at 32% for the GRI and 31% and 27% at the RAH and IRH respectively.

This translates into 45,617 ambulance patients across GGC ED’s for the period, with 23,226 (51%) triaged as ‘Majors’ and the remaining 22, 391 (49%) triaged on arrival as non-Majors as indicated in table 3.5 below.

During the Sept 2016 to Feb 2017 period, there were 2,067 (4.5%) of the total ED ambulance patients who waited more than 4 hours across GGC and of these patient, 960 were at QEUH, 653 at GRI, 351 at RAH and 103 at IRH.

Table 3.5 – Ambulance attendances/triage categories at core sites

Sept 2016 to Feb 2017	Total Attendances					Majors/Non Majors by Ambulance			
	Attends	Ambulance	Non-Ambulance	% Ambulance	% Non Ambulance	Majors Ambulance	Non Majors Ambulance	% Majors Ambulance	% Non Majors Ambulance
GRI	44874	14225	30649	32%	68%	4709	9516	33%	67%
QEUH	46025	16997	29028	37%	63%	13158	3839	77%	23%
RAH	33206	10304	22902	31%	69%	3727	6577	36%	64%
IRH	15198	4091	11107	27%	73%	1632	2459	40%	60%
Total	139303	45617	93686	33%	67%	23226	22391	51%	49%

The above data clearly indicates that a higher proportion of ED patients are arriving at the QEUH by ambulance compared to the other acute sites. There is almost twice the proportion of patients at QEUH (77%) who have arrived by ambulance and are identified as Majors (triage category 1-2) than the GRI, RAH or IRH.

As a consequence, congestion and ambulance waiting in Majors within ED will continue to be significant. In addition, the step down of patients post-triage to alternative areas within ED is likely to be restricted and any potential flow benefits from Ambulance Services having the ability to directly stream patients away from majors and into minors will be significantly reduced.

These factors suggest that an examination of triage processes and the impact on patient ED flow should take place to fully understand the variation in triage category use across GGC. Any subsequent change in ED processes should protect Minors pathways and cubicles as a priority to maintain flow in the department, especially during peak times.

The changes in ED processes prompted by the above analysis ties in with the proposed front door redesign recommendations discussed in section 2.3 of this paper. These measures are required to

divert appropriate patients away from the core ED flows and protect capacity through the development of enhanced triage processes, AECs and frailty pathways.

This will require a significant overhaul in ED process design, however implementing these changes will better enable the core sites ED's, particularly the QEUH, to cope with the demand and flow pressures and better prepare NHSGGC as a whole to better meet the 4 hour compliance target in future.

### 3.2.4 ED staffing analysis

One of the key recommendations from the interim report on Unscheduled Care<sup>2</sup> was that medical capacity should be realigned to reflect patient demand, in both the receiving areas and across the hospital system. Specifically the report recommended that ED staffing profiles should align with unscheduled care arrival and occupancy rates.

The staffing analysis examined the impact of current staffing models on the 4hr ED performance standard for the month of September 2016 and investigated how a re-alignment of staffing models to improve performance could potentially be achieved, providing the associated costing/resource impacts for any such changes.

To carry out the analysis, levels of staffing and attendances across the three largest acute sites in NHSGGC were examined in the context of >4 hour delays to establish whether there were demonstrable links between the variables.

Staffing profiles of senior medical staff within the RAH, QEUH and GRI hospitals were also compared to staffing approaches employed at Ninewells Hospital and the RIE in relation to out of hours cover. This was to examine how NHSGGC's staffing models compared to those employed by other boards.

Finally, work was undertaken to examine how a more balanced ED medical staffing profile could be achieved. Current staffing profiles were amended and smoothed to reflect a more balanced attendance to staffing ratio across the main acute sites in NHSGGC in a largely cost neutral environment. This process is intended to **illustrate** what potentially could be achieved with a consistent level of medical decision making resources between sectors.

These analyses provided 4 potential options for amending the ED staffing profiles across NHSGGC for consideration.

- **Option 1** - Full overnight consultant cover across the RAH, GRI and QEUH sites (between 12pm and 8am).
- **Option 2** - Having one consultant on shift in the RAH, GRI and QEUH EDs overnight 100 nights of the year.
- **Option 3**- Extending ED consultant cover until 2.00am at each acute site.
- **Option 4** - Re balancing the consultant workforce across the RAH, GRI and QEUH EDs on a 24 hour basis in relation to patient attendances.

The analysis shows there is a high degree of variance in the medical staffing to ED demand ratios both within and between the GRI, QEUH and RAH sites over a 24Hr period. This variance is present

at all levels of medical grades. However, no strong link between attendance or occupancy to staffing ratios and breaches was observed consistently across the sites.

The analysis indicates there is no consultant cover overnight on any of the three ED sites in NHSGGC. In relation to full overnight consultant cover (**Option 1**), it seems unlikely that either full 365 day cover, which would cost NHSGGC between £646,120 and £796,273 per year, would be either affordable or desirable at the RAH, QEUH or GRI.

An overnight consultant cover of 100 nights per year, targeted at the busiest nights (**Option 2**), as is the case of Ninewells Hospital, would cost between £177,506 and £218,757 annually. NHS Tayside has found this method to be very effective at improving their UC performance during periods when the department is expected to be busy.

The extension of consultant cover beyond midnight to 2.00 a.m. each night (**Option 3**), the staffing model applied at the RIE, would cost between £161,530 and £199,068. This option is in place at the RIE and is considered to improve the hospital's morning starting position in ED.

The rebalancing of consultant profiles contained within **Option 4** is effectively a cost neutral option, creating a more equitable and balanced consultant staffing profile in relation to ED attendances both within and between NHSGGC acute sites (**APPENDIX 8**). Specifically the analysis is aimed at reducing the current variance between sites at various points of the day and week, achieving a more balanced situation than is currently the case. While the overall resource impact is minimal, it would require the redistribution of senior medical staff between EDs.

In considering a way forward, it may be useful to link this work to the work of the Medical Locums Group and their insight into the high levels of spending in Emergency Care. This may be worthy of further investigation and provide an option to fund the resource impact resulting from the alternative consultant staffing models outlined above.

### 3.2.5 ED processes key recommendations

- Improve Minors flow by providing a protected pathway and options to ensure efficient service delivery. This will maintain compliance for 52% (220,526) of all ED activity including the dedicated MIU's.
- Enact senior clinical input and diagnostic screening to support decision making and improve the effectiveness of patient streaming (Triage+ process)
- Ensure that ambulatory care pathways are consistently implemented across Emergency Departments and Assessment Units

### 3.3 Management of current inpatient capacity

While a significant focus of future improvement work is to reduce the number of patients who are admitted to hospital through improved flow planning and developing alternatives to admission, other work streams are focussed on reducing the LOS of admitted patients and facilitating their transfer out of hospital to home, or an alternative community service. Ensuring the development and embedding of these patient management processes is discussed in Section 3.3 below

#### 3.3.1 Exemplar Wards

The purpose of the exemplar ward project is to improve the quality of patient management and care at ward level, and as a result, facilitate increased number of patient discharges earlier in the day at the QEUH, GRI and RAH sites. This will improve the frequency at which beds at ward level will become available and that will facilitate flow in receiving units. This will in turn improve patient flow in the ED by improving the speed in which bed requests can be actioned.

