

Demand Capacity Workstream – Draft Report

Contents

Acronyms	3
Executive summary	4
1. Introduction	6
2. PSMI Dataset.....	6
3. Surgical services in Northern Ireland.....	7
3.1 Emergency Services	7
3.2 Elective services	8
3.3 Hospital level infrastructure	9
4. Emergency surgery.....	9
4.1 Adult emergency surgical activity.....	9
4.2 Inter- and intra-trust activity	10
4.3 Diagnoses and procedures.....	13
4.4 Length of stay and bed days	15
5. Elective surgery	15
5.1 Adult elective surgery	15
5.2 Inpatient to day case ratio	16
5.3 Inpatient elective surgery	16
5.4 Day cases.....	21
6. Inpatient and day case waiting lists	25
6.1 Inpatient waiting list	25
6.2 Day case waiting list.....	27
7. Outpatients	28
7.1 Adult outpatient activity	28
7.2 Inter-trust activity	29
7.3 Intra-trust activity	30
7.4 Waiting list for outpatient appointments.....	31
8. Paediatrics.....	33
8.1 Emergency surgery.....	33
8.3 Elective IPDC activity.....	34
8.4 Paediatric outpatient activity.....	37
9. Demand Capacity Gap _TBA	39
10. How work-streams are utilizing the data.....	40

11 Key Findings	40
Appendix A: Map of hospitals admitting adult emergency general surgery admissions (NISRA)	43
Appendix B: Hospital sites and services provided for Adult general surgery as of March 2022	44
Appendix C: Hospital sites and services provided for Paediatric general surgery.....	44

Acronyms

AAH	Antrim Area Hospital
ALT	Altnagelvin Hospital
BCH	Belfast City Hospital
CAH	Craigavon Area Hospital
CAU	Causeway Hospital
CT	Computed Topography
DHH	Daisy Hill Hospital
ERCP	Endoscopic Retrograde Cholangiopantography
GI	Gastrointestinal
HSC Trust	Health and Social Care Trust
IPDC	Inpatient and Day Case
LOS	Length of Stay
MIH	Mater Infirmorum Hospital
MRCPC	Magnetic Resonance Cholangiopantography
NI	Northern Ireland
PAS	Patient Administration System
PMSI	Performance Management and Service Improvement
RBHSC	Royal Belfast Hospital for Sick Children
RVH	Royal Victoria Hospital
STH	South Tyrone Hospital
SWAH	South West Acute Hospital
UHD	Ulster Hospital

Executive summary

- Emergency adult general surgery in Northern Ireland is currently delivered in seven hospital sites across the five Health and Social Care (HSC) Trusts. Up until March 2022 emergency adult general surgery was delivered in an eighth site within the Southern Trust however services were temporarily suspended due to acute staffing issues.
- Activity data highlights that there is considerable movement of adult emergency general surgical patients into the Belfast HSC Trust and into the South Eastern HSC Trust from patients usually resident in other areas. For example, in 2018/19 16% of adult emergency general surgery patients seen in the Belfast HSC Trust were residents of the Northern HSC Trust. In contrast there was less movement of emergency general surgical patients into the Northern, Southern and Western HSC Trusts. This evidence of movement across trust boundaries highlights that changes to local service delivery will impact at a regional level and planned changes should be considered with this in mind.
- Approximately 35-40% of emergency adult surgery admissions do not require an operation or CT imaging during the admission. This raises the possibility that a proportion of patients could be managed through an alternative model of care not requiring admission.
- Prior to the COVID-19 pandemic there were signs that demand for elective surgical services was putting considerable pressure on existing services and service models, as demonstrated by waiting times for outpatient appointments, inpatient and day case surgery. The impact of the COVID-19 pandemic has exacerbated existing pressures and remains an ongoing challenge in terms of access to hospital beds and theatre space.
- Prior to the pandemic there were approximately 38,500 elective day case and inpatient surgical admissions. The pandemic was associated with a marked decrease in both inpatient and day case elective activity across all trusts. While most marked decreases in activity 2018/19 to 2020/21 occurred in the Northern HSC Trust, 67%, the Western Trust, 65%, substantial decreases were also seen in the Southern HSC Trust, 60%, the Belfast HSC Trust, 50% and the South Eastern HSC Trust, 43%.
- As with adult emergency general surgery, there is considerable movement across of individuals for elective general surgical care. The data demonstrates movement of patients into the Belfast and South Eastern HSC Trusts from other trust areas and relatively little movement of patients from other trust areas into the Northern, Southern and Western HSC Trusts. As above, this emphasises that local service delivery changes will have a regional impact and should be considered as such.
- There is variation across the region regarding the ratio of inpatient to day case procedures. Belfast HSC Trust and Western HSC Trust manage a higher proportion of cases as inpatients (26-30% pre-2020/21) compared to the Northern, Southern and South Eastern HSC Trusts (<15% pre-2020/21). Factors influencing day case compared to inpatient management may include the complexity of the operation required, the co-morbidities of the person requiring treatment, availability of theatres including staffing and geography.
- Average length of stay (LOS) varies across trusts. For elective admissions, the longest LOS was observed in the Belfast HSC Trust while the shortest was in the Western HSC Trust.
- Prior to the pandemic there had been an increase in the length of time patients were waiting for inpatient and day case surgery. This has been significantly exacerbated by the pandemic. In February 2022 there were approximately 5600 patients awaiting inpatient surgery, 66 % for 12 months or more, over 19,700 patients awaiting day case surgery, 57% for 12 months

or more and over 38000 patients waiting on a new surgical outpatient appointment 53 % for 12 months or more.

- Given the significant challenges in carrying out elective surgical activity during the COVID-19 pandemic, waiting list validation is recommended to ensure accuracy of the data pertaining to waits.
- The most commonly awaited adult general surgery procedures are represented on both inpatient and day case waiting lists. For example the most commonly awaited inpatient operations gallbladder operations and hernia repairs, which also feature prominently in day case waits. BADS targets regarding the proportion of specific procedures which should be carried out as day cases should be used to compare day case rates for specific procedures at a local and regional level.
- The data presented on demand and capacity should be used to understand the number of additional theatre lists required. This should be considered in parallel with recommendations from the workforce subgroup of the review.
- As with adult general surgery, the COVID-19 pandemic has had a significant impact on the delivery of paediatric surgery, in particular elective care. There have been substantial increases in the number of children waiting for longer for elective surgery, particularly day case, and for new outpatient appointments. Detailed analysis of the paediatric waiting lists are presented in the paediatric workstream paper.

1. Introduction

The General Surgery Review has been informed by analysis of demand for inpatient and outpatient adult and paediatric surgical care.

In support of the Review, Performance Management and Service Improvement (PMSI) created a comprehensive, live data set which describes emergency and elective general surgical activity and which has been updated at regular intervals throughout the review. The dataset is described below. The data was made available to all individuals participating in the Review to support and inform the work of Review subgroups and examples of how the data set has been used are detailed in this report. A particular advantage of the data set is that it can be used to view activity data at multiple levels, including regional, Health and Social Care (HSC) Trust and individual hospital site. This has facilitated an understanding of activity at both a regional and local level. This has also supported analysis of the probable impacts of service delivery changes in one area on other parts of the system.

There are naturally some specific challenges in understanding recent demand and capacity data in the context of the COVID-19 pandemic, and this is particularly important in relation to elective (planned) general surgical activity. The impact of COVID-19 in relation to activity trends is highlighted as appropriate in the relevant sections below.

Aims

- To describe the dataset and how this has been used by individual workstreams within the General Surgery Review
- To provide an overview of current provision of emergency and elective surgery services across Northern Ireland's five Health and Social Care (HSC) Trusts
- To describe emergency (unplanned), elective (planned) and outpatient general surgery activity in adults and children at a regional and local level
- To describe current waiting lists for general surgery, including the impact of the COVID-19 pandemic
- To describe the demand/capacity gap in terms of outpatient, inpatient and day case attendances

2. PSMI Dataset

A comprehensive data set has been produced, derived from operational management data extracted from the Patient Administration System (PAS). The data set includes activity from the years 2017/18 to 2020/21. Data from quarters 1-3 2021/22 are also included and are presented below where appropriate. Where full year data is required, only the years 2017/18 – 2020/21 are presented. Clearly the COVID-19 pandemic had and continues to have a major impact on general surgical activity, particularly elective work. This impact was greatest in 2020/21, however there was also an impact on activity in quarter 4 of 2019/20 and this has been highlighted in the report where relevant.

The data set has been used to describe trends in outpatient and inpatient activity and waiting lists over the included timeframe. The data set is a live system and has been updated at least monthly throughout the review. Going forward, the data set will be maintained to support future work in

relation to general surgical services, including monitoring of impact of any service changes associated with the review.

3. Surgical services in Northern Ireland

General surgery is a broad term which includes the management of patients presenting with a wide variety of conditions associated with the gastrointestinal tract (the oesophagus, stomach, bowel), the liver, biliary tree (including the gallbladder) and pancreas¹. General surgery may also include breast surgery, although this has not been considered within this review.

3.1 Emergency Services

Emergency surgery relates to the management of people presenting with symptoms which require a surgical evaluation and management, for example abdominal pain, bleeding and trauma¹. The Royal College of Surgeons describes six aspects of emergency general surgery as:

- Undertaking emergency operations at any time, day or night.
- The provision of ongoing clinical care to post-operative patients and other inpatients being managed non-operatively, including emergency patients and elective patients who develop complications.
- Undertaking further operations for patients who have recently undergone surgery (i.e. either planned procedures or unplanned 'returns to theatre').
- The provision of assessment and advice for patients referred from other areas of the hospital (including the emergency department) and from general practitioners. For regional services this may include supporting other hospitals in the network.
- Early, effective and continuous acute pain management.
- Communication with patients and their supporters².

Complex emergency general surgery in adults includes operations to treat abdominal infections and bowel obstructions. These are major operations and often require the use of critical care or intensive care facilities. The most frequent other operations performed are drainage of abscesses, appendicectomies and cholecystectomies³.

In children, the most frequently performed emergency procedures include appendicectomy, testicular conditions, treatment of obstructed hernias and abscesses. These may be managed in both specialist paediatric hospitals and general acute hospitals⁴.

Adult Emergency Services

Adults with acute and emergency surgical symptoms are seen in acute services across Northern Ireland's five Health and Social Care Trusts. Prior to March 2022 there were emergency surgical units in eight sites across these trusts, Royal Victoria Hospital (RVH), Antrim Area Hospital (AAH),

¹ GIRFT. [Getting it right first time – General surgery. August 2017](#)

² RCS Emergency Surgery, Standards for Unscheduled Surgical Care. 2011

³ RCS Emergency Surgery, Standards for Unscheduled Surgical Care. 2011

⁴ RCS Emergency Surgery, Standards for Unscheduled Surgical Care. 2011

Causeway Hospital (CAU), Ulster Hospital (UHD), Craigavon Area Hospital (CAH), Altnagelvin Hospital (ALT) and South West Acute Hospital (SWAH). In March 2022 emergency surgical services were temporarily suspended at Daisy Hill Hospital (Southern HSC Trust) due to staffing issues. Emergency surgical services are currently provided at all the remaining seven sites.

Table 1 Emergency department and emergency surgery admitting hospital by HSC trust

Health and Social Care Trust	Emergency Department	Admitting Hospital
Belfast HSC Trust	Royal Victoria Hospital (RVH)	RVH
	Mater Infirmorum Hospital (MIH)	RBHSC
	Royal Belfast Hospital for Sick Children (RBHSC)	
Northern HSC Trust	Antrim Area Hospital (AAH)	AAH
	Causeway Hospital (CAU)	CAU
South Eastern HSC Trust	Ulster Hospital (UHD)	UHD
	Downe	
	Lagan Valley Hospital (LVH)	RVH
Southern HSC Trust	Craigavon Area Hospital (CAH)	CAH
	Daisy Hill Hospital (DHH)	
Western HSC Trust	Altnagelvin Hospital (ALT)	ALT
	South West Acute Hospital (SWAH)	SWAH

Appendix A provides further summary of the sites admitting adult emergency general surgery patients.

Paediatric emergency services

The management of acute and emergency paediatric patients is dependent on the age of the child and trust of admission. There is some variation across HSC trusts as outlined below.

- Child aged under 5 years – referred to Royal Belfast Hospital for Sick Children (RBHSC). Exceptions include where there is a need for immediate management in local trust.
- Child aged five years and over –
 - Southern, Northern and Western HSC Trust – admitted to trust for management,
 - South Eastern HSC Trust –
 - Aged 5-12 – referred to RBHSC
 - Aged 13 and over – admitted to South Eastern trust

Additionally, RBHSC accepts children of any age were they have a surgical issue that cannot be managed at a local level.

3.2 Elective services

Elective surgery refers planned surgical operations and procedures. This includes procedures carried out as an inpatient and as a day case (IPDC). Endoscopy procedures, e.g. colonoscopy, often feature on surgical day case lists.

Adult inpatient activity is undertaken in the larger hospital sites across the five healthcare trusts. The Northern, Western and Southern HSC Trusts have two inpatients sites in their region – Antrim Area Hospital, Causeway Hospital, Altnagelvin Hospital (ALT), South West Acute Hospital, Craigavon Area

Hospital (CAH) and Daisy Hill Hospital respectively, while the South Eastern Trust carries out its inpatient activity at the Ulster Hospital (UHD) site. The infrastructure of the Belfast Trust changed during the COVID-19 pandemic with inpatient services temporarily moving from the Mater Hospital to Belfast City Hospital (BCH), leaving BCH as the primary elective inpatient site for the trust.

Day procedure activity also includes endoscopy and is provided on multiple sites across each trust. Larger estates such as CAH, UHD and ALT have day procedure units on site. While other units are used solely as day case units within each trust – for example, Lagan Valley Hospital and Omagh Hospital are two sites which are used as regional day-case centres.

Approximately 80% of paediatric elective activity is day case and the majority of this is undertaken in the Belfast and South Eastern Trusts, with inpatient activity predominantly taking place in RBHSC

Appendix C provides an overview of what services each hospital site provides.

3.3 Hospital level infrastructure

As part of the General Surgery Review process, Trusts have provided data on emergency and elective beds, theatre availability and endoscopy rooms and sessions. There are challenges in gathering this data owing to the ongoing repurposing of beds/theatre space etc. due to the COVID-19 pandemic. In addition, there have been temporary changes to the delivery of emergency general surgery in one trust area during the review process and therefore recent changes in the distribution of infrastructure for emergency general surgery across the trust area. Detailed hospital infrastructure data is not presented here but will be utilized by the relevant review group workstreams where service design and new models of care are under consideration.

4. Emergency surgery

4.1 Adult emergency surgical activity

In the years 2017/18 – 2019/20 there were approximately 21,800 emergency adult general surgery admissions per year across Northern Ireland (NI). Figure 1 shows the number of admissions per year in each trust. The highest number of emergency general surgery admissions were seen in the Southern and Northern HSC Trust while the lowest number of admissions was seen in the South Eastern HSC Trust.

Emergency general surgery services continued to be accessible throughout the COVID-19 pandemic, however despite this it should be noted that the COVID-19 pandemic was associated with a decrease in admissions. In 2019/20 there were 17,218 emergency admissions across NI, a 2% reduction compared to the previous year, while in 2020/21 there were 13,130 emergency admissions, a 24% reduction compared to 2019/21.