The main components of the Exemplar Ward strategy, which adopts many of the key recommendations from the Royal College of Physicians -Ward rounds in medicine: principles for best practice report<sup>12</sup>, are outlined below:

- Structured Ward Rounds
- Board Rounds 9am and 3pm
- Ward Round Templates
- Criteria Led Discharge
- Discharge Lounge promotion
- IDL Templates
- Organisation Development, staff development and team approach

We anticipate that embedding the exemplar ward concept in all inpatient areas throughout NHGGC will ensure that pre noon discharges exceed 40%, creating bed capacity in specialty units earlier in the day. Data from the QEUH, the first NHSGGC site to adopt the Exemplar Ward approach, shows that in the month of March 2017 pre noon discharges were 24% across all medical wards, 17% across surgical wards and 47% for DME wards.

However, data from wards 7C and 8B, the Medicine wards where the concept was first introduced, shows that the pre noon discharge rates are 50% and 47% respectively. This suggests that performance is likely to increase over time as the concept, and culture change it fosters, is further embedded. The February 2017 day of care audit indicated that that 43% of patients across the GRI and QEUH sites were pre-noon discharges, showing that exceeding the 40% target is achievable.

Embedding of the 'Exemplar Ward' concept, incorporating Daily Dynamic Discharge, continues across all acute sites to help reduce LOS and create capacity as described above.

In addition, the UC project team will facilitate implementation of 'Day of care audit' across QEUH, GRI and RAH sites to provide a snapshot of bed utilisation and define in-patient delays in hospitals. The data collected in this audit will be used to inform the development of solutions to minimise in-patient delays in hospitals. The first day of care audit took place at the GRI on the 10<sup>th</sup> of May 2017 and discussions are on-going regarding the use of the tool at the QEUH and RAH sites.

### 3.3.2 Criteria Led Discharge

An element of the Exemplar ward approach worthy of specific consideration is criteria led discharge. This currently being rolled out and embedded across the QEUH, GRI and RAH sites.

Criteria led discharge enables delegated decision making by members of the multi-disciplinary team ensuring discharge at the optimum time and day for patients and the prevention of unnecessary delays. The approach links with the other measures employed across acute sites to expedite the discharge process and is seen as particularly important in facilitating weekend discharges, when for some specialties the frequency of consultant ward rounds are significantly reduced.

Evidence from the Scottish Governments QuEST pilots<sup>3</sup> across the country indicates that implementing criteria led discharge:

- Reduces length of stay
- Increased am discharges
- Increased weekend discharges
- Improved discharge focus and ownership
- Creates opportunities for continued improvement

The imperative of further embedding of the concept is supported by the outcomes of the February 17 NHSGGC Discharge Study report of the GRI and QEUH hospitals<sup>5</sup>, which identified that the use of criteria led discharge **at weekends** was lower than weekdays. Qualitatively, the study found that at the GRI 44% of wards had criteria led discharge in place, and this figure was 38% at the QEUH.

The study identified the main factor contributing to patients not being discharged before 12pm was awaiting 'medical review', a factor relevant in 47% of the patients. The wider use of criteria led discharge will help address this.

### 3.3.3 Discharge lounge and transport hub

Another UC project designed to consolidate discharge services and improved planned AM discharge rates is the continued development of discharge lounges and the 'transport hub' concept.

The February 17 Discharge Study report highlighted that Awaiting 'transport' and 'medications' were other major factors preventing more pre-noon discharges from wards and were relevant in 21% and 17% of cases respectively. The discharge lounge concept is designed to give patients who are ready for discharge but awaiting appropriate transport, a location to wait under nurse supervision off the ward, freeing up inpatient bed capacity.

All core acute sights are currently working to improve the use of the discharge lounge. Evidence from the QEUH indicates that discharge lounge use has been steadily increasing.

The next stage in the process is to develop the transport hub concept across all sites. The transport hub provides extended support to the discharge lounge with the responsibility of co-ordinating patient transfers out of the hospital, supported by the SAS and third sector. Ideally, this would be supported by a satellite pharmacy as demonstrated in the RAH, allowing patients to move to the discharge lounge earlier in the day, minimising discharge delays associated with awaiting medications.

Early indications from Clyde suggest pharmacy support has reduced discharge delays by 1 hour. Developing and embedding the concept across all NHSGGC sites is likely to have similar benefits.

The transport hub concept is currently being scoped for implementation at the GRI and QEUH.

### **3.3.4 Short format Immediate Discharge Letter (IDL)**

The sIDL project has been introduced at the RAH and QEUH sites in response to a recognition that the traditional method of generating an IDL is time-consuming for both junior doctors and pharmacists and runs the risk of transcription errors occurring

The 'short format' IDL uses standardised headings for communication of the admission and only required new medicines and changes to pre-admission medication to be listed. This in turn helps address the issues described above, reducing the time to produce IDLs and expediting the discharge of short stay patients.

Evidence from the RAH, where the project has been fully embedded, indicates that with respect to IDLs produced in receiving areas, the average pharmacy screening time reduced from 15 to 8 minutes. In addition, only 25% of sIDLs required clarification compared with 57% using the standard method, and there were no transcription errors identified with the sIDL during the audit.

These outcomes present clear indications of the efficiency and safety benefits the change has resulted in. Similar outcomes were also experienced during the QEUH ARU pilot in April, where the process has since been fully implemented.

A GRI rollout for project is expected to be completed in May where a successful pilot was recently held.

### **3.3.5 Management of current capacity key recommendations**

- Ensure that efficient inpatient management processes as embodied in the 'Exemplar Ward' concept are embedded in all ward areas (this will incorporate Daily Dynamic Discharge).
- Developing Criteria Led Discharge processes to improve weekend discharge rates and increase numbers of planned discharges during the weekdays
- Ensure that the Discharge Lounge, Transport and Pharmacy services work effectively together to improve both the discharge process and discharge rates (this will include the development of the 'transport hub' concept).
- Scope the implementation of 'Day of care audit' across QEUH, GRI and RAH sites to provide a snap shot of bed utilisation and to inform the development of solutions to minimise in-patient delays in hospitals.

### 3.4 Escalation

The causes of poor patient flow are system-wide and require a whole-system approach if they are to be effectively addressed. A key aspect of the unscheduled care programme is developing a strategy that allows the appropriate escalation of emerging problems to ensure the impact on unscheduled care performance is minimised, in line with RCEM and Scottish Government 6-EA guidance<sup>11</sup>.

In light of this, the escalation work stream is facilitating the development of a series of enhanced sector escalation plans at each of the core sites. From these, a board wide escalation policy will be developed. This will incorporate standard metrics that reflect issues of on-site variation to establish a universally agreed RAG status and best practise process to recover/address changes in status.

The plans are designed to provide a robust and transparent escalation process to guide senior decision makers in times of reduced patient flow. It will also provide a framework to aid in managing capacity and patient throughput at such times, as well as a clearly communicated message of current status to partner services e.g. SAS.

An example of the QEUH escalation statuses are shown in figure 3.4. The levels of risk translate into an escalating series of alerts that reflect an increase in emergency pressures, deteriorating patient flow and the need for additional clinical and management action to mitigate the risk.

Figure 3.4- QEUH Capacity and Escalation Levels

Level	QEUH Capacity and Escalation Levels
0	<p>Green Escalation Level 0</p> <p>Normal operating – the system is in balance with demand at the front door being manageable with no adverse impact on the 4 hour standard and beds available for elective and emergency admissions and in community hospitals to enable outflow</p>
1	<p>Amber Escalation Level 1</p> <p>Early signs of pressure in one or more parts of the system requiring clinical and management intervention to prevent crowding</p>
2	<p>Red Escalation Level 2</p> <p>Escalating pressure in one or more parts of the system requiring additional management and clinical support (including external agencies) to address demand/congestion</p>
3	<p>Black Escalation Level 3</p> <p>Demand outstrips capacity and the ED, IAU or other department is clinically unsafe</p>

A series of key sector level criteria used to measure performance have also been developed; with each corresponding to an escalation level score (**APPENDIX 7**)

). The culmination of these scores correspond to a performance RAG status, with a series of appropriate escalation tasks to reduce this status if it moves higher than Level zero- Green.