Figure 1 Number of adult emergency general surgery admissions by trust of activity, 2017/18 - 2020/21

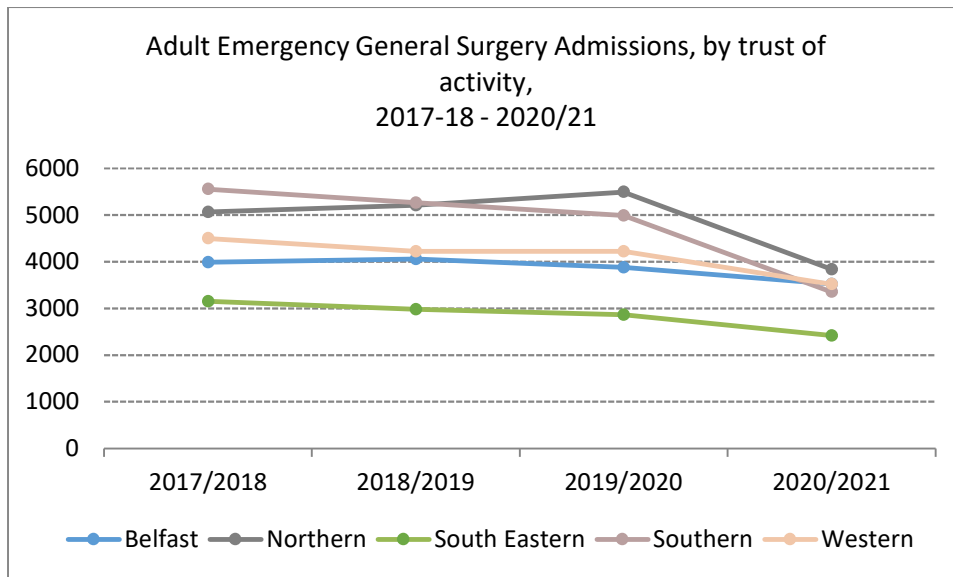
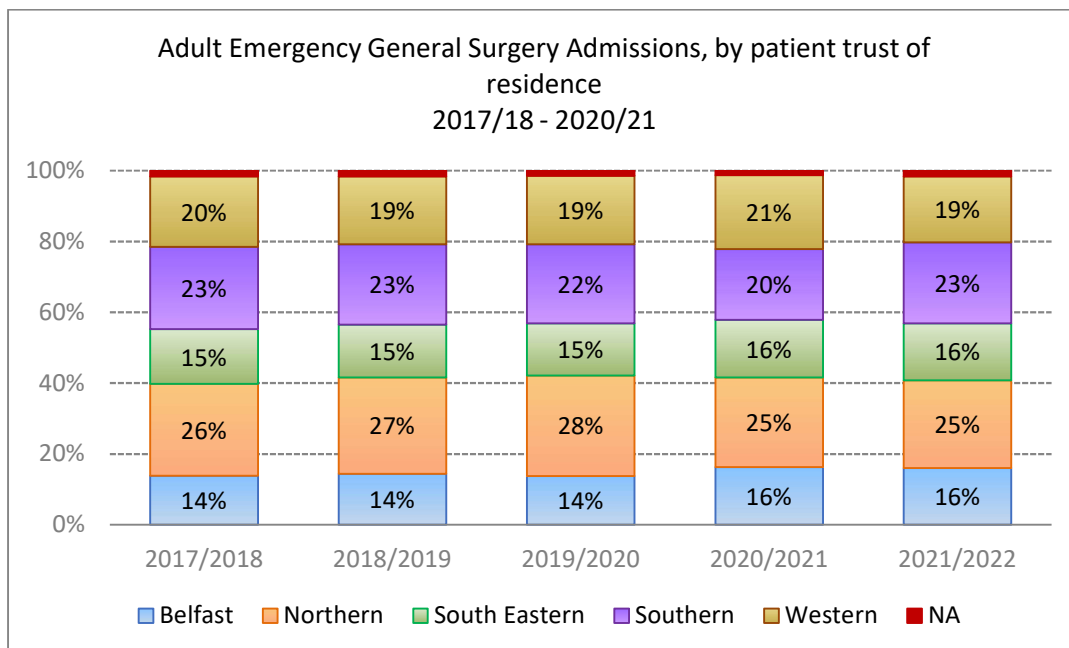


Figure 2 shows the proportion of adult emergency general surgery admissions by patient trust of residence 2017/18-2021/22. The relative distribution of emergency general surgical admissions has been reasonably consistent over this time period and shows that the largest proportion of patients came from the Northern and Southern HSC Trust areas and the smallest proportion of patients came from the Belfast HSC Trust. The difference between figures 1 and 2 with regards to the relative position of the Belfast HSCT reflects that a substantial proportion of patients admitted to the trust (Figure 2) reside in areas other than the Belfast Trust.

Figure 2 Proportion of adult emergency general surgery admissions by patient trust of residence, 2017/18 - 2020/21



4.2 Inter- and intra-trust activity

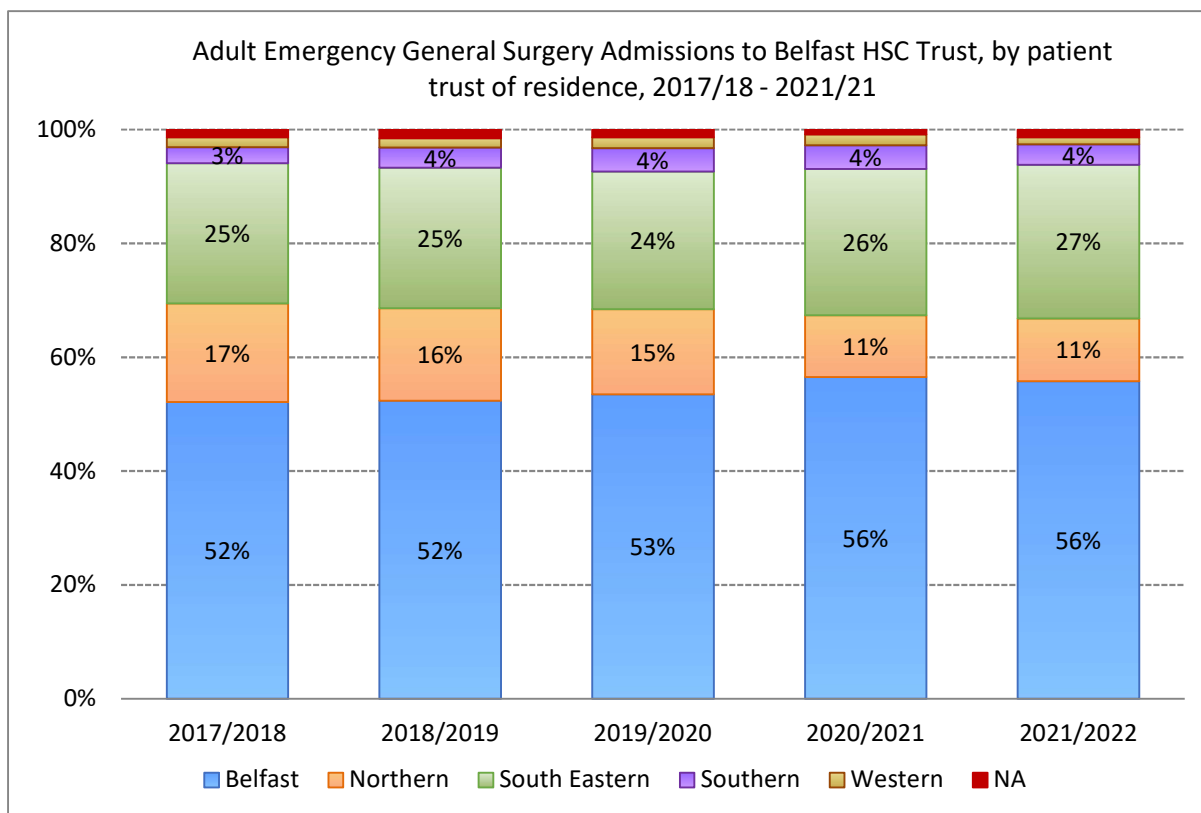
Overall activity can be analysed at an intra-trust and an inter-trust level. This demonstrates the movement of patients within and between trusts. This is a particularly important consideration where reconfiguration of services is proposed.

The figures below are examples of inter (between trust) and intra (within trust) emergency general surgery activity. Additional analysis can be carried out by workstreams using the live dataset to understand the impact of possible changes in service provision or configuration.

4.2.1 Inter-trust activity

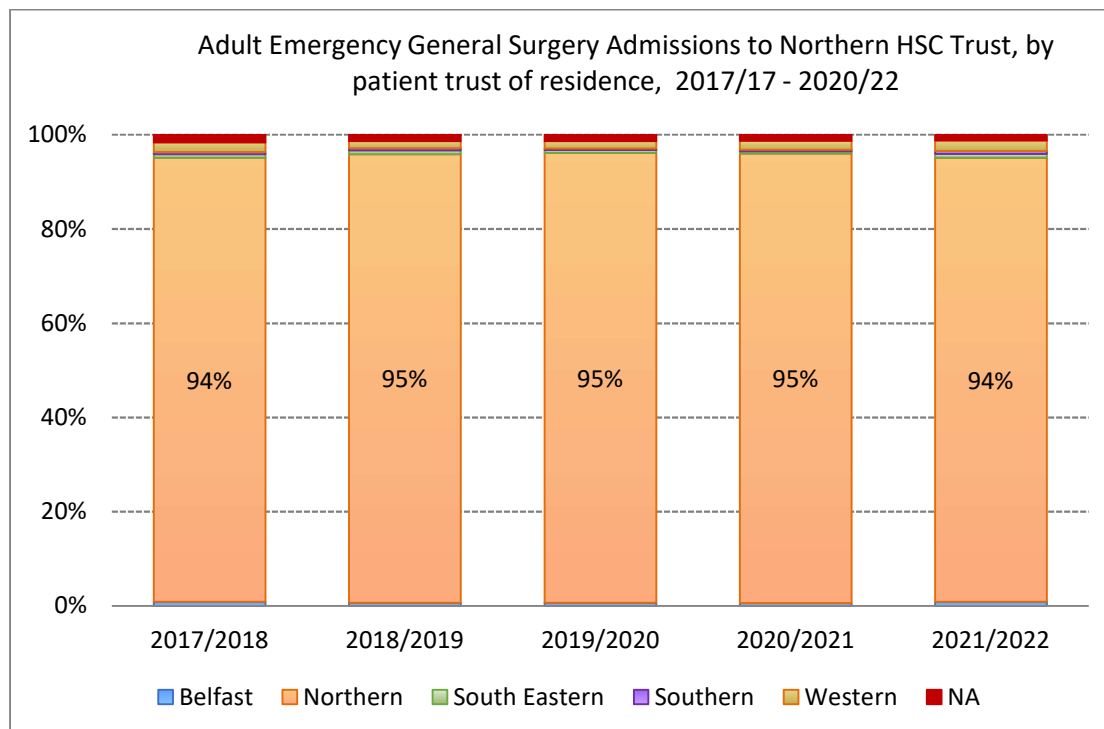
Figure 3 demonstrates the proportion of emergency general surgical admissions to the Belfast HSC Trust 2017/18-2021/22. This shows that the largest proportion of patients resided within the Belfast HSC Trust boundaries, 52-58% 2017/18 - 2020/21. There were also a considerable number of patients with emergency general surgical presentations managed in the Belfast HSC Trust whose residence was the South Eastern HSC Trust, 25-26% 2017/18 – 2020/21 and the Northern HSC Trust, 11-17% 2017/18 – 2020/21.

Figure 3 Trust of Residence of individuals admitted to Belfast HSC Trust under Emergency General Surgery, 2017/18 - 2020/21



By comparison, Figure 4 demonstrates the proportion of emergency surgical admissions to the Northern HSC Trust and shows that approximately 95% of patients admitted to emergency general surgery resided within the Northern HSC Trust boundaries.

Figure 4 Trust of Residence of individuals admitted to Northern HSC Trust under Emergency General Surgery, 2017/18 - 2020/21



These figures demonstrate considerable movement of patients with emergency general surgery presentations to the Belfast HSC Trust from other trust areas. A similar pattern is seen in South Eastern HSC Trust where around two thirds of patients admitted through emergency general surgery reside within the trust boundaries while around one third reside in other trust areas, mostly commonly Belfast HSC Trust (data not shown).

In contrast there is little movement into the Northern HSC Trust for management of emergency general surgical admissions. Similar patterns are seen in the Southern and Western HSC Trust (data not shown).

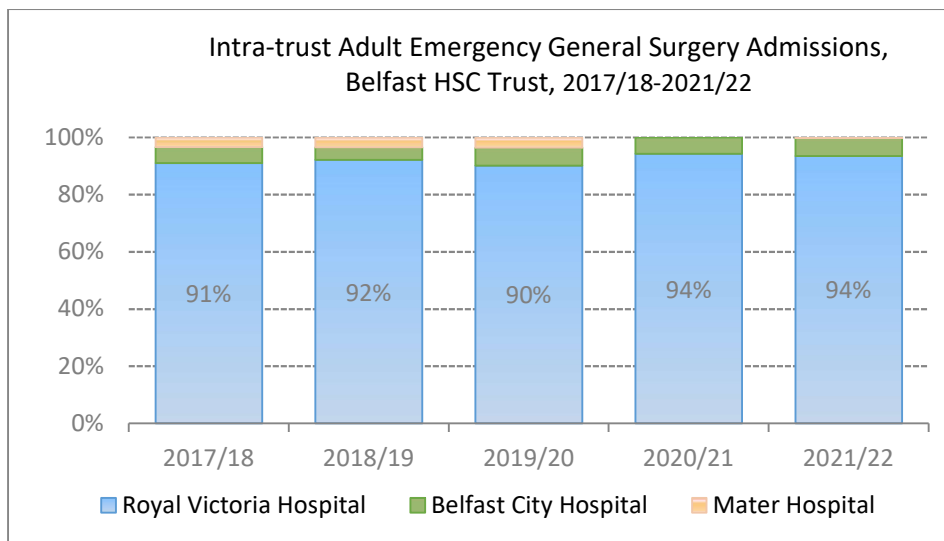
Factors influencing the different patterns observed in the Belfast HSC Trust and South Eastern HSC Trust by comparison to the Northern, Western and Southern HSC Trust may include geography and travel opportunities as well as the tertiary/specialist natures of services provided in more urban centres.

4.2.2 Intra-trust activity

Emergency general surgical activity can be analysed within a trust – i.e. the proportion of emergency activity carried out at each hospital site within a trust. Two examples are demonstrated in figures 5 and 6 below.

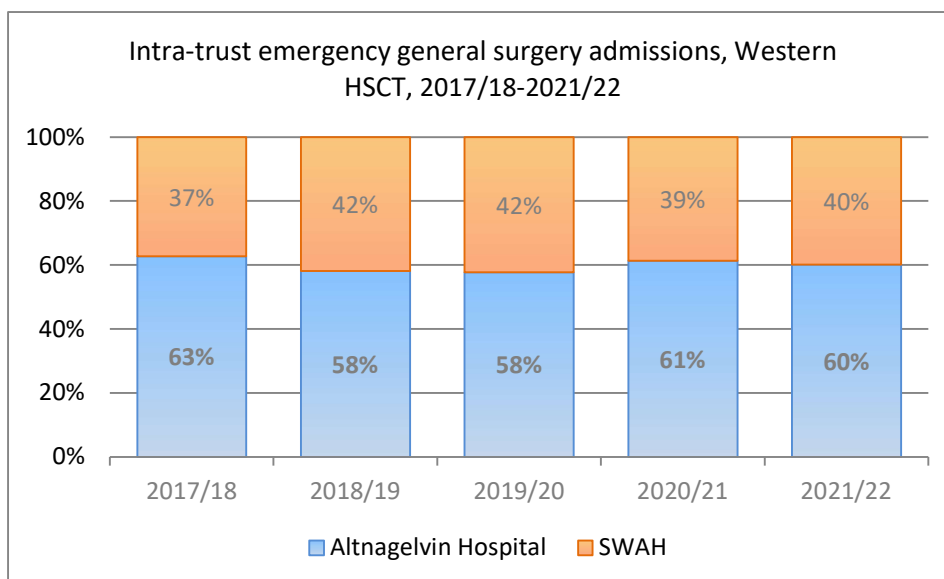
Figure 5 shows intra-trust emergency general surgery activity in the Belfast HSC Trust area and demonstrates that the majority of emergency general surgery activity is managed at the Royal Victoria Hospital, where emergency services are concentrated.

Figure 5 Adult emergency general surgery admissions to Belfast HSC Trust by hospital site, 2017/18 - 2020/21



By comparison, in the Western Trust, Figure 6, emergency general surgical activity is distributed across the two major hospital sites with approximately 60% of activity carried out at Altnagelvin Area Hospital and 40% at the South West Acute Hospital.

Figure 6 Adult emergency general surgery admissions to Western HSC Trust by hospital site, 2017/18 - 2020/21



4.3 Diagnoses and procedures

The most common diagnoses managed under emergency general surgical activity are acute abdominal pain, appendicitis, acute gallbladder disease, intestinal obstruction, acute pancreatitis, acute diverticular disease, acute biliary disease, head injuries and gastrointestinal (GI) bleeding.

Table 2 shows the most commonly performed procedures in 2020/21 across all trusts. The most common procedure is CT imaging, which accounted for 27% of emergency procedures. The most common operation was appendicectomy, which accounted for 6% of emergency procedures. It

should be noted the most frequently performed procedures are consistent across the five HSC trusts and in the other years of analysis, 2017/18-2021/22.

Procedure	Total	
	No.	%
No procedure*	6144	37%
CT scan	4376	27%
Appendicectomy	1055	6%
MRCP	673	4%
Upper GI endoscopy	465	3%
Drainage of perineal or perianal abscess	414	3%
Excision of gall bladder	328	2%
Hernia repair	314	2%
ERCP	250	2%
Lower GI endoscopy - sigmoidoscopy	240	1%
Drainage of skin lesion	182	1%

Table 2 Primary procedures carried out during adult emergency general surgery admissions, all trusts, 2020/21.
*Excludes laboratory and ultrasound investigation

Admissions not requiring surgical procedures

Approximately 35-40% of people admitted under emergency general surgery have no surgical procedure. This includes no CT imaging or endoscopy activity, although these admissions may have had laboratory (full blood count, renal function) and other imaging (e.g. ultrasound). Table 3 shows the number and proportion of admissions 2017/18-2021/22 in each trust which were not associated with any CT imaging, endoscopy or surgical procedure by HSC Trust.

Given the impact of the COVID-19 pandemic, caution is needed in interpreting any changes in the proportion of these admissions in recent years. However, irrespective of this, admissions not requiring procedures clearly constitute a substantial amount of emergency general surgery activity across all five trusts. This raises the possibility that some of this activity could be managed through alternative models of care not requiring admissions.

	Belfast		Northern		South Eastern		Southern		Western	
	Adm	%	Adm	%	Adm	%	Adm	%	Adm	%
17/18	1339	43%	2484	43%	1466	43%	2332	45%	1860	42%
18/19	1289	41%	2520	43%	1299	40%	2173	44%	1694	41%
19/20	1128	38%	2614	43%	1288	41%	2014	42%	1674	40%
20/21	909	33%	1527	36%	1039	38%	1476	45%	1193	34%
21/22*	677	33%	1209	39%	704	35%	1295	45%	698	30%

Table 3 Proportion of adult emergency general surgery admissions during which no procedure was carried out, 2017/18 - 2021/22

*Q4 data not included

4.4 Length of stay and bed days

The average length of stay (LOS) for patients admitted to emergency general surgery is influenced by various factors including patient factors, e.g. complexity and co-morbidities, and service factors, e.g. theatre availability, discharge processes, community rehabilitation availability. Table 4 shows the average LOS across trusts. The longest LOS following emergency admissions is noted in Belfast HSC Trust.

Trust	Emergency admissions				
	2017/18	2018/19	2019/20	2020/21	2021/22
Belfast	6.6	6.1	7.0	6.4	6.7
Northern	5.4	5.3	5.5	5.8	6.0
South Eastern	5.0	5.3	5.4	5.3	5.7
Southern	4.9	4.9	5.4	5.0	5.2
Western	5.5	5.7	6.1	5.8	6.4

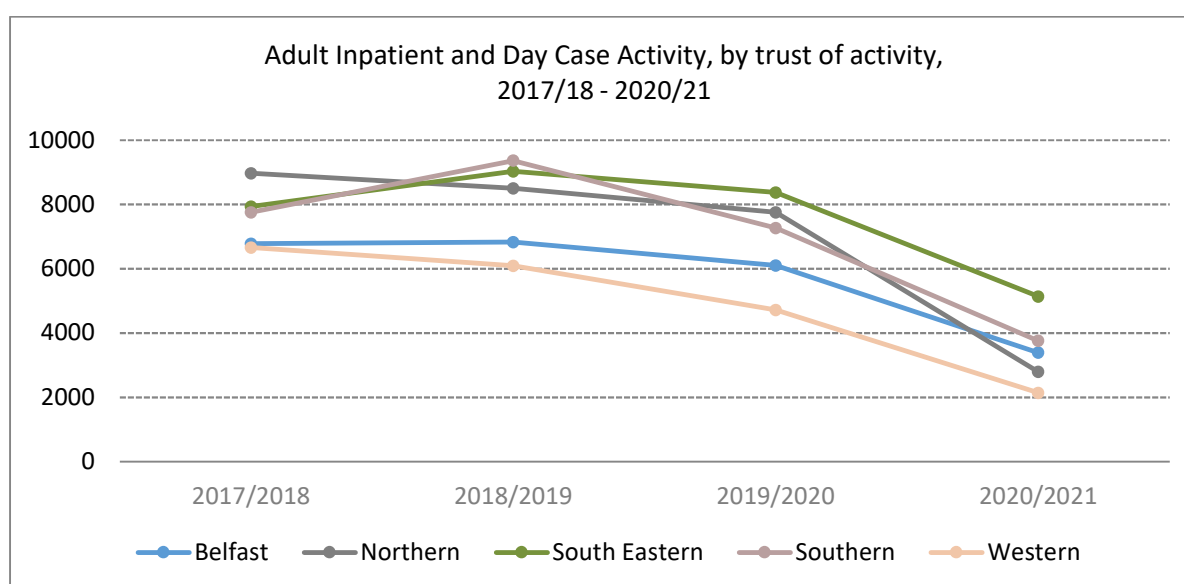
Table 4 Average length of stay (LOS) for adult emergency general surgery admissions, by trust, 2017/18 - 2020/21

5 Elective surgery

5.1 Adult elective surgery

Elective surgery refers to both inpatient and day case (IPDC) surgeries and procedures. Figure 7 show the number of IPDC cases per trust in adults 2017/18-2020/21. In total there were approximately 39,000 IPDC admissions in 2017/18 and 2018/19, 34,000 in 2019/20 and 17,000 in 2020/21.

Figure 7 Number of adult inpatient and day case attendances, by trust of activity, 2017/18 - 2020/21



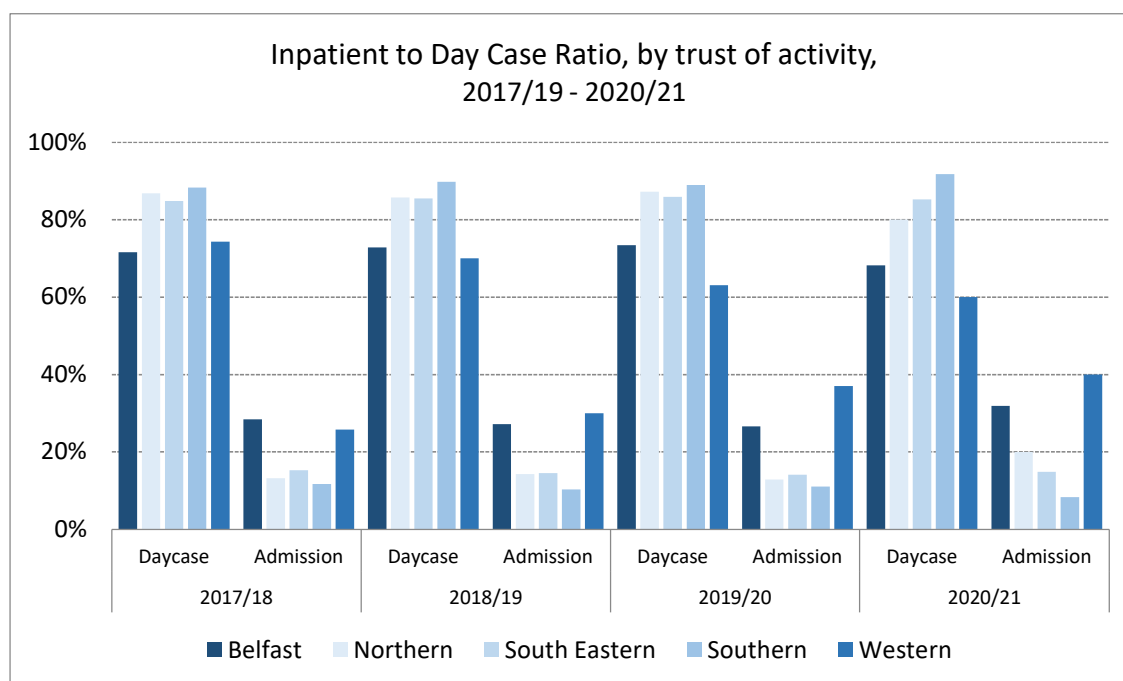
In all five trusts there was a steep decline in IPDC activity between 2018/19 and 2020/21. While most marked decreases in activity 2018/19 to 2020/21 occurred in the Northern HSC Trust, 67%, the

Western Trust, 65%, substantial decreases were also seen in the Southern HSC Trust, 60%, the Belfast HSC Trust, 50% and the South Eastern HSC Trust, 43%.

5.2 Inpatient to day case ratio

Figure 8 shows the proportion of elective general surgery cases managed as day cases and as admissions for each trust, 2017/18 – 2020/21. The proportion of elective general surgery cases managed as inpatient admissions is consistently higher in the Belfast HSC Trust and in the Western HSC Trust. Factors influencing the decision to admit versus manage as a day case include clinical factors, e.g. the complexity of surgery required, the prevalence of co-morbidities in the patient population, as well as operational factors, e.g. availability of inpatient/day case theatres.

Figure 8 Inpatient to Day Case Ratio for Adult Elective Attendances, by trust of activity, 2017/18 - 2020/21



5.3 Inpatient elective surgery

5.3.1 Adult elective admissions

There were approximately 7,000 admissions for inpatient elective general surgery in 2017/18 and 2019/20, 6,300 in 2019/20 and 3,500 in 2020/21. Figure 9 shows the number of adult elective general surgery admissions 2017/18 – 2020/21. The highest number of admissions in each year occurred in the Belfast HSC Trust and Western HSC Trust.

Figure 9 Number of adult inpatient attendances, by trust of activity, 2017/18 - 2020/21

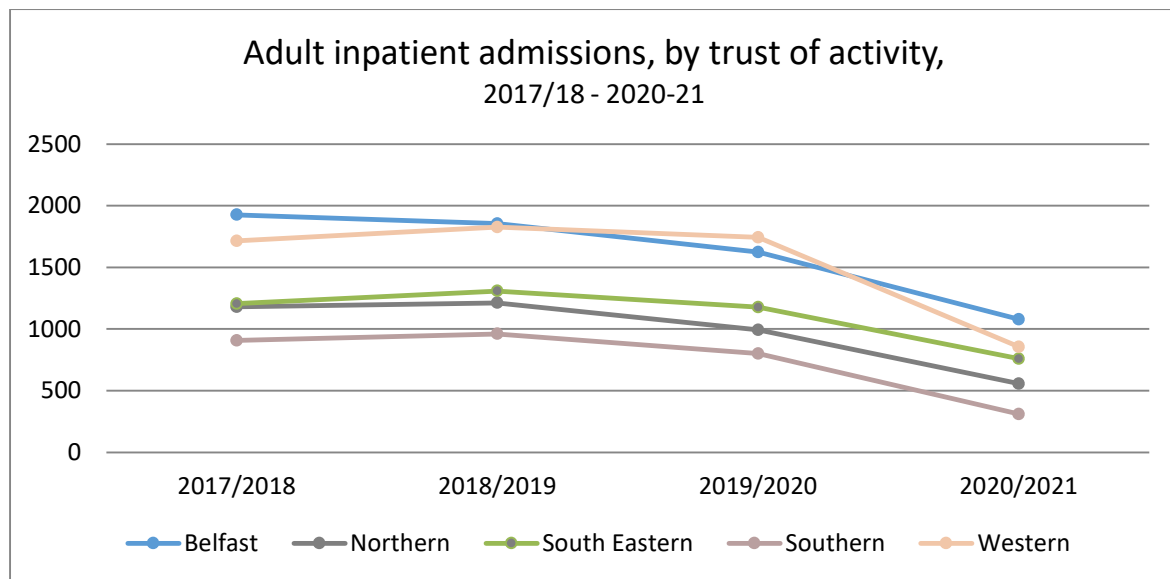
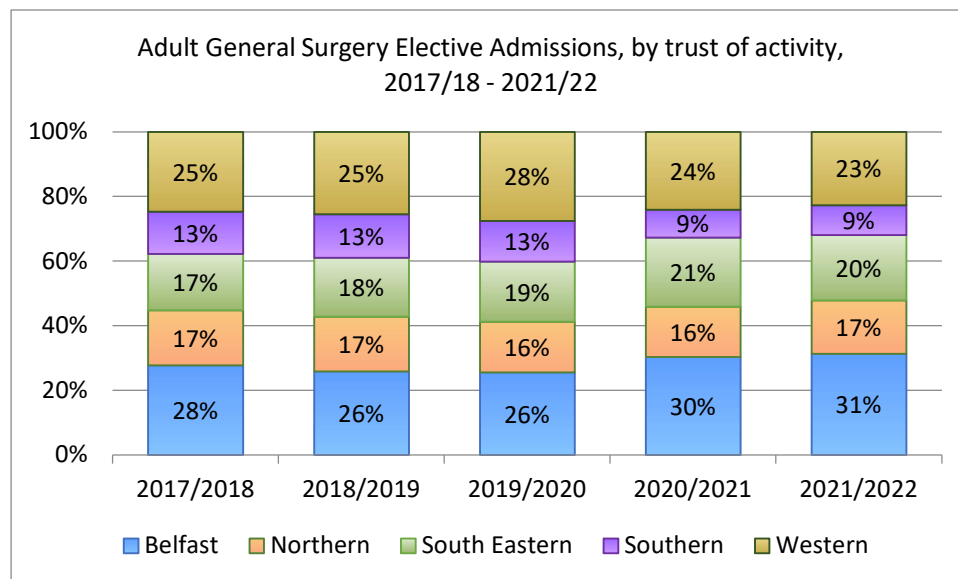


Figure 10 shows the proportion of all elective general surgery inpatient activity carried out by each HSC trust. The largest proportion of elective inpatient activity occurred in the Belfast HSC Trust and the Western HSC Trust.

Figure 10 Proportion of adult elective general surgery admissions by trust of activity, 2017/18 - 2020/21



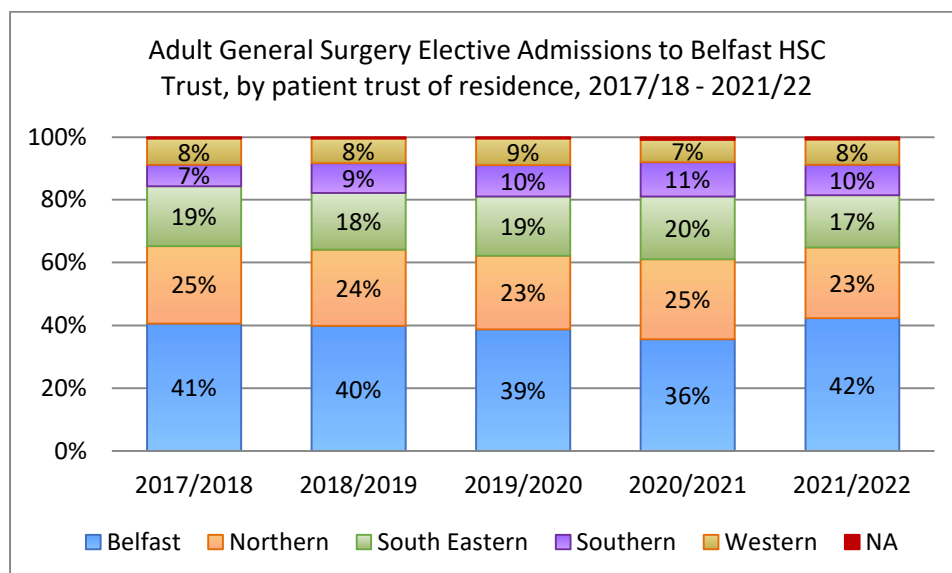
As with emergency general surgery, elective activity can be further analysed at an intra-trust and an inter-trust level. This demonstrates the movement of patients within and between trusts and is particularly important to understand if consideration is given to reconfiguration of services. It is also possible to analyse activity by patient trust of residence and to demonstrate the proportion of activity carried out within a trust relating to patients whose residence is in another trust.

The patterns seen in emergency general surgery – i.e. movement into the Belfast and South Eastern HSC Trust from other trust areas, is also seen in elective surgery.

5.3.2 Inter-trust activity

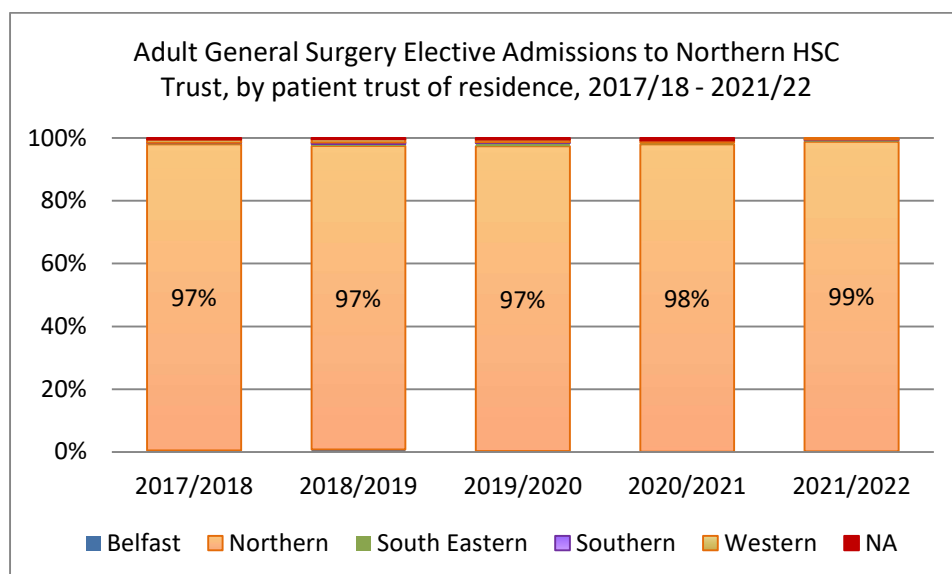
Figure 11 demonstrates the proportion of elective general surgical admissions to the Belfast HSC Trust 2017/18-2021/22 by trust of residence. This shows that the largest proportion of patients admitted to Belfast HSC Trust for elective surgery also resided within the trust boundaries. There were also a considerable number of patients admitted for elective general surgery whose residence was in the Northern or South Eastern HSC Trust boundaries.

Figure 11 Trust of Residence of individuals admitted to Belfast HSC Trust for Elective General Surgery, 2017/18 - 2020/21



By comparison, Figure 12 demonstrates the proportion of elective general surgery admissions to the Northern HSC Trust and shows that approximately 97% of patients admitted to the Northern HSC Trust resided within trust boundaries.