The board escalation policy will take these sector plans and introduce a standard scoring system to validate the escalation process and create a more robust and consistent approach to decision making and the 'divert' process in times of increased emergency capacity pressures.

### **3.4.1 Escalation key recommendations**

- Build on current Sector Escalation plans to develop a Board wide Escalation Policy. This will include the development of standard metrics and ensure that escalation decisions are clear, transparent and effectively communicated to stakeholders including the Scottish Ambulance Service

## 3.5 eHealth/IT developments

A number of eHealth/IT projects are in development to inform and support the progress made in UCC programme and the areas of focus outlined in sections 3.1- 3.4. The details of these projects and their outcomes are outlined below.

### 3.5.1. ED Trakcare functionality in AUs

The purpose of the AU Trakcare project was to implement ED Trak functionality into the assessment units across NHSGGC to help improve patient safety, flow and in turn improve the boards unscheduled care capacity.

Assessment units are key components of NHSGGC's unscheduled care infrastructure. However, using an inpatient Trakcare system in these areas makes it difficult to effectively track patient care for a wide range of clinical management and logistical reasons, foremost of which is the large number of patients at various stages of assessment and investigation process.

Implementing the ED TrakCare platform in AUs will address these UC limitations and offer better patient management functions to the unit. The functionality allows enhanced staff awareness of patients and contributes to improved patient safety. The change also facilitates improved efficiency in the unit, reducing delays in assessment.

The AU Trak project was successfully rolled out to the QEUH and GRI assessment units in 2016, with the system launching at the RAH on the 18<sup>th</sup> of April 2017, marking the completion of the project.

The introduction of the system has been well received by staff at all sites and is credited with a positive impact on the assessment unit's day to day activities. These include benefits in relation to:

- Reduce risks for patients awaiting triage during peak times (improved nurse awareness of patient presenting condition)
- Enhanced ability to track status of patient in the unit, improving control and overview of IAU
- Medical staff can be attached to patients electronically via tag creating clear picture of clinical responsibility
- Administration efficiencies in creation of discharge letters
- Provides a good source of information for external sources e.g. bed management team
- Improved patient experience

The RAH switchover will also trigger the launch of the AU Microstrategy dashboard in the coming weeks, an intervention described in the next section.

The dashboard is expected to improve the ability of senior decision makers to review overall unit performance remotely and improve unit safety by enhancing the visibility of patients with long waits. In addition would be seen as adding a clarity and openness to AU performance, bringing it in line ED performance tracking functionality.

### **3.5.2 AU Microstrategy dashboard**

From 30/01/17 to 10/02/17 NHSGGC ran a pilot testing a new version of the Microstrategy assessment unit (AU) dashboard. The dashboard is based on the ED showcase dashboard and illustrates the journey status of patients in the AUs of the QEUH, GRI and RAH operating with the new AU Trak module. No national performance targets exist for patients in AUs in contrast to ED. We have therefore, in consultation with senior clinical colleagues, agreed our own performance metrics to be tested as part of the dashboard implementation.

The full dashboard is still in development by Business Intelligence but a pilot version is expected to be completed in May 2017. Following development of the full dashboard, the tool is expected to improve the ability of senior decision makers to review overall unit performance remotely and improve unit safety by enhancing the visibility of patients with long waits. In addition it will add a clarity and openness to AU performance, bringing it in line with ED performance tracking functionality.

The functionality is expected to be launched in the coming weeks and play a key role in improving flow through AUs which account for approximately 20% of all unscheduled care attendances and 40% of all hospital admissions.

### **3.5.3 Simul8**

Simul8 simulation software is a visual process simulation tool used for modelling improvement ideas and testing them in a risk free environment. Applied in an unscheduled care setting it will prove useful in making the most of our numerous performance metrics and use these to gain a better understanding of flow through our EDs, AUs, receiving units and hospitals generally. This insight can then be used to inform improvement approaches, test them for impact and assist in the implementation of system changes to illicit improvements in unscheduled care performance.

The UCC Data Intelligence group has agreed to purchase the licence for the software and identify a suitable unit/individual to train in order to operate the software to bring about the above benefits. The tool will ultimately be utilised for the benefit of all core sites, initially focussing flow through ED and areas subject to bottlenecks.

Thereafter, the analysis will expand to include receiving units and downstream wards and the whole systems impact of proposed changes to the way we deliver unscheduled care. As a result, the use of the tool will play a key role in assessing the impact of the proposed re-design of front door service outlined in Section 3.1 of this paper.

### **3.5.4 Live Bed State**

The development of the 'live bed state' dashboard is designed to provide electronic data capture of patient movement across a hospital site and will be used to support flow coordination and bed management processes.

The dashboard allows bed management processes to be co-ordinated from a single location using real time updates and will be a key enabler in developing the 'flow hub' concept.

Currently, bed management at major acute sites is an intensive and time consuming manual process. However, developing the 'flow hub' and implementing 'live bed state' dashboard will reduce manual system dependencies, creating a more efficient, accurate and up to date bed management process that will ultimately improve the speed at which bed requests can be processed, improving flow throughout the hospital.

We will continue to develop the 'live bed state' dashboard and, upon completion, integrate its use with operational processes and decision making to provide a consistent tool to capture status of various sites both in and out of hours.

The dashboard's development will be progressed through a SLWG convening in the coming weeks and is being earmarked for implementation at the QEUH first in the summer of 2017 as part of the creation of the 'flow hub'.

### **3.5.5 Future eHealth/IT opportunities**

In addition to the opportunities described above, the UCC project team are scoping the development of a number of other eHealth/IT projects for implementation later in 2017. These include the development of a TrakCare solution for capturing NEWS/GAPS scoring on triage to improve the recording of the acuity status of ED attenders. This project has the anticipated outcome of enhancing patient safety and facilitating earlier decision making on patient streaming.

Another proposed eHealth improvement project is to develop a process and IT solution for visual 'at a glance' representation of 1<sup>st</sup> Assessment through the introduction of a new TrakCare icon, again to support decision making on acuity and patient movement status.

### **3.5.6 eHealth/IT key recommendations**

- Introduce Microstrategy dashboard for Assessment Units to improve patient safety and provide better flow analysis on the stages of the patient journey.
- Develop 'Live Bed State' dashboard to provide electronic data to support flow coordination and bed management processes and reduce manual system dependencies ('hub' concept)
- Develop TrakCare solutions to improve patient safety and escalation of care starting with NEWS/GAPS recording systems and the development of an 'Icon' that confirms that a senior clinical assessment has been completed
- Investigate the use of simulation software to support further refinement of patient flow planning

## Section 4 - Delivery of UC change

Section 4 of the report outlines a series of recommendations for an improved and sustainable UC performance and proposals for the continued management and governance of the UCC programme in 2017/18 and beyond.