Figure 12 Trust of Residence of individuals admitted to Northern HSC Trust for Elective General Surgery, 2017/18 - 2020/21



As with emergency general surgery, these figures show considerable movement to the Belfast HSC Trust from other trusts, a similar pattern is seen in the South Eastern HSC Trust (data not shown). In

contrast there is little movement into the Northern HSC Trust for management of elective general surgical admissions. A similar pattern is seen in the Southern and Western Trusts (data not shown).

5.3.3 Intra-trust activity

Figure 13 shows intra-trust elective inpatient general surgery activity in the Belfast HSC Trust. Prior to 2020/21 more than half of elective inpatient activity took place in the Belfast City Hospital, around 30% took place in the Mater Hospital and around 16% took place in the Royal Victoria Hospital.

In 2020/21 around 53% of elective inpatient general surgical activity took place in the Royal Victoria Hospital while around 46% took place in the Belfast City Hospital, reflecting changes in service delivery associated with the COVID-19 pandemic.

Figure 13 Adult elective general surgery admissions to Belfast HSC Trust by hospital site, 2017/18 - 2020/21

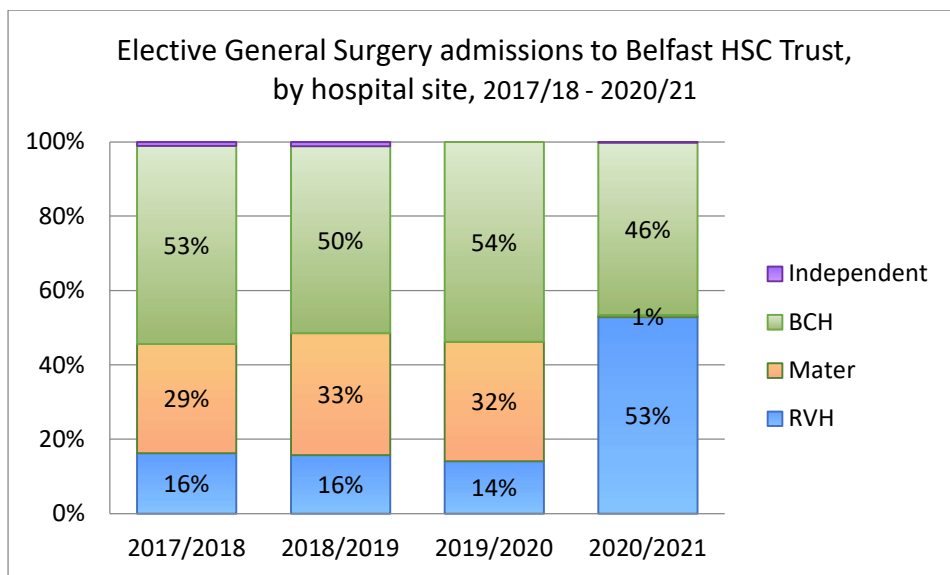
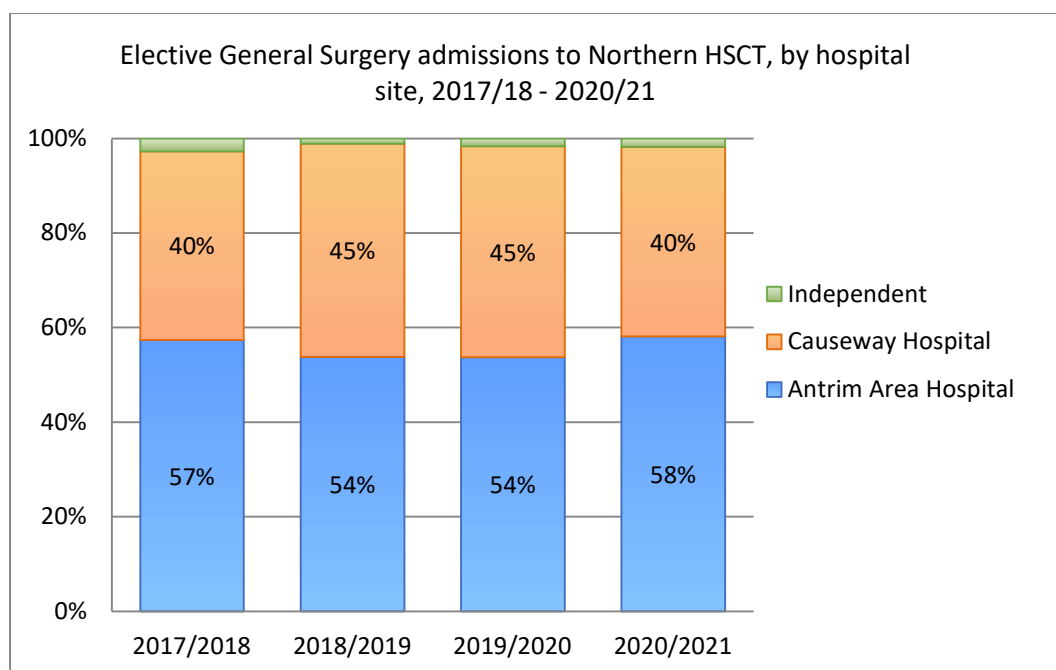


Figure 14 shows the intra-trust elective inpatient general surgery activity in the Northern HSC Trust. This shows that more than half of elective inpatient general surgery took place at Antrim Area Hospital and 40-45% of activity took place at Causeway Hospital.

Figure 14 Adult elective general surgery admissions to Northern HSC Trust by hospital site, 2017/18 - 2020/21



5.3.4 Operations and procedures

The most common elective inpatient procedures performed across all HSC Trusts in 2020/21 are shown in table 5. The most common elective general surgery inpatient procedure was excision of the gall bladder, followed by colorectal operations. As with emergency general surgery, there are a proportion of elective admissions associated with no procedure, however this is much smaller than that associated with emergency general surgery (6.1% in 2020/21 compared to 37% in emergency general surgery). This may reflect admissions during which planned surgery has been cancelled.

Procedure	Total	
	No.	%
Excision Of Gall Bladder	453	13%
Colectomy (Including Total, Partial, Proctocolectomy)	409	12%
Operations On Rectum	360	10%
Thyroid/Parathyroid Operations	217	6%
No procedure carried out	216	6%
Hernia Repair	202	6%
CT Scan	136	4%
Ileal Operations	72	2%
Gastro-Duodenal-Jejunal Operations	65	2%
Pancreatic Operations	65	2%
Hepatic Surgery	62	2%

Table 5 Primary procedures carried out during adult elective inpatient attendances, all trusts, 2020/21

5.3.5 Length of stay

Table 6 shows the average length of stay for elective general surgical admissions 2017/18 – 2021/22. This can be further broken down within each trust to show bed days and length of stay at each hospital site.

The average length of stay (LOS) for patients admitted for elective general surgery varies across trusts. Length of stay is consistently highest in the Belfast HSC Trust (5.8-6.9 days) and lowest in the Western HSC Trust (2.5-2.8 days). Various factors influence length of stay including patient factors such as complexity and co-morbidity and system factors such as discharge pathways and availability of community rehabilitation and care provision.

Elective admissions					
	2017/18	2018/19	2019/20	2020/21	2021/22
Trust	LOS	LOS	LOS	LOS	LOS
Belfast	5.3	5.6	5.8	5.5	5.8
Northern	3.7	3.5	3.5	4.1	4.6
South Eastern	3.0	2.7	3.3	3.4	4.3
Southern	4.4	3.3	4.1	4.3	4.4
Western	2.8	2.7	2.5	2.6	3.0

Table 6 Average length of stay (LOS) for adult elective general surgery admissions, by trust, 2017/18 - 2020/21

Belfast HSC Trust, which has the longest average LOS, also has one of the highest inpatient to day case ratios (Figure 8). In contrast, the Western HSC Trust has one of the lowest LOS and also has one of the highest inpatient to day case ratios. This suggests either that patient factors (complexity, comorbidity) do not fully explain the higher proportion of cases managed as inpatient or that system factors promoting are in place which support earlier discharge from hospital.

5.4 Day cases

5.4.1 Adult day cases

There were approximately 31,000 admissions for day case elective general surgery in 2017/18, 32,000 in 2018/19, 28,000 in 2019/20 and 14,000 in 2020/21. Figure 15 shows the proportion of adult general surgery day case activity by trust 2017/18 – 2020/21. The largest number of day cases were carried out in the Northern, Southern and South Eastern HSC Trusts. This is the reverse of the pattern noted for adult general surgery admissions, where the largest numbers were carried out in the Belfast and Western HSC Trusts and reflects the differences in the inpatient:day case split noted above.

Figure 15 Number of adult day case attendances, by trust of activity, 2017/18 - 2020/21

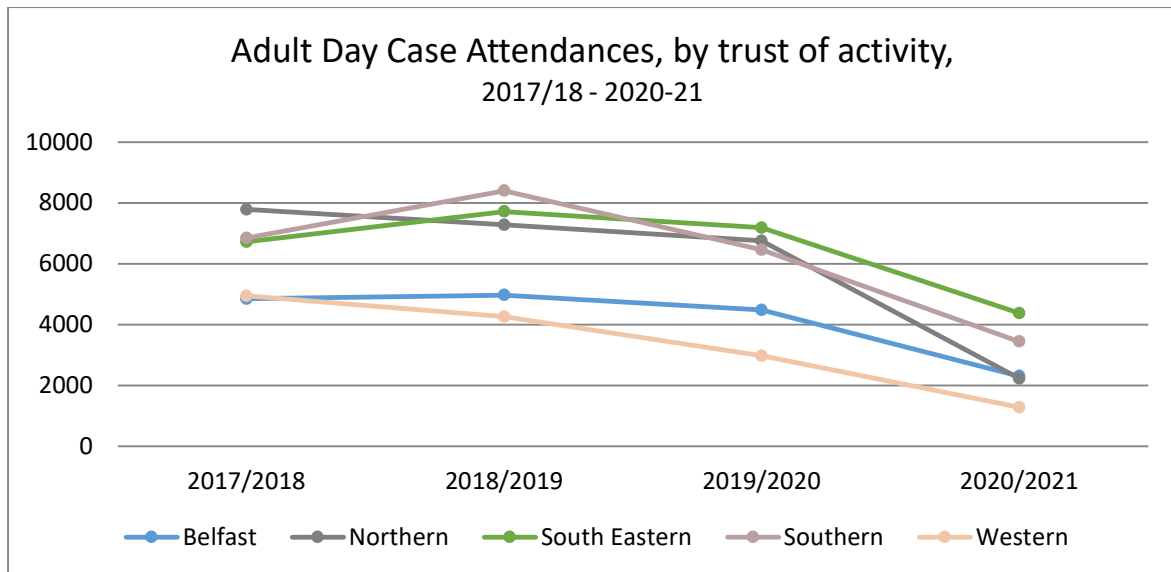
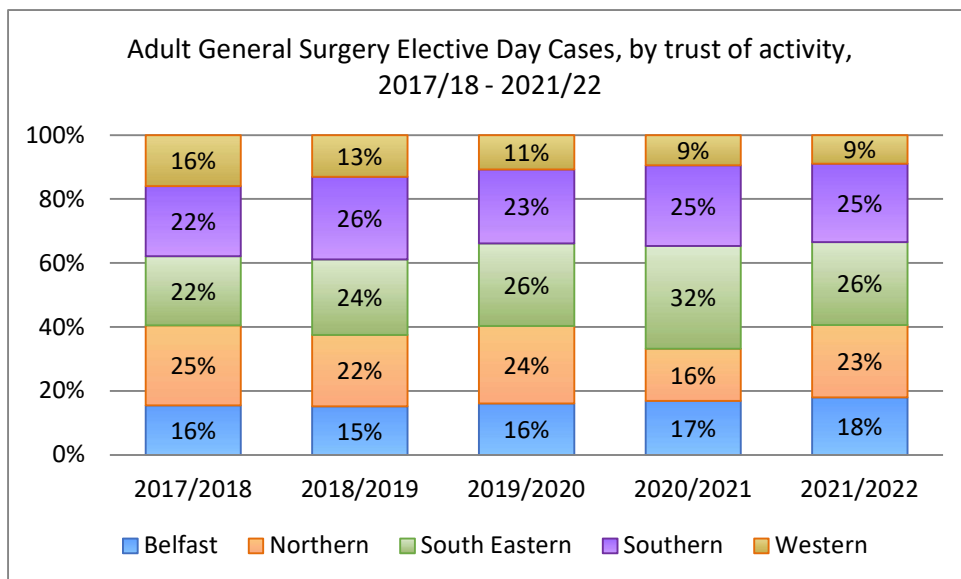


Figure 16 shows the proportion of adult general surgery day cases managed at each trust. The highest proportion of day cases are managed in the Northern, Southern and Southern Eastern Trusts.

Figure 16 Proportion of adult elective general surgery day cases by trust of activity, 2017/18 - 2020/21



5.4.2 Inter trust activity

Figure 17 shows adult general surgery day case activity in South Eastern HSC Trust 2017/18 – 2020/21 by patient trust of residence. This shows that around 73% of patients managed as day cases resided in the South Eastern HSC Trust area while approximately 23% were from the Belfast HSC Trust area. This shows that there is a considerable amount of movement into the South Eastern HSC Trust area for day case surgery.

Figure 17 Trust of Residence of individuals admitted to South Eastern HSC Trust for Elective General Surgery, 2017/18 - 2020/21

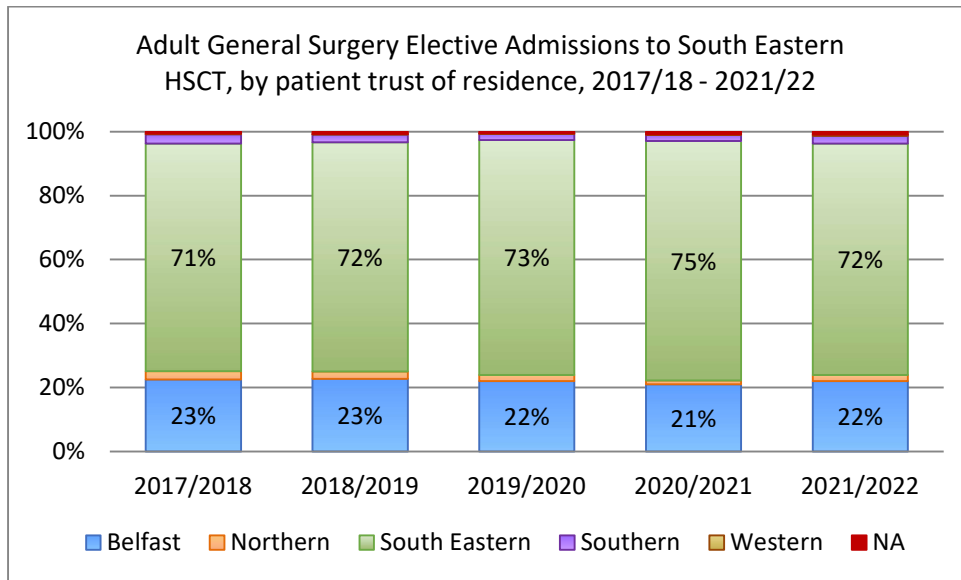
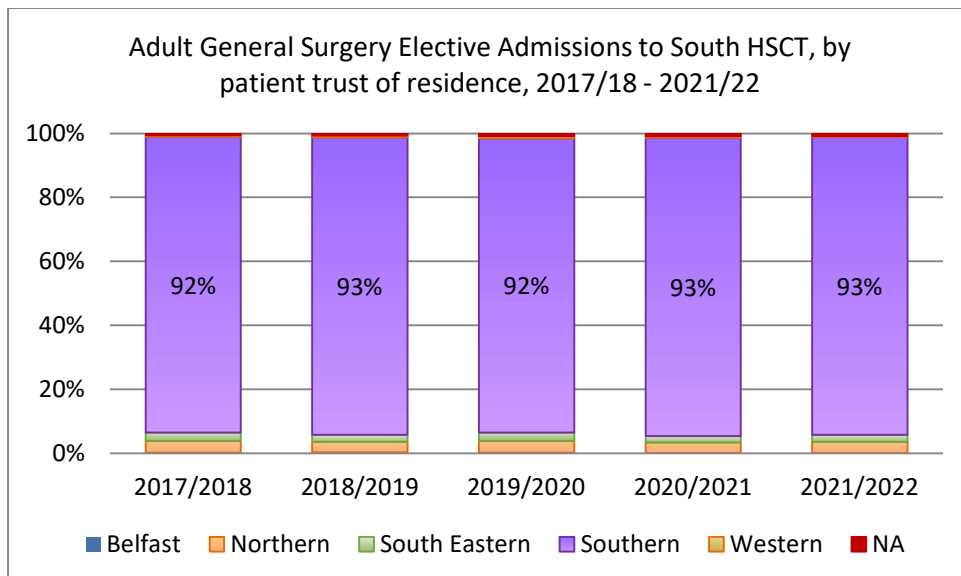


Figure 18 shows adult general surgery day case activity in Southern HSC Trust 2017/18 – 2020/21 by patient trust of residence. This shows that around 93% of patients managed as day cases resided in the Southern HSC Trust area while approximately 2% were from the South Eastern HSC Trust area and 4% were from the Northern HSC Trust area. This shows that there less movement into the Southern HSC Trust from patients residing in other trust areas by comparison to the Belfast HSC Trust. A similar pattern is seen in the Western and Northern HSC Trusts.

Figure 18 Trust of Residence of individuals admitted to South HSC Trust for Elective General Surgery, 2017/18 - 2020/21



5.4.3 Intra-trust activity

Figure 19 shows intra-trust elective general surgery day case activity in the Belfast HSC Trust. Prior to 2020/21 around 50% elective day case took place in the Belfast City Hospital, around 25-30% took place in the Mater Hospital and around 20-23% took place in the Royal Victoria Hospital. In 2020/21 around 70% of elective day case general surgical activity took place in the Belfast City Hospital while around 28% took place in the Royal Victoria Hospital, reflecting changes in service delivery associated with the COVID-19 pandemic.

Figure 19 Adult elective general surgery day case attendances, Belfast HSC Trust, by hospital site, 2017/18 - 2020/21

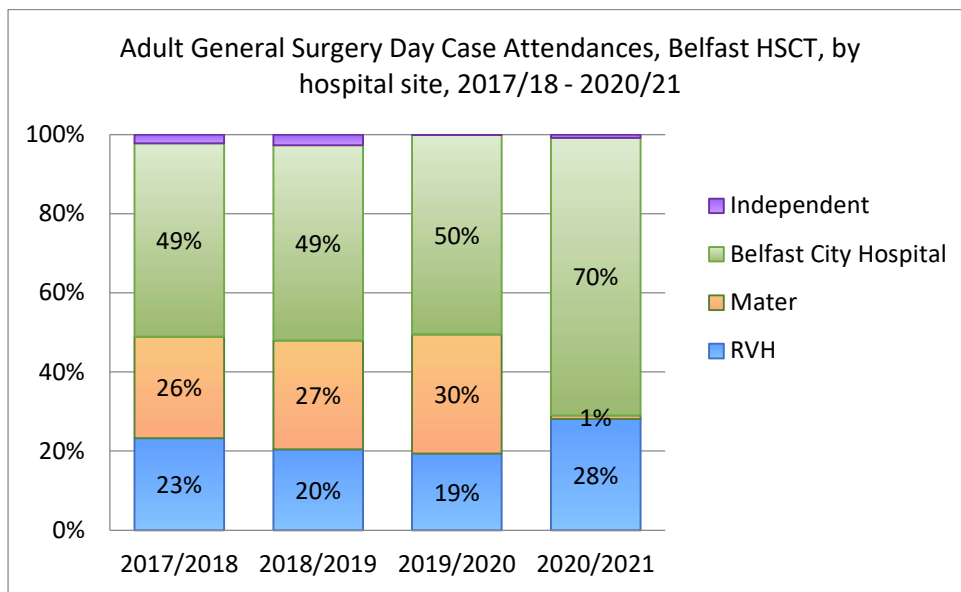
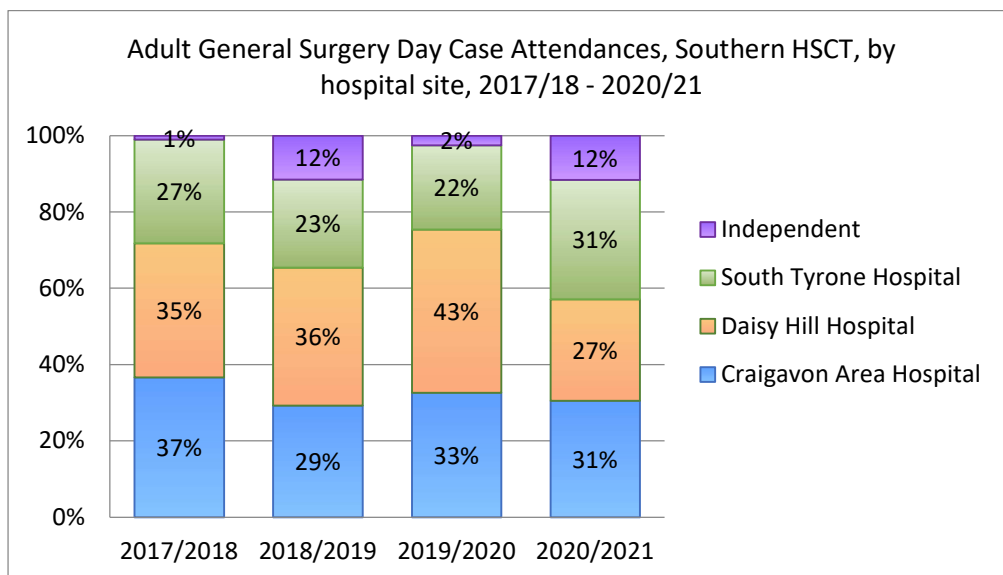


Figure 20 shows the proportion of day case surgical activity carried out at each hospital site within the Southern HSC Trust, 2017/18 – 2020/21. Pre-pandemic 30-36% of day case activity was carried out at Craigavon Area Hospital, 35-43% in Daisy Hill Hospital and 22-27% in South Tyrone Hospital. In addition, around 11% of day case surgical activity was carried out in independent sector hospitals in 2018/19 and 2020/21.

Figure 20 Adult elective general surgery day case attendances, Southern HSC Trust, by hospital site, 2017/18 - 2020/21



5.4.4 Diagnoses and Procedures

The most common elective day case procedures performed across all HSC Trusts in 2019/20 are shown in table 7. The most common elective day case procedures are lower and upper GI endoscopies, which accounted for almost 66% of day case general surgery activity in 2019/20. In 2019/20 1000 individuals (4%) who attended for elective day case surgery had no procedure carried out. This is notably less than the proportion associated with both elective inpatient surgery and emergency surgery, although still reflects an important volume of activity.

Procedure	Total	
	No.	%
Lower GI Endoscopy - Colonoscopy	9216	33%
Upper GI Endoscopy	5468	20%
Lower GI Endoscopy - Sigmoidoscopy	3712	13%
Skin Operations And Procedures - Other	2006	7%
Hernia Repair	1151	4%
No procedure carried out	1000	4%
Urogenital Operations - Other	787	3%
Excision Of Gall Bladder	495	2%
Therapeutic infusion	450	2%
Haemorrhoid Operations	436	2%

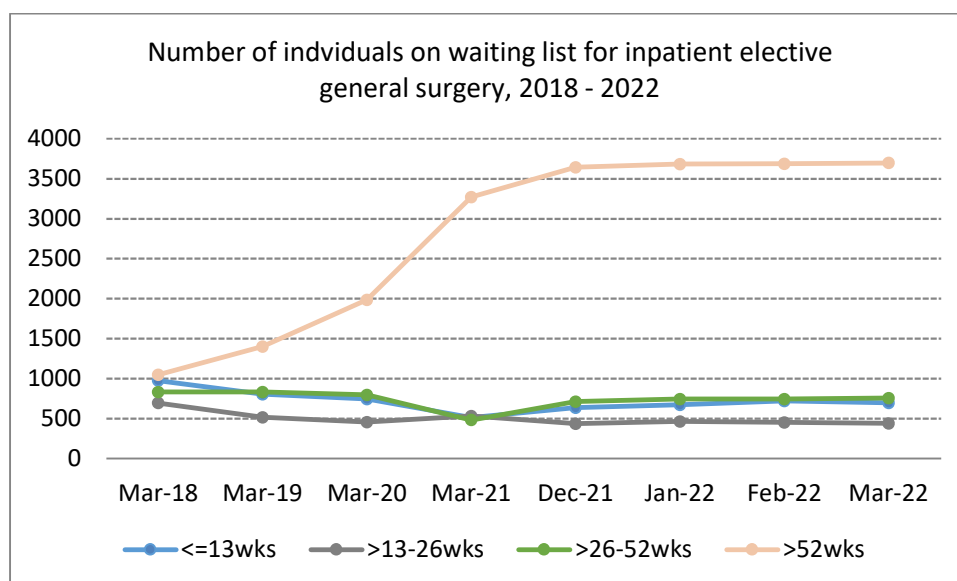
Table 7 Primary procedures carried out during adult elective day case attendances, all trusts, 2020/21

6. Inpatient and day case waiting lists

6.1 Inpatient waiting list

Figure 21 shows the number of people on the waiting list for elective inpatient surgery 2017/18-2020/21. The number of patients waiting more than 52 weeks for elective inpatient surgery was rising prior to the pandemic however there has been a significant increase in the proportion of patients waiting longer for surgery since March 2020.

Figure 21 Number of individuals awaiting inpatient elective general surgery by duration of time on waiting list at end of March 2018-2021 and monthly position January – March 2022



Between March 2020 and March 2021 there was a decrease of approximately 30% in the proportion of patients waiting ≤ 13 weeks for elective inpatient surgery and a decrease of 40% in those waiting 26-52 weeks. Over the same time period there was an increase of 16% in those patients waiting 13-26 weeks and a 64% increase in those waiting ≥ 52 weeks. The end monthly waiting list position January 2022-March 2022 reflects some improvements in the proportion of patients waiting for ≤ 13 weeks and the proportion waiting 26-52 weeks and ≥ 52 weeks has stabilised in recent months. However, there are now more than 3,500 patients who have been waiting ≥ 52 weeks for elective inpatient surgery compared to approximately 1,400 in 2019.

Table 8 shows the most common inpatient waiting list procedures across all trusts as of March 2022. There are a total of 5586 patients on the waiting list for an inpatient procedure. The most common procedure on the inpatient waiting list is excision of gallbladder at 41%, followed by hernia repair at 24%.

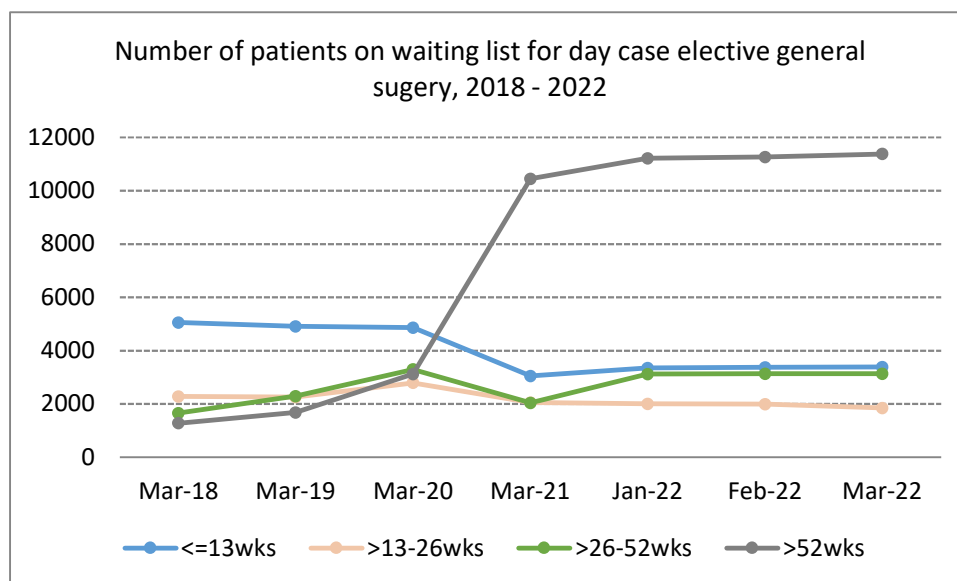
Waiting list as of March 2022 Procedure	Total	
	No.	%
Excision Of Gall Bladder	2315	41%
Hernia Repair	1317	24%
Operations On Rectum	354	6%
Breast Surgery	284	5%
Other Colonic Operations	128	2%
Colectomy (Including Total, Partial, Proctocolectomy)	115	2%
Thyroid/Parathyroid Operations	115	2%
Other Ileal Operations	97	2%
Abdominal Operations - Other	87	2%
Skin Operations And Procedures - Other	83	1%

Table 8 Most frequently awaited inpatient general surgery procedures, March 2022, all trusts

6.2 Day case waiting list

Figure 22 shows the number of patients on the waiting list for day case elective general surgery. As with inpatient elective general surgery there have been marked increases in the number of patients on the waiting list and the number of patients waiting for 52 weeks or more has increased more than six-fold by comparison to 2018/19.

Figure 22 Number of individuals awaiting day case elective general surgery by duration of time on waiting list at end of March 2018-2021 and monthly position January – March 2022



There has been some increase in the proportion of patients waiting ≤ 13 weeks for elective day case surgery between March 2021 and January – March 2022, however this remains lower than prior to the pandemic.

Table 9 shows the most common day case procedures on the waiting list at March 2022. There were approximately 19700 patients on the day case waiting list at this time. Endoscopy forms a large portion of this with lower GI endoscopy accounting for 37% and Upper GI endoscopy 9%. The most common surgical procedure on the waiting list is hernia repair at 15%, followed by 13% for skin procedures and operations. As with the inpatient waiting list, excision of gallbladders also features highly on the day case waiting list accounting for 12% of procedures.

Waiting list as of March 2022	Total	
	No.	%
Lower GI Endoscopy - Sigmoidoscopy	3732	19%
Lower GI Endoscopy - Colonoscopy	3464	18%
Hernia Repair	2958	15%
Skin Operations And Procedures - Other	2467	13%
Excision Of Gall Bladder	2292	12%
Upper GI Endoscopy	1818	9%
Operations On Rectum	662	3%
Operations On Pilonidal Sinus	243	1%
Haemorrhoid Operations	171	1%

Table 9 Most frequently awaited day case general surgery procedures, March 2022, all trusts

7 Outpatients

7.1 Adult outpatient activity

Outpatient clinics are provided on a number of sites across all 5 trusts. See Appendix B for summary. Figure 23 shows the number of outpatient attendances by trust 2017/18 – 2020/21. In total there were 82,590 outpatient attendances across Northern Ireland in 2017/18, 83,806 in 2018/19, 73,867 in 2019/20 and 48,502 in 2020/21. There was an overall reduction of 36% in outpatient reviews from 2017 to 2021. Outpatient activity has improved in 2021/2022 (data not shown) but remains lower than pre-pandemic levels. Over the course of the COVID-19 pandemic there has been an increased use of virtual clinics. In 2017/2018 virtual reviews accounted for 1% of activity, this rose to 48% in 2020/2021.

Figure 23 Number of new adult outpatient attendances at consultant-led clinic, by trust of activity, 2017/18 - 2020/21

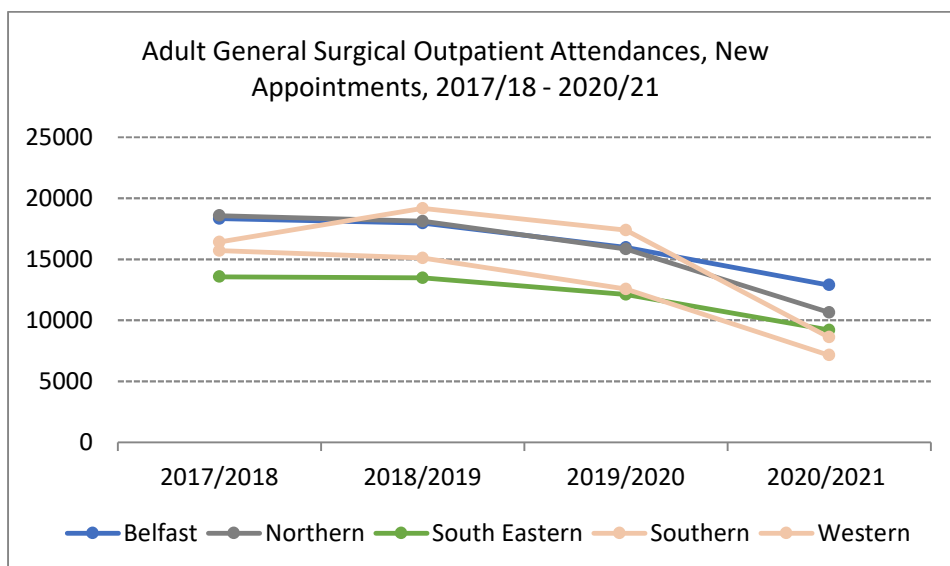
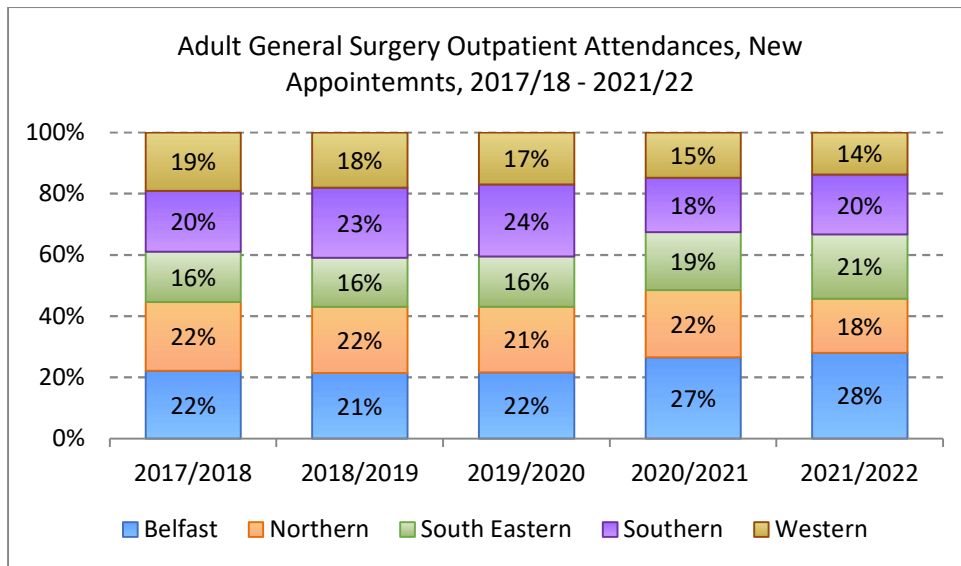


Figure 24 shows the proportion of all outpatient attendances managed by each trust. Prior to 2019/20 the proportions of outpatient attendances was fairly consistent each year. In 2020/21 a relatively higher proportion of outpatient appointments took place in the Belfast and South Eastern HSC Trust while a lower proportion took places in the Southern and Western HSC Trust compared to previous years.