### 4.1. Report recommendations

<b>Alternatives to Admission</b>
Achieve a targeted reduction of short stay (Zero/1 Day) Inpatient episodes
Introduce joint ambulatory care clinical pathways to provide consistent care and alternatives to admission for both GP-referred and ED patients.
Develop ambulatory care pathways for high volume conditions initially targeting Acute Abdominal Pain, Chest Pain, Cellulitis, Self-Harm, Falls and Seizure
Introduce a dedicated emergency pathway for frail elderly patients utilising early Frailty Screening and Comprehensive Geriatric Assessment
<b>Emergency Department Processes</b>
Improve Minors flow by providing a protected pathway and ring fenced service delivery.
Enact early senior clinical input, diagnostic screening and patient streaming ('Triage Plus')
Adopt a consistent triage category coding system across all GGC acute sites
Ensure Ambulatory care pathways are consistently implemented across Emergency Departments and Assessment Units
<b>Management of Current Inpatient Capacity</b>
Embed efficient inpatient management processes as embodied in the 'Exemplar Ward' concept in all ward areas (this will incorporate Daily Dynamic Discharge).
Develop Criteria Led Discharge processes to improve weekend discharge rates and increase numbers of planned discharges during the week days
Facilitate enhanced co-operation between Discharge Lounge, Transport and Pharmacy services to improve discharge processes
Undertake 'Day of care' audits across all major acute sites and develop ongoing process to be repeated at regular intervals
<b>Escalation</b>
Develop a Board wide Escalation Policy including standard metrics
<b>eHealth/IT</b>
Introduce Microstrategy dashboard for Assessment Units
Develop 'Live Bed State' dashboard to provide electronic data to support flow coordination and bed management processes ('hub' concept)
Develop TrakCare solutions starting with NEWS/GAPS recording systems and a senior clinical assessment 'Icon'
<b>Delivery of UC Change</b>
Incorporate recommendations outlined in the 6-EA forward plan for 2017/2018 into the transformational infrastructure
Reconstitute the Unscheduled Care Project as a continuing programme of work with the recommended governance structure

## 4.2. Transformational Infrastructure

The proposed transformational infrastructure embodies the recommendations of the NHS Scotland Director of Performance as outlined in the 6-EA forward plan for 2017/2018. The recommendations encourage the development of joint working between health and social care partners and a greater emphasis on local governance arrangements to further improve processes to support an improved patient journey. This is reflected in the NHSGGC governance structure outlined below.

The Unscheduled Care Project should be reconstituted as a continuing programme of work. Oversight would reside with a Board level Steering Group chaired by the Chief Executive and with representation from the Acute Division and the IJBs.

The Board Steering Group will have responsibility for

- Clinical sponsorship
- External benchmarking and best practice
- Project identification
- Sponsorship of clinical pathway development
- Benefits analysis and prioritisation
- Pooling QI resource
- Maintain programme governance approach
- Oversight, scrutiny and challenge

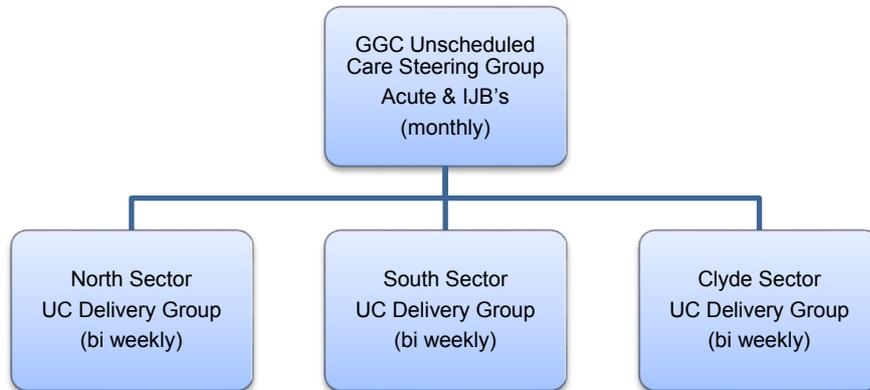
Each Acute Sector and HSCP will have a Delivery Group reporting to the Board Steering Group and will have responsibility for:

- Supporting the development and delivery of board wide projects
- Identifying local improvement projects
- Capturing baseline data
- Gap analysis and service/process review
- Developing and review tests of change
- Delivering planned improvements
- Maintaining Sector/Project Plans
- Challenging, Innovation and Leadership

The Deputy Medical Director will lead the overarching Programme of work on behalf of the Chief Executive Officer and lead the UCC Board Programme Delivery Team. The core team should consist of the Deputy MD, Programme Development & Improvement Manager and Assistant Programme Development & Improvement Manager and Programme Administration and will continue to co-ordinate and support the boardwide unscheduled care agenda, as directed by the Board Steering Group.

Additional support will be co-opted as required from Planning, Public Health, eHealth and Business Information Services, Clinical eHealth, Practice Development, Clinical Governance and Organisational Development. The governance proposals are outlined in figure 4.1 below.

Figure 4.1 - Proposed governance structure of UC programme



## Section 5 - Conclusions

Performance against the UC 4 hour target has been inadequate on all three main acute inpatient sites despite the efforts of clinicians and managers to improve this. Our analysis has shown an imbalance between supply and demand, particularly with regards to inpatient beds. Based on current ways of working, the occupancy rates in acute wards is substantially above that recommended to support effective and efficient care.

A number of initiatives have been undertaken, and work continues, to improve the efficiency of inpatient processes. These are aimed at delivering shorter lengths of stay and discharges occurring earlier in the day to better align with demand. The 'Exemplar ward' concept which was piloted in the QEUH is being rolled out across all three sites and there is evidence of improvement with pre-noon discharge rates from many of our wards as good as any in Scotland. Opportunities to further improve the efficiency of the inpatient journey have been identified and plans for implementation are being developed. These include electronic bed management supported by 'real time' information being available to the managers.

In addition to the inpatient work, we have identified opportunities in Emergency Department processes to improve performance. By changing the way we report patients as they progress through their care pathway and bringing GG&C into line with, for example, Lothian, we can expect an improvement in the reported performance. Whilst this is merely a change in count, it does ensure that we are not unfairly represented compared to other Boards. More importantly, there is considerable potential for improvements in patient flows within our Emergency Departments. These include the use of early, senior triage (Triage Plus), protection of minor injury flows and improved collaboration with Assessment Units, working to common care pathways. A unified clinical management structure across EDs and AUs will support this process.

Much of the later work of the project team has focussed on the demand side of the equation. Through working with Information Services colleagues, both in-house and at ISD Scotland, we have identified that NHSGGC has a higher use of acute inpatient care than the rest of Scotland in general, and Lothian and Tayside in particular. Whilst some of this is driven by demographics, we believe there is a significant opportunity to reduce the reliance on inpatient beds through the use of ambulatory care pathways and other alternative to admission schemes. We have already seen improvement in the discharge rates from our Assessment Units and these are now close to achieving or exceeding the planned performance. There remains, however, a considerable number of patients currently admitted for whom an alternative management pathway would have been appropriate. The challenge, going forward, is to provide clinicians with the options and resources to move from a default presumption of admission to one of ambulatory and outpatient care. The team has identified the conditions and presentations with the greatest opportunity to have an impact on admission rates and are engaged with the clinical teams to develop appropriate care pathways. Further opportunities for developing alternatives to admission will be achieved through joint working with colleagues in primary care and HSCPs.

In summary, the current system is out of balance with respect to supply and demand. There are, however, substantial opportunities to address this through redesign and new ways of working. This will involve a change in culture away from an over-reliance on inpatient beds and a move to innovative ways of working across primary and secondary care in line with the vision laid out in the

Acute Service Review. It will be essential for clinical staff to have ownership of, and drive this process. The project team has started a process of engagement around this change and has described a structure to support this work as a process of continuous improvement.