Figure 24 Proportion of new adult outpatient attendances by trust of activity, 2017/18 - 2020/21



7.2 Inter-trust activity

Figure 25 shows the proportion of adult general surgery outpatient attendances at South Eastern HSC Trust 2017-18 – 2021/22 by patient trust of residence. Around two thirds of outpatient attendances relate to patients who reside in the South Eastern HSC Trust area while around 30% relate to patients from the Belfast HSC Trust area.

Figure 25 Adult elective general surgery outpatient attendances, South Eastern HSC Trust, by hospital site, 2017/18 - 2020/21

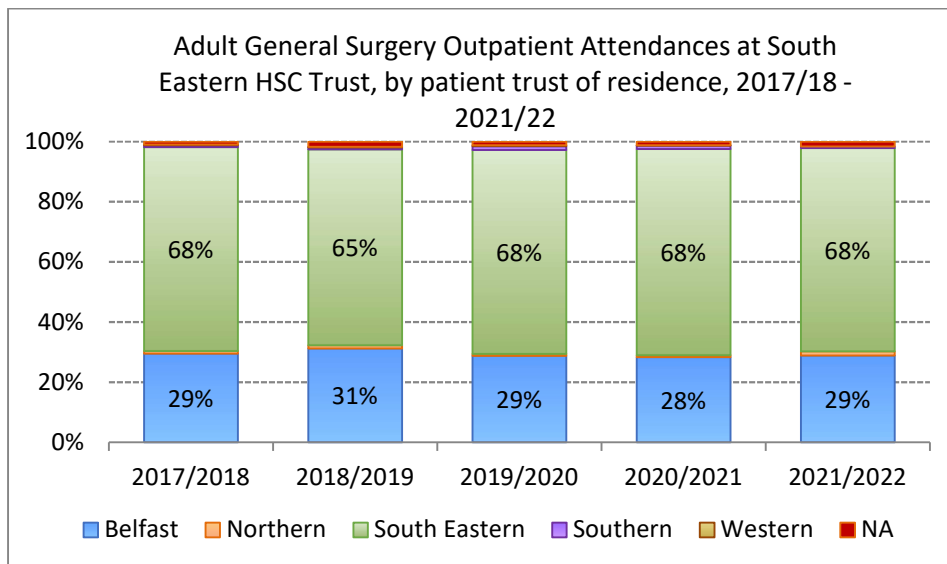
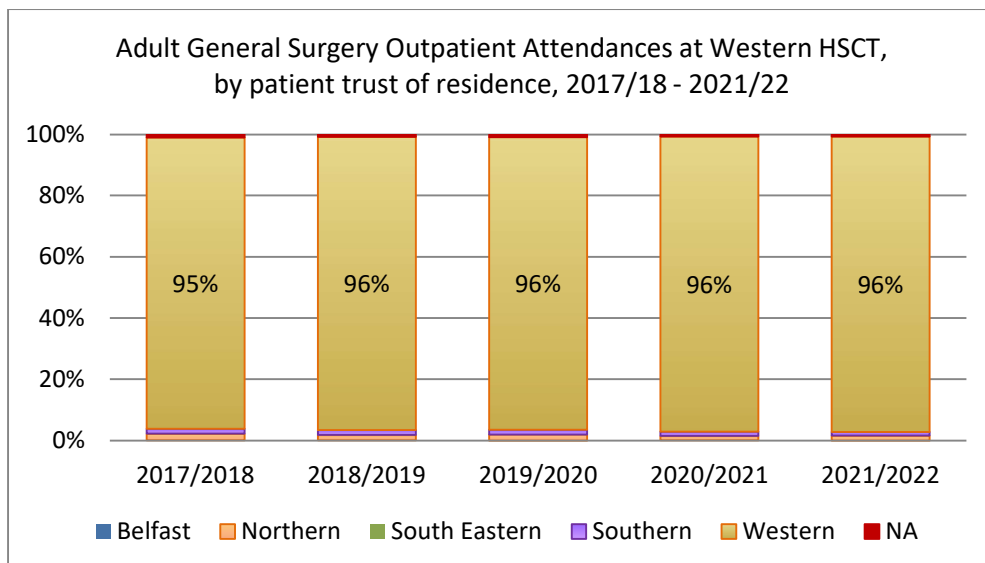


Figure 26 shows the proportion of adult general surgery outpatient attendances at Western HSC Trust 2017-18 – 2021/22 by patient trust of residence. This shows that over 95% of outpatient attendances in the Western HSC Trust area relate to patients who reside within the trust’s boundaries.

Figure 26 Adult elective general surgery outpatient attendances, Western HSC Trust, by hospital site, 2017/18 - 2020/21



7.3 Intra-trust activity

Figure 27 shows the proportion of outpatient attendances at each hospital site within the Belfast HSC Trust, 2017/18 – 2020/21. Prior to 2020/21 64-69% of outpatient attendances were managed at Belfast City Hospital while 27-30% were managed at the Mater Hospital. In 2020/21 and 2021/22, associated with changes to service delivery during the COVID-19 pandemic, almost a third of outpatient attendances were at the Royal Victoria Hospital while attendances at the Mater Hospital had decreased.

Figure 27 Adult new outpatient consultant-led attendances, Belfast HSC Trust, by hospital site, 2017/18 - 2020/21

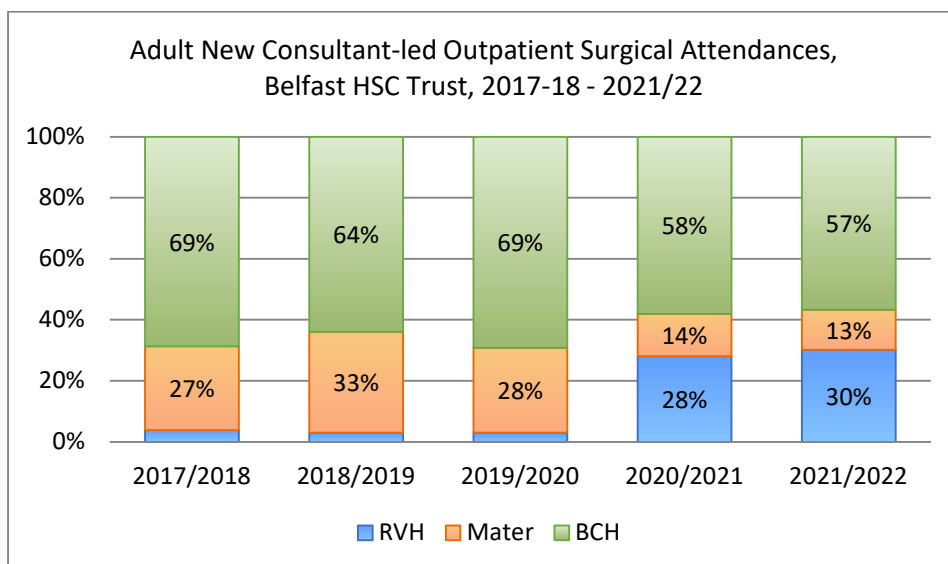
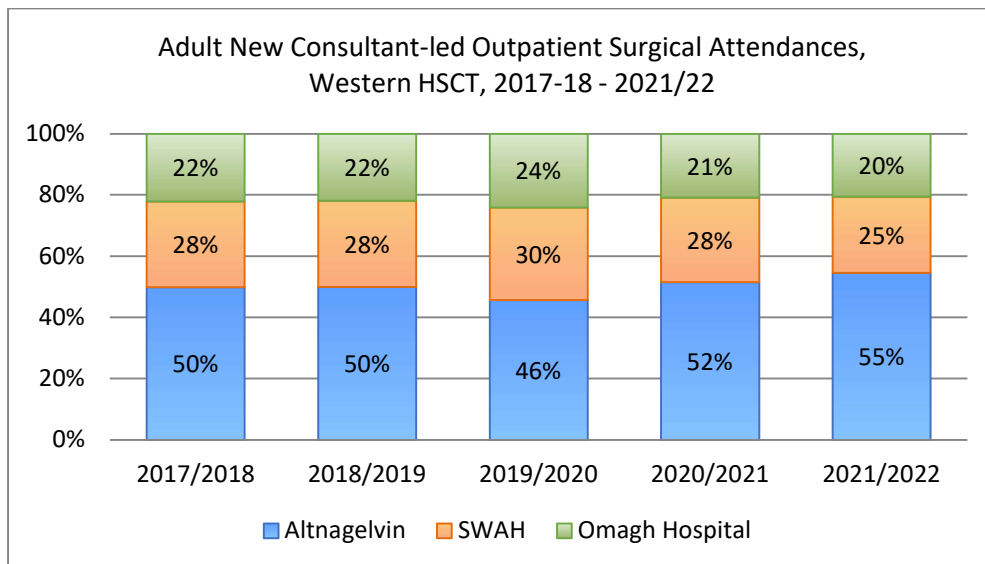


Figure 28 shows the Western HSC Trust sites where outpatient general surgery appointments were managed 2017/18 – 2020/21. This shows that the largest proportion of appointments were managed at Altnagelvin Hospital, for example 51.6% in 2020/21 equating to more than 3500

appointments. Substantial numbers of outpatient appointments were managed in the SWAH and Omagh Hospitals, 27.6% (approximately 1900) and 20.9% (approximately 1440) in 2020/21 respectively.

Figure 28 Adult new outpatient consultant-led attendances, Western HSC Trust, by hospital site, 2017/18 - 2020/21



7.4 Waiting list for outpatient appointments

Figure 29 shows the number of patients on the waiting list for a new consultant-led surgical outpatient appointment, monthly position March 2018-2021 and January – March 2022. There was a decrease in the proportion of individuals waiting all durations of time under 52 weeks between March 2020 and March 2021 and an increase in those waiting more than 52 weeks over the same time period. The figure shows that the proportion of individuals waiting >52 weeks has stabilized January – March 2022, and there has been some increase in the proportion of patients waiting for shorter time periods. However, nonetheless, at the end of March 2022 there were almost 50,000 patients on the waiting list for an outpatient appointment and just under half of those patients had been waiting for more than >52 weeks.

Figure 29 Number of individuals awaiting new Consultant-led outpatient appointment by duration of time on waiting list at end of March 2018-2021 and monthly position January – March 2022

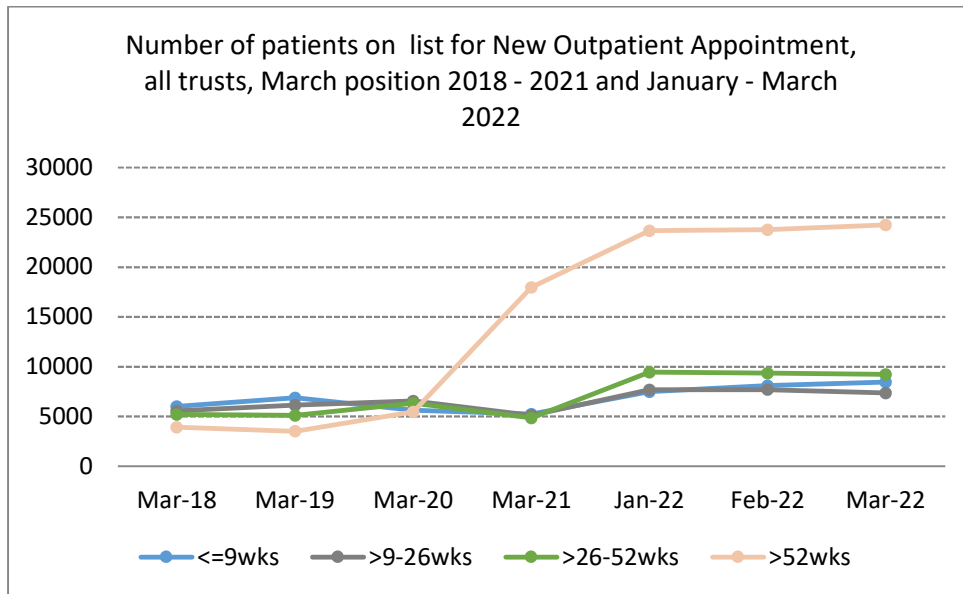
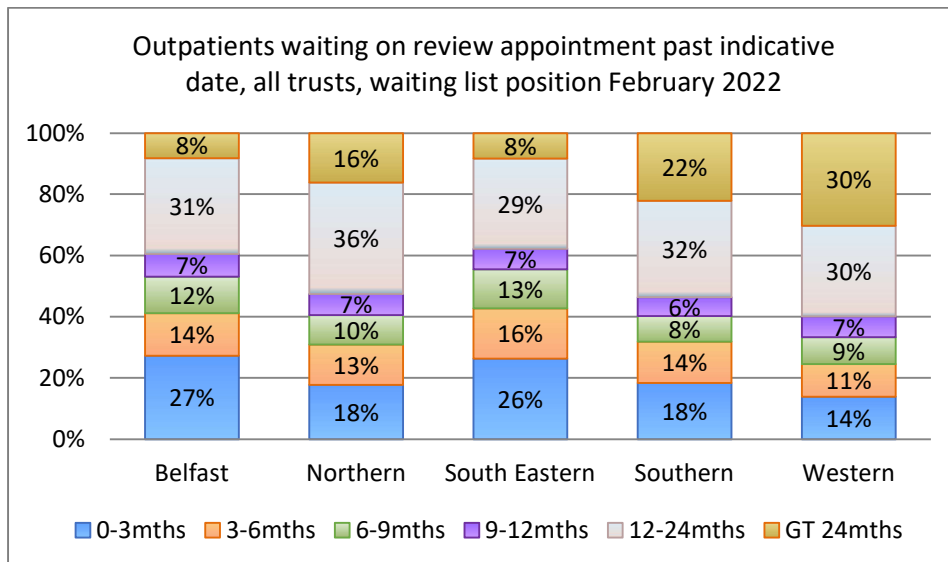


Figure 30 shows the proportion of patients waiting on a review outpatient appointment past the indicative date by trust as of February 2022. In February 2022 in all trusts, more than one in three patients was waiting more than 12 months past their indicative date for an outpatient review appointment and in the Southern and Western trusts 22% and 30% of patients respectively were waiting more than two years for a review appointment.

Figure 30 Proportion of outpatients waiting past indicative date for review, by length of wait and trust of activity, February 2022



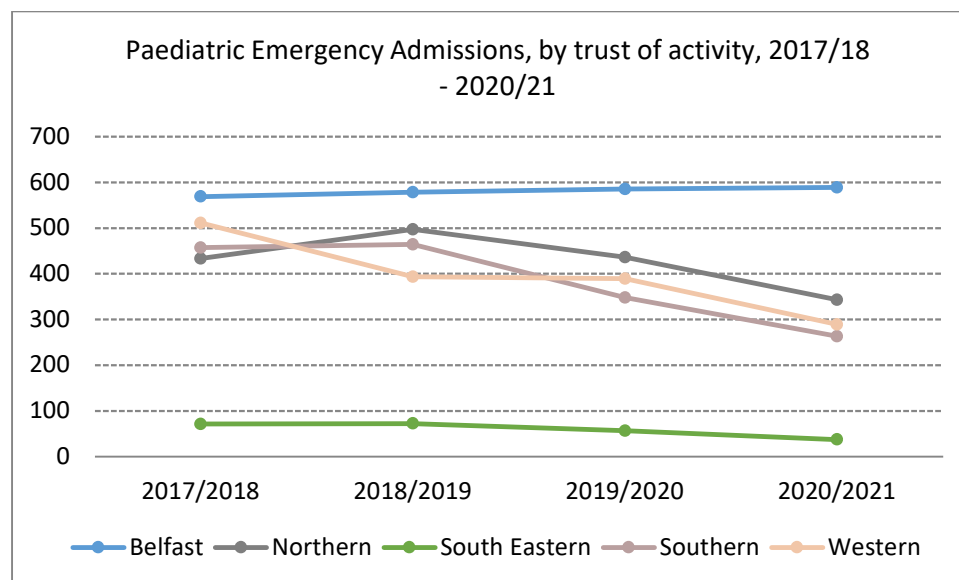
8 Paediatrics

The data presented below refers to all patients aged 0-15 years. Further detail is provided in the paediatric workstream paper including detailed information on waiting lists, which is therefore not presented below.