## APPENDIX 1 – Proposed metrics for NHSGGC UC performance dashboard

	Measure	Source of data	Frequency
LOS	Discharges with 0 length of stay	BI	
	Discharge with 1 day length of stay	BI	Monthly
	Discharge with 2-4 days length of stay	BI	Monthly
	Discharge with >5 days length of stay	BI	Monthly
ED, MIU and AU attendance/admit no.	ED attendances	BI	Monthly
	MIU attendances	BI	Monthly
	ED and MIU attendances	BI	Monthly
	AUs attendances	BI	Monthly
	ED, MIU and AU attendances	BI	Monthly
	ED admitted no.	BI	Monthly
	MIU admitted no.	BI	Monthly
	ED and MIU admitted no.	BI	Monthly
	AU admitted no.	BI	Monthly
	ED, MIU and AU admitted no.	BI	Monthly
Other key admission/discharges	Discharges for following ambulatory care conditions e.g.	BI	Quarterly
	-COPD		
	-Chest Pain		
	-Cellulitis		
	-Deliberate Self Harm		
	-Falls		
	-Abdomonal Pain		
Admissions to Geriatric Medicine	BI	Monthly	
Frailty	Frail elderly people not medically unwell	BI	Monthly
Boarding	Bed days spent in the wrong ward (boarding)	BI	Monthly
Community metrics	HSCP delayed discharges -bed days -daily average	BI	Monthly
	Non HSCP delayed patients - to be defined	BI	Monthly
	% of last 6 months of life spent in the community	PH ISD	Quarterly
	Admissions from Nursing homes	BI	Monthly

## APPENDIX 2 – 12 MONTH NHSGGC PERFORMANCE DATA

<b>NHSGGC</b>	<b>Apr-16</b>	<b>May-16</b>	<b>Jun-16</b>	<b>Jul-16</b>	<b>Aug-16</b>	<b>Sep-16</b>
Number of attendances	34,146	38,558	35,743	34,075	36,618	35,932
Over 4 hours in A&E	2,094	2,951	2,027	2,384	2,640	2,029
% within 4 hours (month)	93.9%	92.3%	94.3%	93.0%	92.8%	94.4%
Over 8 hours in A&E	57	111	62	81	48	35
% within 8 hours (month)	99.8%	99.7%	99.8%	99.8%	99.9%	99.9%
Over 12 hours in A&E	0	2	0	2	0	1
% within 12 hours (month)	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
<b>NHSGGC</b>	<b>Oct-16</b>	<b>Nov-16</b>	<b>Dec-16</b>	<b>Jan-17</b>	<b>Feb-17</b>	<b>Mar-17</b>
Number of attendances	36,172	34,320	33,598	33,328	31,010	36,312
Over 4 hours in A&E	2,508	2,905	3,752	3,566	2,998	3,375
% within 4 hours (month)	93.1%	91.5%	88.8%	89.3%	90.3%	90.7%
Over 8 hours in A&E	65	145	221	345	247	154
% within 8 hours (month)	99.8%	99.6%	99.3%	99.0%	99.2%	99.6%
Over 12 hours in A&E	0	1	5	62	31	15
% within 12 hours (month)	100.0%	100.0%	100.0%	99.8%	99.9%	100.0%

### APPENDIX 3 – BED REQUIREMENT AND LENGTH OF STAY ASSUMPTIONS

In analysing NHSGGC bed requirements, a number of assumptions/decisions have been made regarding the data, these are outlined below:

- All Medical and Geriatric Assessment / Rehab beds have been assigned to supporting emergency activity. It should be recognised, however that there is an additional small requirement for elective beds in Medicine
- Immediate Assessment Unit /Acute Assessment Unit capacity was not included in the core bed complement. This amounts to 28 beds at QEUH and GRI and 24 beds at RAH.
- Dermatology beds at QEUH were excluded.
- The 86 GORU beds at GGH were assigned to QEUH. Further data is being sought to allow activity and bed utilisation to be apportioned to GRI.
- There was a recognised problem with coding of admissions at QEUH (since corrected). This resulted in a number of acute admissions being incorrectly coded as elective. The data shows a disproportionate number of elective Medical admissions at QEUH compared to other acute sites. In order to correct for this 50% of elective Medical activity at QEUH has been reassigned to emergency. This may be an underestimate.
- A large number of emergency bed days are assigned in the dataset to second line hospitals – GGH, Victoria, Lightburn and Stobhill. This activity and supporting beds have been included in the ‘total system’ analysis for each acute site
- Elective Surgical activity and supporting beds at the Victoria and Stobhill Hospitals has been excluded.

## APPENDIX 4 – QUEUH AEC OPPORTUNITY

Queen Elizabeth University Hospital			
<b>ED First Attendance Summary - Jan 16 to Dec 16</b>			
Total AEC ED Attendances	23070		ED patients with ICD10 code (disch & admits)
AEC ED Admissions	10999	48%	
AEC ED Discharges	12071	52%	
AEC Opportunity - Cumulative Effect of Condition Targets	16193	70%	Upper threshold
	10943	47%	Lower threshold
Current AEC Discharges	12071		
Upper AEC threshold	16193		
Opportunity Remaining	<u>4122</u>	<u>18%</u>	ED Current Versus Upper Threshold
Short Stay Inpatient from ED/Transfer/Other (non IAU) Admissions			All Short Stay <=1 day Admitted patients (excl IAU) with ICD10 AEC code
Short Stay - Zero days	2433		
Short Stay - 1 day	3589		
	<u>6022</u>	<u>26%</u>	(Includes all other ED admissions Transfers/Other non IAU Admit Routes)
<b>IAU First Attendance Summary - Jan 16 to Dec 16 (including post Trak reporting changes Aug to Dec 16)</b>			
Total AEC IAU inc ED Attendances (post Trak change)	8210		IAU patients with ICD10 code (disch & admits)
AEC IAU Admissions	4198	51%	
AEC IAU Discharges	4012	49%	(***Zero LOS plus Aug-Dec IAU ED Trak discharges***)
AEC Opportunity - Cumulative Effect of Condition Targets	5215	64%	Upper threshold
	3292	40%	Lower threshold
Current AEC Discharges	4012		
Upper AEC threshold	5215		
Opportunity Remaining	<u>1203</u>	<u>15%</u>	IAU Current Versus Upper Threshold
Short Stay Inpatient from IAU Admissions			Short Stay IAU <=1 day Admitted patients with ICD10 AEC code
Short Stay - Zero days	n/a		***Pre Trak change all Zero Discharges are Immediate Discharges***
Short Stay - 1 day	<u>1400</u>	<u>17%</u>	
<b>Cumulative ED &amp; IAU First Attendance Summary - Jan 16 to Dec 16</b>			
Total ED & IAU AEC Attendances	31280		
Total ED & IAU Admissions	15197		
Total ED & IAU AEC Discharges	16083		
AEC ED & IAU Opportunity - Cumulative Effect of Condition Targets	21408	68%	Upper threshold
	14235	46%	Lower threshold
Current AEC ED & IAU Discharges	16083		
Upper AEC threshold	21408		
Opportunity Remaining	<u>5325</u>	<u>17%</u>	ED & IAU Current Versus Upper Threshold
<b>All Short Stay &lt;=1 day Inpatients from ED, Transfers &amp; Other Admissions Plus 1 Day Admissions for AU's</b>			
Short Stay - Zero days	2433		
Short Stay - 1 day	4989		
	<u>7422</u>	<u>24%</u>	

## APPENDIX 5 – GRI AEC OPPORTUNITY

Glasgow Royal Infirmary			
<b>ED First Attendance Summary - Jan 16 to Dec 16</b>			
Total AEC ED Attendances	9510		ED patients with ICD10 code (disch & admits)
AEC ED Admissions	1109	12%	
AEC ED Discharges	8401	88%	
AEC Opportunity - Cumulative Effect of Condition Targets	7024	74%	Upper threshold
	4819	51%	Lower threshold
Current AEC Discharges	8401		
Upper AEC threshold	7024		
Opportunity Remaining	<u>-1377</u>	<u>-14%</u>	ED Current Versus Upper Threshold
Short Stay Inpatient from ED/Transfer/Other (non IAU) Admissions			All Short Stay <=1 day Admitted patients (excl AAU) with ICD10 AEC code
Short Stay - Zero days	1994		
Short Stay - 1 day	3182		
	<u>5176</u>	<u>54%</u>	(Includes all other ED admissions Transfers/Other non AAU Admit Routes)
<b>AAU First Attendance Summary - Jan 16 to Dec 16 (Trak reporting changes effected end Dec 16)</b>			
Total AEC IAU inc ED Attendances (post Trak change)	9111		AAU patients with ICD10 code (disch & admits)
AEC AAU Admissions	5299	58%	
AEC AAU Discharges	3812	42%	(***Zero LOS plus Dec AAU ED Trak discharges***)
AEC Opportunity - Cumulative Effect of Condition Targets	6033	66%	Upper threshold
	3841	42%	Lower threshold
Current AEC Discharges	3812		
Upper AEC threshold	6033		
Opportunity Remaining	<u>2221</u>	<u>24%</u>	AAU Current Versus Upper Threshold
Short Stay Inpatient from IAU Admissions			Short Stay AAU <=1 day Admitted patients with ICD10 AEC code
Short Stay - Zero days	n/a		***Pre Trak change all Zero Discharges are Immediate Discharges***
Short Stay - 1 day	<u>1687</u>	<u>19%</u>	
<b>Cumulative Summary - Jan 16 to Dec 16</b>			
Total ED & IAU AEC Attendances	18621		
Total ED & IAU Admissions	6408		
Total ED & IAU AEC Discharges	12213		
AEC ED & AAU Opportunity - Cumulative Effect of Condition Targets	13057	70%	Upper threshold
	8660	47%	Lower threshold
Current AEC ED & AAU Discharges	12213		
Upper AEC threshold	13057		
Opportunity Remaining	<u>844</u>	<u>5%</u>	ED & AAU Current Versus Upper Threshold
<b>All Short Stay &lt;=1 day Inpatients from ED, Transfers &amp; Other Admissions Plus 1 Day Admissions for AU's</b>			
Short Stay - Zero days	1994		
Short Stay - 1 day	4869		
	<u>6863</u>	<u>37%</u>	

## APPENDIX 6 – RAH AEC OPPORTUNITY

Royal Alexandra Hospital			
<b>ED First Attendance Summary - Jan 16 to Dec 16</b>			
Total AEC ED Attendances	11642		ED patients with ICD10 code (disch & admits)
AEC ED Admissions	5160	44%	
AEC ED Discharges	6482	56%	
AEC Opportunity - Cumulative Effect of Condition Targets	8290	71%	Upper threshold
	5656	49%	Lower threshold
Current AEC Discharges	6482		
Upper AEC threshold	8290		
Opportunity Remaining	<u>1808</u>	<u>16%</u>	ED Current Versus Upper Threshold
Short Stay Inpatient from ED/Transfer/Other (non IAU) Admissions			All Short Stay <=1 day Admitted patients (excl MAU) with ICD10 AEC code
Short Stay - Zero days	1693		
Short Stay - 1 day	1784		
	<u>3477</u>	<u>30%</u>	(Includes all other ED admissions Transfers/Other non MAU Admit Routes)
<b>MAU First Attendance Summary - Jan 16 to Dec 16 (Trak reporting changes effected end Dec 16)</b>			
Total AEC IAU inc ED Attendances (post Trak change)	3188		MAU patients with ICD10 code (disch & admits)
AEC MAU Admissions	1396	44%	
AEC MAU Discharges	1792	56%	(***Zero LOS discharges***)
AEC Opportunity - Cumulative Effect of Condition Targets	2043	64%	Upper threshold
	1280	40%	Lower threshold
Current AEC Discharges	1792		
Upper AEC threshold	2043		
Opportunity Remaining	<u>251</u>	<u>8%</u>	MAU Current Versus Upper Threshold
Short Stay Inpatient from IAU Admissions			Short Stay MAU <=1 day Admitted patients with ICD10 AEC code
Short Stay - Zero days	n/a		***Pre Trak change all Zero Discharges are Immediate Discharges***
Short Stay - 1 day	<u>276</u>	<u>9%</u>	
<b>Cumulative Summary - Jan 16 to Dec 16</b>			
Total ED & IAU AEC Attendances	14830		
Total ED & IAU Admissions	6556		
Total ED & IAU AEC Discharges	8274		
AEC ED & MAU Opportunity - Cumulative Effect of Condition Target	10333	70%	Upper threshold
	6936	47%	Lower threshold
Current AEC ED & MAU Discharges	8274		
Upper AEC threshold	10333		
Opportunity Remaining	<u>2059</u>	<u>14%</u>	ED & MAU Current Versus Upper Threshold
<b>Short Stay &lt;=1 day Inpatients from ED, Transfers &amp; Other Admissions Plus 1 Day Admissions for AU's</b>			
Short Stay - Zero days	1693		
Short Stay - 1 day	2060		
	<u>3753</u>	<u>25%</u>	

## APPENDIX 7 – PROPOSED QEUH ESCALATION SCORING TOOL

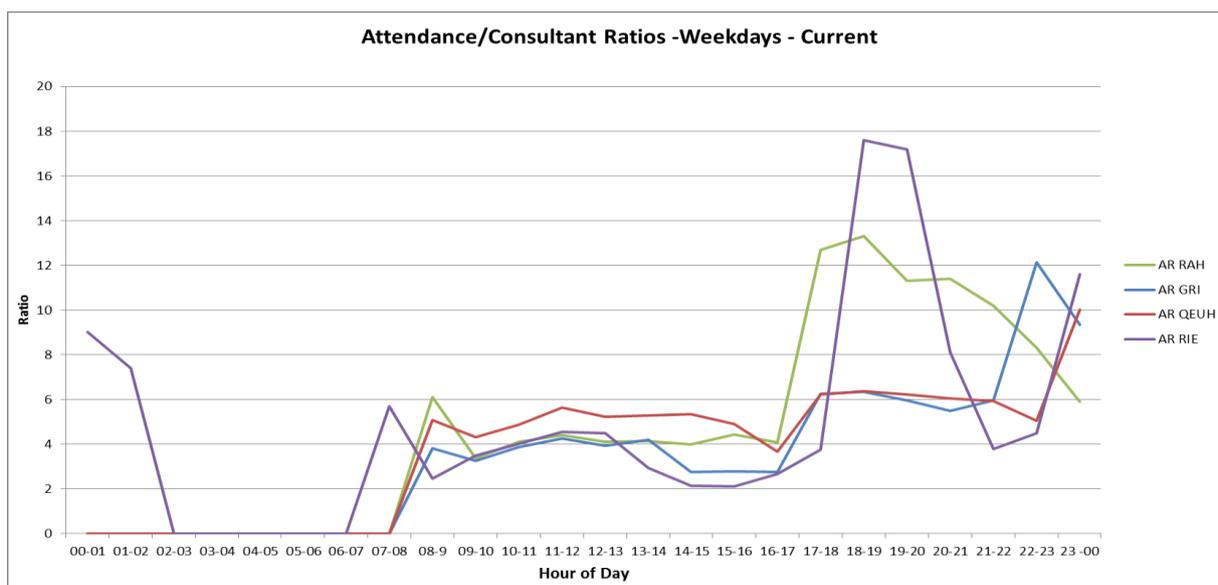
Escalation Level	0	1	2	3
<b>ED</b>				
Are there >6 patients waiting for a bed>2 hours from DTA/bed request	N	Y	Y	Y
Are there >6 patients waiting for a bed>4 hours from DTA/bed request	N	N	Y	Y
Are there >6 patients waiting for a bed>8 hours from DTA/bed request	N	N	N	Y
Are there >2 ambulances queued for >30 minutes	N	N	Y	Y
Are there >2 ambulances queued for >60 minutes	N	N	N	Y
<b>IAU</b>				
Are there >20% of patients waiting for a bed>2 hours from DTA/bed request	N	Y	Y	Y
Are there >20% of patients waiting for a bed>4 hours from DTA/bed request	N	N	Y	Y
Are there >20% of patients waiting for a bed>8 hours from DTA/bed request	N	N	N	Y
Are there >2 ambulances queued for >30 minutes	N	N	Y	Y
Are there >2 ambulances queued for >60 minutes	N	N	N	Y
<b>Beds</b>				
Total bed deficit <i>(Beds now – TCI today = beds now)</i>	0	10% of predicted admissions	30% of predicted admissions	40% of predicted admissions
Number of outlying patients boarded into other specialities	0	1 – 15	19 – 23	>23
<b>Critical Care</b>				
What is the current critical care capacity	<90%	90 % capacity (14 ICU & 14 GHDU beds full/closed)	100% capacity (16 ICU & 16 GHDU beds full/closed)	>100% capacity (Patients ventilated outside ICU)
Can level 2 & 3 patients be transferred from critical care within the organisation	Y	N	N	N
Can level 3 patients be transferred to another regional hospital	Y	Y	N	N
<b>Operational</b>				
Do we have significant staffing shortage – unable to maintain safe staffing levels	N	Y	Y	Y