8.1 Emergency surgery

Figure 31 shows the number of paediatric emergency admissions by trust 2017/18 – 2020/21. There were a total of 2041 admissions in 2017/2018, 2004 in 2018/2019, 1820 in 2019/2020 and 1525 for FY 2020/2021. Interpretation of the reduction in numbers of paediatric admissions is complicated by the COVID-19 pandemic which affected both the final quarter of 2019/20 as well as 2020/21.

Figure 31 Number of paediatric emergency general surgery admissions by trust of activity, 2017/18 - 2020/21



The most common diagnosis for the combined 0 -15 age groups in 2019/20 were acute abdominal pain, appendicitis which accounted for 33% and 18% of admissions respectively. The most frequent diagnoses were consistent across the years of analysis.

Table 10 shows the most common paediatric emergency procedures for 0 -15 year olds 2019/20. The most common operations carried out in children were appendicectomy, which was performed in around a fifth of paediatric emergency admissions, followed by testicular operations, e.g. for testicular torsions, which was performed in around 7% of admissions. These remain the most commonly performed procedures across the years with some minor variation in the remaining procedures between 2017/18 – 2021/22.

Procedure	Total	
	Number	%
No procedure carried out*	983	54%
Acute appendicitis - excisions	384	21%
Testicular operations	121	7%
CT scan	55	3%
Other gastro-duodenal-jejunal operations	32	2%
Skin operations and procedures - other	21	1%
Drainage of skin lesion	18	1%
Scrotal operations	14	1%
Other ileal operations	14	1%
Hernia repair	14	1%

Table 10 Primary procedures carried out during paediatric emergency general surgery admissions, all trusts, 2020/21, *Excludes laboratory and ultrasound investigation

As with emergency adult general surgery a significant number of children admitted to emergency general surgery did not have a procedure carried out. This proportion is somewhat higher than that observed in adults and may reflect admission of children for observation. The overall proportion of 'no procedure' activity across the region is similar across all years but some variation can be seen between different hospital sites and trust.

8.3 Elective IPDC activity

Figure 32 shows the numbers of inpatient and day case attendances, as well as total IPDC attendances, across all HSC trusts 2017/18 – 2020/21. There was a marked reduction in day case activity 2019/20 and 2020/21, reflecting changes to service provision during the COVID-19 pandemic. There was also some decrease in elective inpatient activity in the same period, although this was less marked.

Figure 32 Number of elective inpatient and day case admissions by trust of activity, 2017/18 - 2020/21

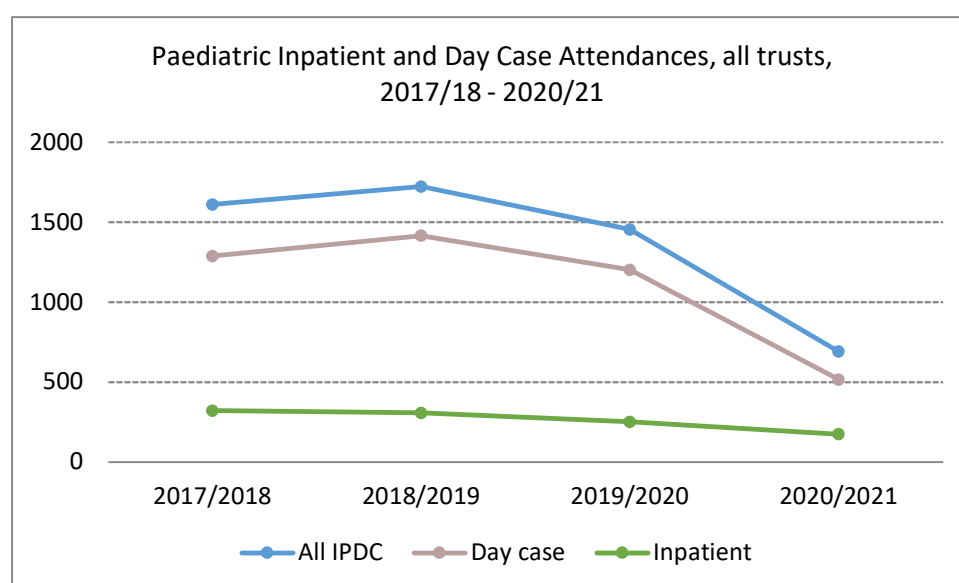
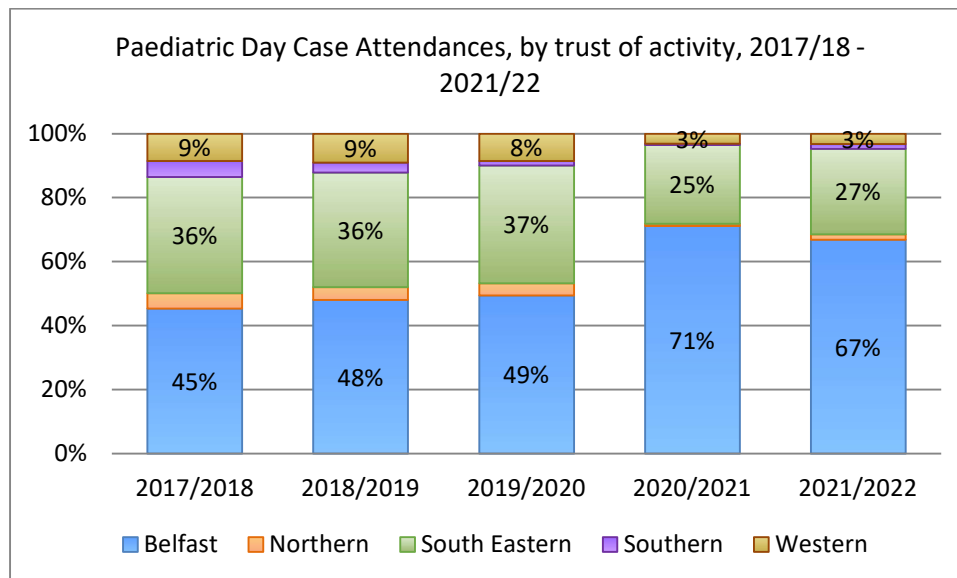


Figure 33 shows the proportion of paediatric day case attendances by the trust of activity. The highest proportion of day cases were managed in the Belfast HSC Trust across all years of analysis and this was noted to increase in 2020/21 and 2021/22, associated with changes to service provision due to COVID-19. Prior to 2020/21 approximately more than one third of paediatric day case attendances were managed at the South Eastern HSC Trust and slightly under 10% was managed at the Western HSC Trust, with lower levels of activity in the Northern and Southern HSC trusts.

Figure 33 Proportion of paediatric day cases attendances by trust of activity, 2017/18 - 2020/21



In contrast to day cases, a high proportion of inpatient admissions are managed in the Belfast HSC Trust, as shown in Figure 34. For example in 2019/20, 92% of paediatric elective admissions were to the Belfast HSC Trust.

Figure 34 Proportion of paediatric elective inpatient attendances by trust of activity, 2017/18 - 2020/21

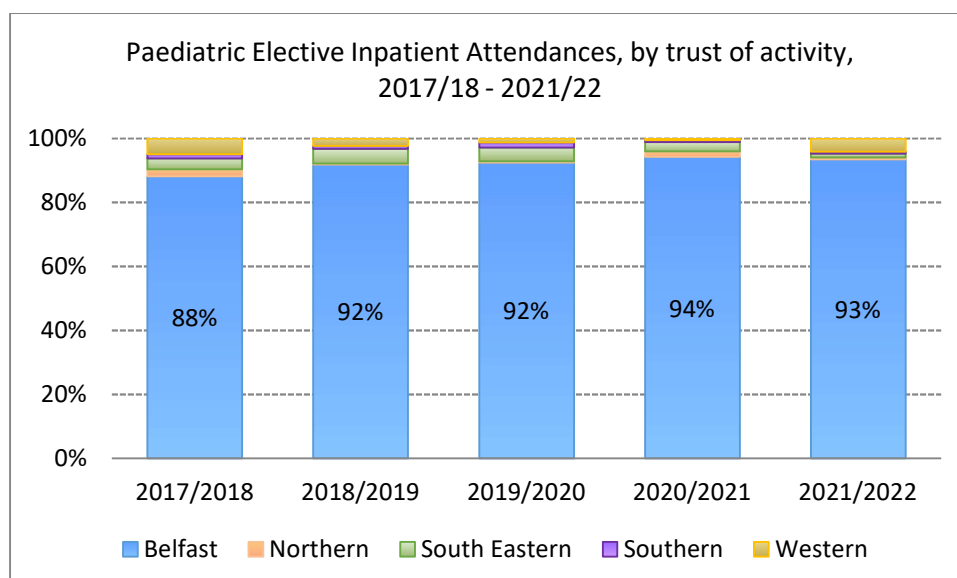


Table 11 shows the most common elective inpatient procedures in children aged under 16 years, 2019/20. Data is presented at a regional level, however as noted in Figure 34, the vast majority of these operations were carried out in Belfast HSC Trust/RBHSC.

The most frequently performed paediatric inpatient operations were hernia repairs (12%) and renal surgery including nephrectomy. In 10 of 252 children who attended for elective inpatient surgery (4%), no procedure was performed.

Procedure	Total	
	Number	%
Hernia Repair	31	12%
Nephrectomy And Renal Surgery	23	9%
Gastro-Duodenal-jejunal Operations, unspecified	21	8%
Upper GI Endoscopy	17	7%
Colonic Operations, unspecified	16	6%
Operations On Rectum	15	6%
No procedure carried out	10	4%
Testicular Operations	9	4%
Acute Appendicitis – Excisions	9	4%
Urology - Other	8	3%

Table 11 Primary procedures carried out during paediatric elective inpatient attendances, all trusts, 2020/21

Table 12 shows the most common elective Day Case procedures in children aged under 16 years, 2019/20 and across all trusts. The most frequently performed operations were testicular operations (20%), hernia repairs (16%), circumcision and prepuce operations (13%) and other urogenital operations (10%). The most frequently performed operations were similar across 2017/18 – 2021/22. In 92 of 1202 children who attended for elective day case surgery (4%), no procedure was performed.

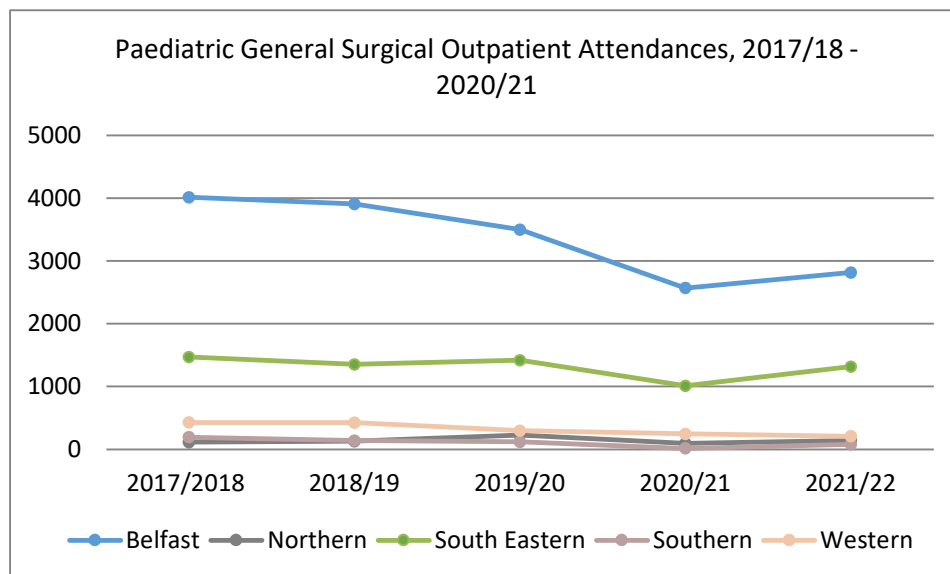
Procedure	Total	
	Number	%
Testicular Operations	244	20%
Hernia Repair	198	16%
Circumcision And Prepuce Operations	154	13%
Urogenital Operations - Other	122	10%
No procedure carried out	92	8%
Upper GI Endoscopy	46	4%
Skin Operations And Procedures - Other	39	3%
Ureteric Calculus - Ureteroscopic/Endoscopic Treatment	29	2%
Operations On Rectum	21	2%
Urology - Other	19	2%

Table 12 Most frequently performed operations, all children aged under 16 years, all trusts, 2019/20

8.4 Paediatric outpatient activity

Figure 35 shows the number of paediatric attendances at new outpatient appointments, 2017/18 – 2020/21. In total, there were 6266 new outpatient attendances in 2017/18, 5959 in 2018/19, 5564 in 2019/20 and 3940 in 2020/21. As shown in the figure below, the majority of new outpatient attendances were seen in the Belfast and South Eastern HSC Trusts – 88% in 2017/18 and 2018/19.

Figure 35 Number of new paediatric attendances at consultant-led outpatient clinics, by trust of activity, 2017/18 - 2020/21

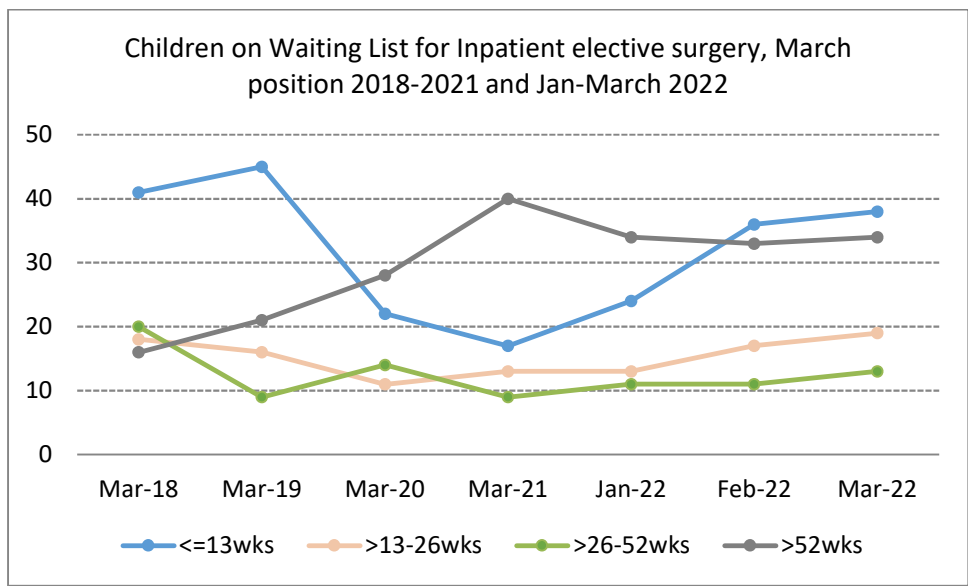


As with adults, paediatric outpatient activity declined during the pandemic by 36% from 2017 to 2021. Virtual activity accounted for 48% of outpatient encounters in 2020/2021.

Paediatric IPDC waiting lists

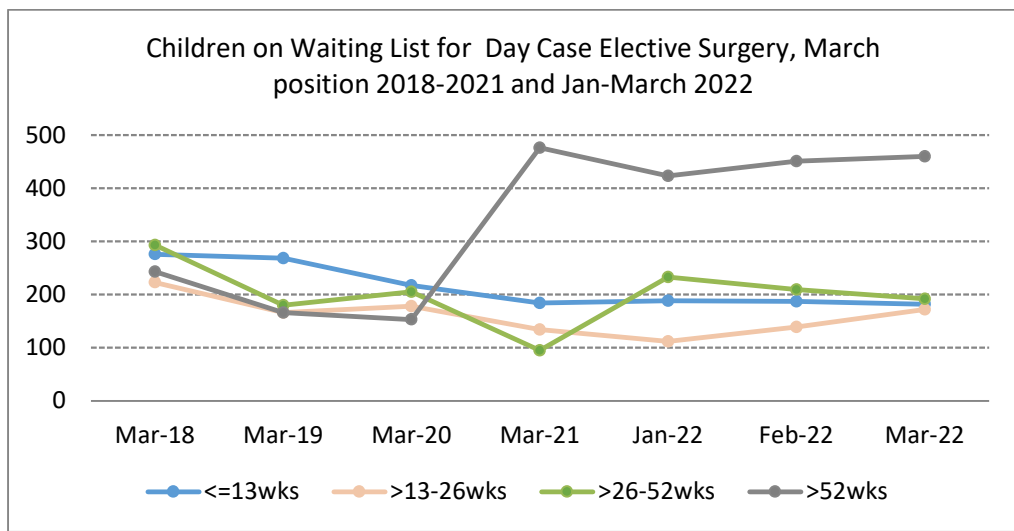
Figure 36 shows the number of children on the waiting list for inpatient surgery. It should be noted that the overall numbers of children awaiting inpatient surgery are small and as such there is some fluctuation in the relative proportion of children waiting for different time periods. Nonetheless the number of children waiting less than 13 weeks for inpatient surgery declined sharply in March 2020 and 2021, however this has since improved. The number waiting for more than 52 weeks increased from March 2020 to 2021. There has been some improvement in this figure in the initial months of 2022.