## APPENDIX 8 – ED Staffing analysis – Consultant profile smoothing analysis

Staffing Option 4 consists of a re balancing the consultant workforce across the three sites on a 24 hour basis in relation to ED patient attendances. Specifically the analysis is aimed at reducing the current variance between sites at various points of the day and week, achieving a more balanced situation than is currently the case. The current attendance to staffing profiles were amended to smooth out the variances in terms of medical staff numbers to patient attendances in a largely cost neutral environment i.e. The levels are equalised such that the number of consultant PAs required to staff the board wide service would not significantly change. As well as smoothing the variance between the three sites the staffing levels were set to reflect particular staffing to attendance ratios.

The **current** consultant weekday profiles from EDs across NHSGGC are as shown in **Figure A 7.1** below. Data from NHS Lothian has been added to the graph for the purposes of comparison. Broadly, the GRI, RAH and Royal Infirmary of Edinburgh (RIE) have a patient attendance/consultant ratio of 4:1 during the day with the QEUH at about 5:1. There is a much greater imbalance in the evening with RIE and RAH higher (in some cases much higher) than the GRI and QEUH sites which are around 6:1. As noted earlier, the RIE also has additional cover from 12.00 midnight to 2.00 a.m.

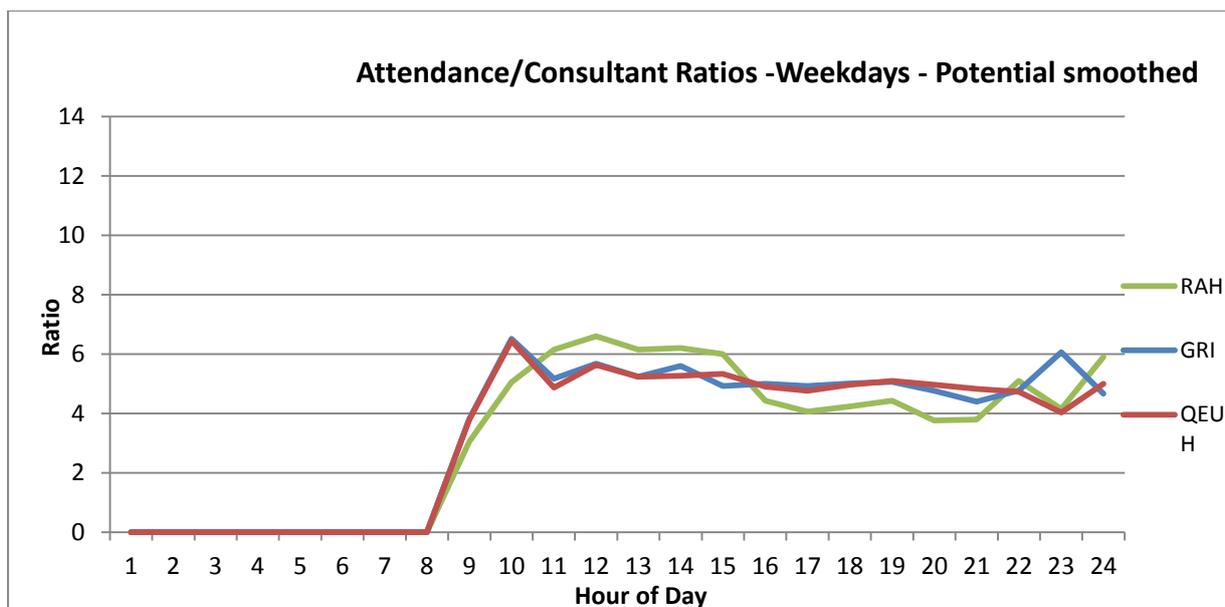
**Figure A 7.1 – Current ED attendance to consultant ratio – RAH, QEUH and GRI for month of September 2016 (weekdays), including RIE comparison**



An alternative consultant staffing profile, when combined with attendance ED attendance figures would lead to the smoothed 24 hour attendance to staffing ratios shown in **Figure A 7.2** below.

The smoothed consultant weekday staffing levels are set at broadly 1 consultant per 4-6 attendances through the day and evening, reflecting the current weekday staffing pattern in the GRI and QEUH between 9am and 5pm. The profile does not require any consultant staffing uplift, is considered cost neutral overall, and while it does require some reassignment of consultant cover between sites in NHSGGC, the impact per site would be minimal (**table A 7.1**).

**Figure A 7.2 – Smoothed ED attendance to consultant ratio – RAH, QEUH and GRI for month of September 2016 (weekdays)**

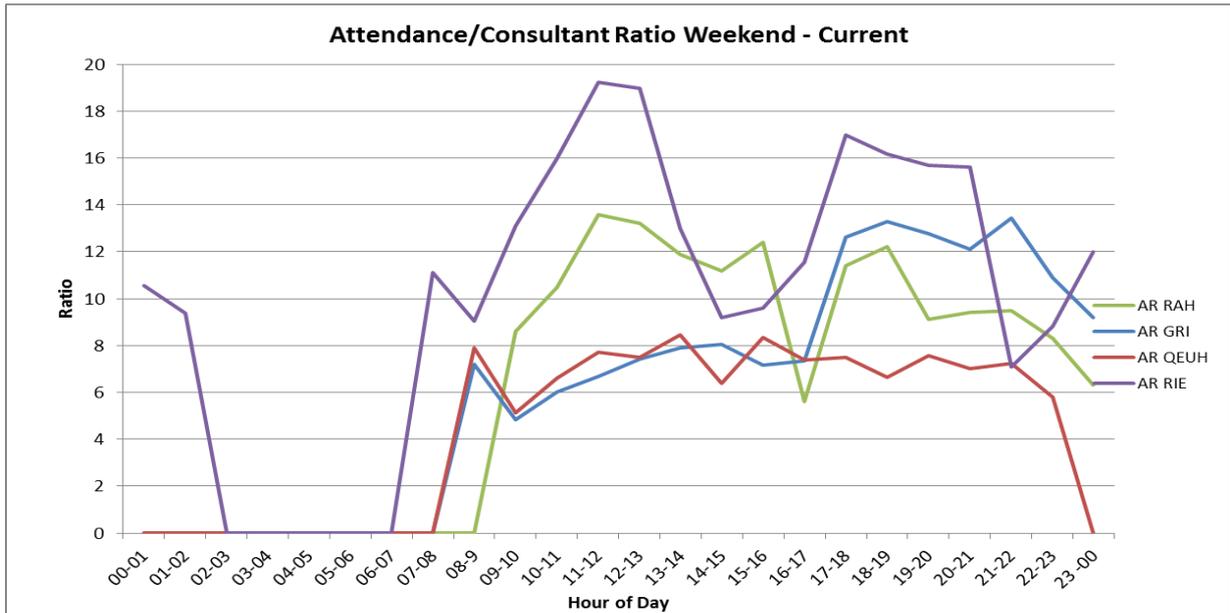


**Table A 7.1 –Consultant cover reassignment impact to achieve smoothed attendance to staffing pattern in Figure A 7.2**

	Current Resource	Amended (smoothed) Resource	Resource/Hrs +/-
RAH	32	37	5
GRI	52.2	44	-8.2
QEUH	41.8	45	3.2
<b>Total</b>	<b>126</b>	<b>126</b>	<b>0</b>

The **current** consultant weekend profiles from EDs across NHSGGC are as shown in **Figure A 7.3** below. Again, data from NHS Lothian has been added to the graph for the purposes of comparison. The RIE’s staffing ratios are significantly higher than the NHSGGC sites for most of the day, only dipping below the RAH for a couple of hours in the afternoon. Information provided by NHS Lothian indicates that they have at least 7 or 8 trainees on at all points in the weekend and this may compensate for the lower relative level of consultant cover. Within NHSGGC the RAH has a significantly higher attendance to consultant ratio during the day, largely varying between 8:1 and 14:1. The GRI and QEUH are broadly similar between 6:1 and 8:1. In the evening QEUH maintains broadly the same pattern, the GRI ratio increases, whereas the RAH ratio decreases slightly.

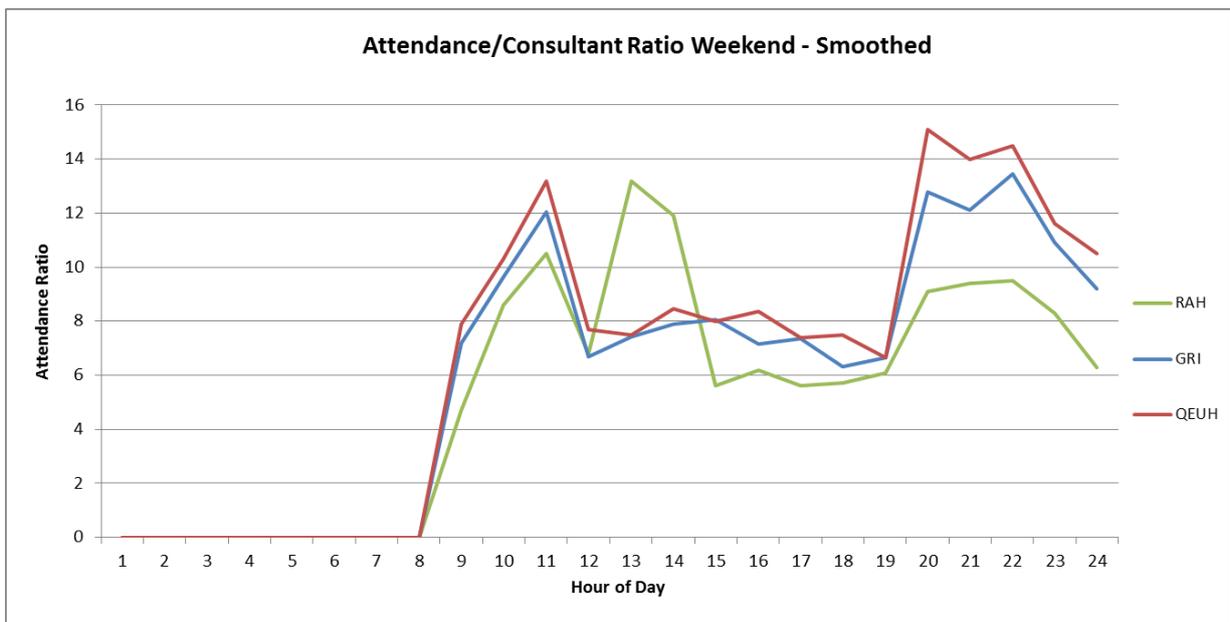
**Figure A 7.3 – Current ED attendance to consultant ratio – RAH, QEUH and GRI for month of September 2016 (weekends), including RIE comparison**



An alternative consultant staffing profile, when combined with attendance ED attendance figures would lead to the smoothed 24 hour attendance to staffing ratios shown in **Figure A 7.4** below.

The smoothed consultant weekend staffing levels are broadly centred on a ratio of 1 consultant per 6-8 attendances through the afternoon and a higher ratio in the morning and evening. Achieving an equitable smoothed profile is more difficult with weekend staffing profiles than the weekday models as less consultant staff are available to be redistributed. Despite this the smoothed profile maintains an overall lower attendance to consultant ratio than the current staffing models allows. This smoothed profile requires a minimal consultant staffing uplift (0.5 hours) and while it does require some reassignment of consultant cover between sites in NHSGGC, the impact per site would be minimal (**table A 7.2**).

**Figure A 7.4 – Smoothed ED attendance to consultant ratio – RAH, QEUH and GRI for month of September 2016 (weekends)**



**Table A 7.2 –Consultant cover reassignment impact to achieve smoothed attendance to staffing pattern in Figure A 7.4**

	<b>Current Resource</b>	<b>Amended (smoothed) Resource</b>	<b>Resource/Hrs +/-</b>
<b>RAH</b>	16	<b>22.0</b>	<b>6.0</b>
<b>GRI</b>	24	<b>24.0</b>	<b>0.0</b>
<b>QEUH</b>	29.5	<b>24.0</b>	<b>-5.5</b>
<b>Total</b>	69.5	<b>70.0</b>	<b>0.5</b>

## References

- (1) **Basic Building Blocks – Unscheduled care Monthly reports April 16 to March 17**-Published April 2017– Available [here](#), Last accessed – 01/05/17
- (2) **UCC Interim report November 2016** – published November 2016
- (3) **Criteria led Discharge Pilot NHS Ayrshire and Arran Implementing CLD in Scotland**, (2015) Lorna Loudon, Linsey Stobo, Fraser Doris- Available [here](#), last accessed – 25/04/17
- (4) **Directory of Ambulatory Emergency Care for Adults - Version 4** (2014), - Available [here](#), last accessed – 03/05/17
- (5) **Day of Care Audit**(2016), NHS Scotland Quality improvement Hub, Available [here](#), last accessed - 03/05/17
- (6) **ISD data, NHS Performs - Weekly Update of Emergency Department Activity and Waiting Times Statistics**, Available [here](#), last accessed – 04/05/17
- (7) **Royal College of Emergency Medicine- Initial Assessment of Emergency Department Patients**, (2017) , Available [here](#), last accessed – 30/04/17
- (8) **Older People in Acute Care - Data review and cost analysis: A pathway for frail older people in the emergency department (2016)**, Available [here](#), last accessed - last accessed – 04/05/17
- (9) **6 Essential Action to Improve Unscheduled Care** (2016), Available [here](#), last accessed 20/04/17
- (10) **The Daily Dynamic Discharge Approach Guidance Document**(2016), Available [here](#), last accessed 28/04/17
- (11) **Emergency Department Capacity Management Guidance** (2015), Available [here](#), last accessed 25/04/17
- (12) **Royal College of Physicians - Ward rounds in medicine: principles for best practice** (2012), Available [here](#), Last accessed 28/04/17