Figure 36 Number of children awaiting inpatient elective surgery, by duration of time on waiting list at end of March 2018-2021 and monthly position January – March 2022



Of the approximately 1000 children on an elective waiting list in March 2022, 90% of these children are on a day case waiting list. Figure 37 demonstrates the waiting times for paediatric day case procedures up to March 2022. The number of children waiting >52 weeks for a day case surgery procedure had been reducing from March 2018 but has increased sharply during the pandemic and remains more than twice that observed pre-pandemic.

Figure 37 Number of children awaiting day case elective surgery, by duration of time on waiting list at end of March 2018-2021 and monthly position January – March 2022

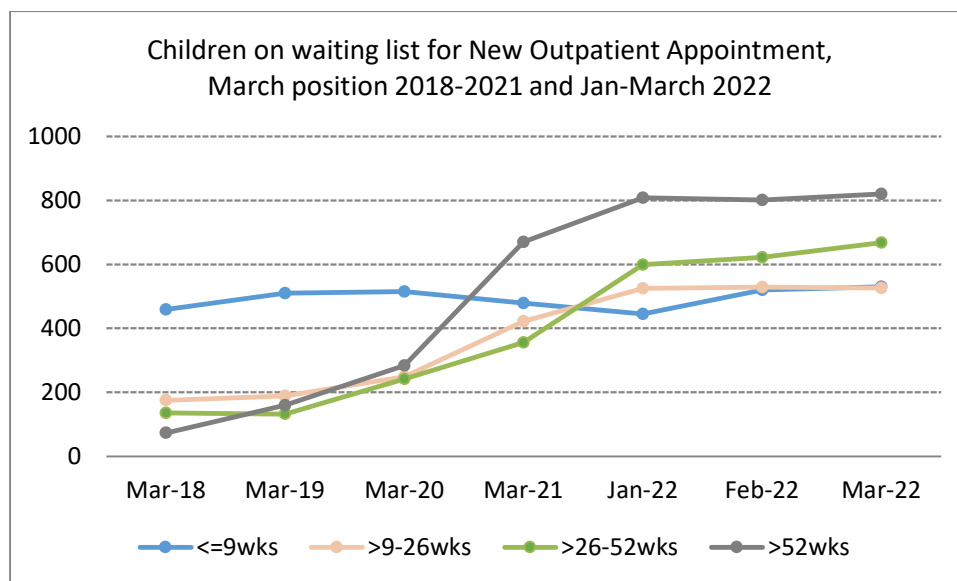


Paediatric outpatient waiting lists

Figure 38 shows the number of children on the waiting list for a new consultant-led outpatient appointment. As of March 2022 there were approximately 2500 children awaiting a new outpatient appointment, with over 800 waiting >52 weeks. In contrast only 71 children were waiting more than

52 weeks for an outpatient appointment in 2018. There have also been significant increases in waits beyond 9 weeks since March 2020.

Figure 38 Number of children awaiting day case elective surgery, by duration of time on waiting list at end of March 2018-2021 and monthly position January – March 2022



9 Demand Capacity Gap

Estimates for the gap between demand and capacity have traditionally been made based on observed outpatient activity, conversion rates of new outpatient appointments to need for a surgical procedure and observed inpatient and day case activity. Analysis of outpatient, inpatient and day case general surgery activity* 2019/20 demonstrates an estimated gap of 1135 outpatient appointments, 1887 inpatient 'cases' and 5815 day case 'cases' at the start of quarter one 2020/21, Table 13.

Position Quarter 1 2020/21	Demand	Capacity	Gap
New outpatient	72407	71272	-1135
Inpatient	12885	10998	-1887
Day case	19698	13883	-5815

Table 13 Demand and capacity gap – general surgery, new consultant led outpatient appointments and elective inpatient and day case activity, Quarter 1 2019/20. *Includes breast and vascular surgery

However, the COVID-19 pandemic has been associated with significant disruption to both outpatient and elective surgical activity, including reductions in capacity due to reallocation of infrastructure (beds, theatre capacity) to support COVID-19. In addition to widening the gap between demand and capacity, the changes to usual service delivery have complicated quantification of this gap, particularly given the ongoing and dynamic changes to service delivery. Additional analysis is required to understand the impact of the pandemic on capacity and what this means in terms of the numbers of individuals on the waiting list and infrastructure (theatre lists) and workforce required to address this.

10 How work-streams are utilizing the data

Emergency care – As there may be a reconfiguration of services across the HSC as a result of the Emergency Surgery Standards, the database was able to provide insight into inter and intra-trust activity that could help inform the emergency capacity needed on a particular site. It also highlights a significant proportion of patients not requiring surgical intervention and bolsters the need for other means of patient assessment and management that may avoid inpatient admission altogether.

Workforce – have used number of emergency procedures per year such as appendicectomy, colectomy and abscess drainage as an indication of theatre workload to inform the workforce and theatre capacity needed to sustain services

Paediatrics - waiting list data has been used to determine the number of day case operating lists needed as part of a hub and spoke model to meet the current demand and tackle the waiting list within the next year.

Quality and Performance – The Quality and Performance workstream have identified indicators within the dataset which will be used to monitor dimensions of access and service delivery going forward. PSMI have agreed to maintain the dataset to support this aspect of Quality and Performance monitoring.

11 Key Findings

Emergency general surgery

Adult emergency general surgical services continued during the COVID-19 pandemic, albeit with some reconfiguration of services to support infection control. Despite the acute nature of emergency presentations there was a notable decrease in emergency admissions in 2020/21 during which 13,130 adults were admitted under emergency general surgery, a 24% decrease from the previous year.

The activity data highlights that there is considerable movement of adult emergency general surgical patients into the Belfast HSC Trust and into the South Eastern HSC Trust from patients usually resident in other areas. For example, in 2018/19 16% of adult emergency general surgery patients seen in the Belfast HSC Trust were residents of the Northern HSC Trust area while 25% were residents of the South Eastern HSC Trust area. In contrast there was less movement of emergency general surgical patients into the Northern, Southern and Western HSC Trusts, i.e. most emergency surgical patients in those HSC Trusts are resident in host trust area – approximately 95% for Northern, 90% Southern and 93% Western.

KEY FINDING / RECOMMENDATION – Any consideration of alternative models of delivery of emergency general surgery, including reconfiguration of services at regional or local (trust) level, should utilise the activity data presented including case numbers, surgical procedures and associated bed days to model and understand the impact of proposed changes on other hospital sites and trusts.

A substantial proportion of adults admitted under emergency general surgery do not have a surgical procedure carried out during their admission. In 2017/18 – 2019/20 this equated to approximately 42% / 9,000 admissions. Clearly these admissions have an impact on bed availability which is likely to affect not only emergency admissions and acute patient flow, but may also impact on elective care if beds intended for use by elective patients are required for acute admissions.

KEY FINDING / RECOMMENDATION – RSC standards for emergency general surgery highlight several models of care which deliver quality and efficiency, including reduction in unnecessary admissions, e.g. hot clinics, ‘clinician at the front door’, the presence of an acute biliary service and acute abscess and appendix services. These care models should be considered within the emergency general surgery workstream when identifying the optimal delivery of services across NI.

Elective adult

The COVID-19 pandemic has had a marked impact on the delivery of elective adult general surgical care in recent years. In the Northern and Western HSC Trusts elective activity decreased by approximately two thirds between 2018/19 and 2020/21 and substantial decreases in elective activity were also seen in the Southern (60%), Belfast (50%) and South Eastern (43%) HSC Trusts.

There is variation in the day case to inpatient ratio across Northern Ireland with higher proportion of patients managed as inpatients in the Belfast and Western HSC Trusts compared to the Northern, Southern and South Eastern HSC Trusts.

KEY FINDING / RECOMMENDATION – Day case to inpatient ratios vary across Northern Ireland with Belfast HSC Trust and Western HSC Trust having the highest proportion of elective cases managed as inpatients. Factors contributing to high rates of admission, including availability of day case theatres, workforce and case mix should be considered when planning future elective care models.

There is considerable movement across of individuals for elective general surgical care. As with emergency adult general surgery, there data demonstrates movement of patients into the Belfast and South Eastern HSC Trusts from other trust areas and relatively little movement of patients from other trust areas into the Northern, Southern and Western HSC Trusts. For example, approximately 45% of patients admitted to the Belfast HSC Trust 2017/18 – 2021/22 for elective general surgery were residents of the Belfast HSC Trust while 22% were residents of the Northern HSC Trust, 19% South Eastern Trust, 8% Southern and 5% Western. Similarly, around 68% of patients admitted to the South Eastern HSC Trust for elective general surgery in the same time period were residents of the South Eastern HSC Trust while approximately 23% were from Belfast HSC Trust, 5% were from Northern HSC Trust and 3% were from Southern HSC Trust. In contrast there was little movement of patients resident in other trust areas into the Northern, Southern and Western HSC Trusts for elective adult general surgery. Approximately 97% of elective adult general surgical patients in the Northern HSC Trust 2017/18 -2021/22 resided in the Northern HSC Trust area. Comparable figures for the Southern and Western HSC Trusts were 93% and 92% respectively. A similar pattern was seen for day case elective general surgery and for outpatient appointments.

KEY FINDING / RECOMMENDATION – As with emergency general surgery, any proposed changes to the delivery of elective general surgery, including reconfiguration of services at regional or local (trust) level, should utilise the activity data presented to model and understand the impact of proposed changes on other hospital sites and trusts.

Outpatients

As with inpatient and day case elective care, there is considerable movement of individuals for outpatient consultant-led appointments into the South Eastern and Belfast HSC Trusts. In contrast there is limited movement of patients into the Northern, Southern and Western HSC Trusts for outpatient appointments.

New consultant led outpatient appointments decreased associated with the COVID-19 pandemic. While there has been an increase in outpatient activity during 2021/22, this remains lower than pre-pandemic levels. In 2017/2018 virtual reviews accounted for 1% of activity, this rose to 48% in 2020/2021.

Waiting lists

Prior to the COVID-19 pandemic there were signs that demand was well matched to capacity as evidenced by increasing proportions of patients waiting for longer durations of time before surgery and outpatient review. However, the impact of the COVID-19 pandemic on delivery of elective surgical care, including outpatient appointments, is stark with large increases in the proportion of patients waiting more than 52 weeks for surgery or outpatient review. As of March 2022 there were approximately 5,500 patients awaiting inpatient elective surgery, 66% waiting more than 52 weeks, 19,700 patients awaiting day case elective surgery, 57% waiting more than 52 weeks and 24,000 patients awaiting a new consultant-led outpatient appointment, 49% waiting more than 52 weeks.

With regards to waits for inpatient and day case surgery, there is much overlap in procedures waiting with gallbladder operations and hernia repairs being the most frequently awaited procedures for both inpatient and day case surgery.

KEY FINDING / RECOMMENDATION – Given the significant challenges in carrying out elective surgical activity during the COVID-19 pandemic, waiting list validation is recommended to ensure accuracy of the data pertaining to waits. At a minimum this should involve a technical validation to ensure removal of any individuals no longer requiring operation, e.g. if procedure carried out during emergency admission.

KEY FINDING / RECOMMENDATION –BADS targets regarding the proportion of specific procedures which should be carried out as day cases should be used to compare day case rates for specific procedures at a local and regional level.

KEY FINDING / RECOMMENDATION – The data presented on demand and capacity should be used to understand the number of additional theatre lists required. This should be considered in parallel with recommendations from the workforce subgroup of the review.

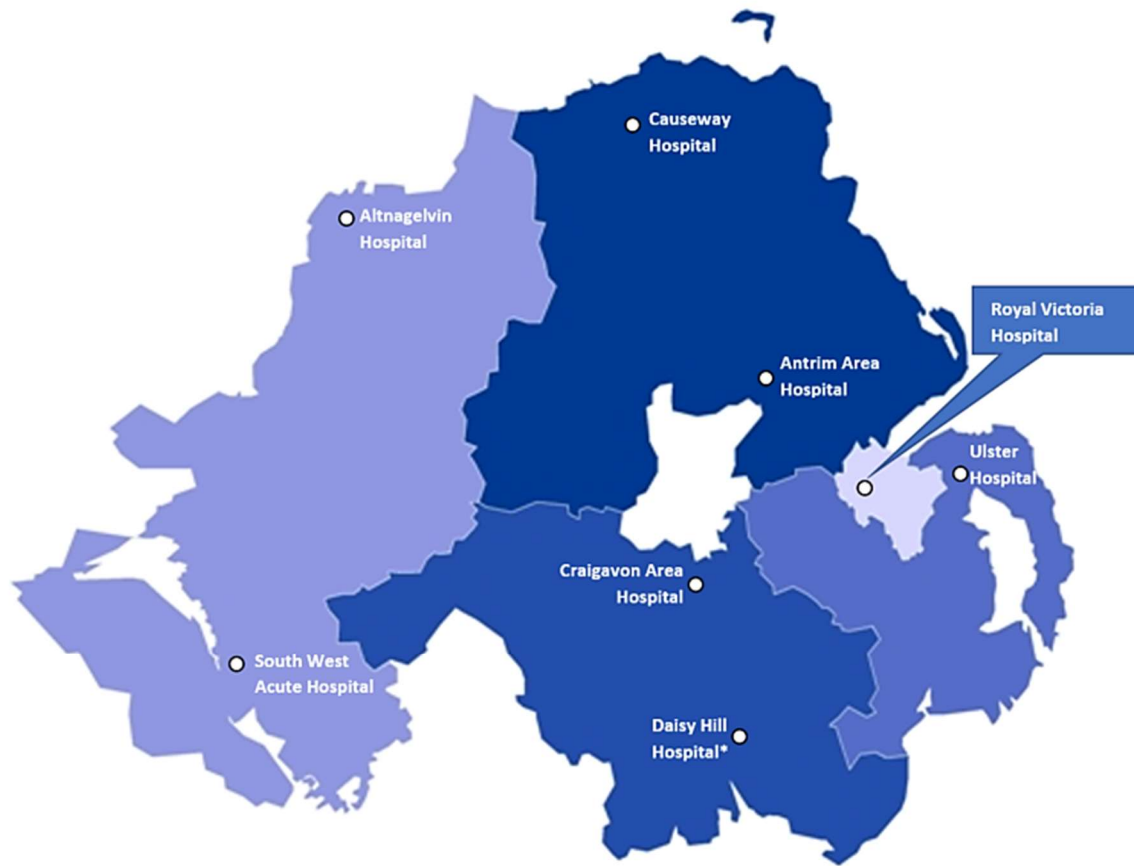
KEY FINDING / RECOMMENDATION – While efforts must be made to reduce the number of people experiencing long waits prior to treatment, the opportunity that this time presents should also be recognised. There are opportunities to build prevention into pathways. For example, Getting It Right First Time (GIRFT) highlights the evidence that smoking cessation is associated with reduced septic complications from colorectal surgery and the importance optimising pre-morbid conditions (e.g. Diabetes) prior to hernia surgery. Appropriate referral to preventative healthcare, e.g. smoking cessation, should be built into care pathways to support reduction in risk factors and improved surgical outcomes.

Paediatrics

As with adult general surgery, the COVID-19 pandemic has had a significant impact on the delivery of paediatric surgery, in particular elective care. There have been substantial increases in the number

of children waiting for longer for elective surgery, particularly day case, and for new outpatient appointments. Detailed analysis of the paediatric waiting lists are presented in the paediatric workstream paper.

Appendix A: Map of hospitals admitting adult emergency general surgery admissions ([adapted from](#) data source: NISRA)



*as of March 2022 emergency admissions to Daisy Hill are temporarily suspended.

Appendix B: Hospital sites and services provided for Adult General Surgery as of March 2022

Trust	Site	Emergency admissions			Inpatient surgery	Day Case Procedures (Including endoscopy)	Surgical Outpatients
Belfast	RVH	X				X	
	BCH			X		X	X
	MIH			X		X	X
Northern	AAH	X		X		X	X
	CAU	X		X		X	X
	WAH					X	X
	MUH					X	X
South Eastern	UHD	X		X		X	X
	LVH					X	X
	Downe					X	X
	ARDS						X
Southern	CAH	X		X		X	X
	DHH			X		X	X
	STH					X	X
	Banbridge						X
Western	ALT	X		X		X	X
	SWAH	X		X		X	X
	Omagh					X	X

Appendix C: Hospital sites and services provided for Paediatric general surgery

Trust	Site	Emergency admissions			Inpatient surgery	Day Case Procedures	Paediatric Surgical Outpatients
		0-5y/o	5-14y/o	14-16y/o			
Belfast	RVH			X			X*
	RBHSC	X	X	X	X	X	X
Northern	AAH		X	X			
	CAU		X	X		X	X
South Eastern	UHD			X		X	X
Southern	CAH		X	X			
	DHH						X
Western	ALT		X	X		X	X
	SWAH		X	X		X ⁺	

*14-16 year olds

⁺from May 2022