Queen Elizabeth National Spinal Injuries Unit

Annual Report
2020-21

NHS Greater Glasgow and Clyde

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Impact of COVID-19 on National Spinal Injuries Unit
Reporting period April 2020 – March 2021

Our deepest sympathy goes to staff members who lost loved ones during the pandemic.

At the onset we informed the Government's Shielding Programme of all vulnerable patients who might benefit from shielding and we believe that mortality figures are low for our population. Thanks are due to all members of staff both clinical and in management who enabled us to continue to deliver high quality service with no impact on acute admission.

Senior staff in the Unit took steps to reduce transmission, patient and staff exposure one week before the national lockdown in March 2020. Patient who were self caring or nearing completion of their planned treatment were given the option of leaving early in case of institutional outbreaks and many left. Twenty beds were created for possible COVID-19 patients to help the main hospital. Fortunately these were not needed. The Unit loaned most of ventilation and other Intensive Care equipment with drugs to the main hospital. There was a global shortage of anaesthetic drugs. The Unit retained one ventilator with one week's supply of ITU medication and devices. Fortunately the Unit did not receive any high tetraplegic patients requiring ventilation in the first six months of the pandemic. This was extremely unusual and a reflection of the generally reduced activity of the general population.

There were three COVID-19 positive patients in the reported period. Two were almost certainly infected out with the Unit and one in-patient was positive with mild symptoms. Index case was not traced. There were no serious COVID-19 cases or fatalities in the Unit. The first patient discharged from QENSIU to a nursing home in the first wave was in May 2020, at this time a protocol for discharge was followed which involved negative testing and a period of isolation prior to discharge.

Ward Management

Immediate arrangements were made to distance staff both in patients and social areas. There were reduced numbers on ward rounds and reduced BAME staff contact with high risk patients and procedures. One Consultant was allocated daily to do the bulk of the clinical work and reduced potential exposure.

Visiting was cancelled in line with NHS policy. Endowment funds were used to provide more iPads and other communication devices for patients. Endowment funds were also used to provide weekly restaurant deliveries for evening meals. Special thanks are due to restaurant Cail Bruich who kindly provided a Michelin-starred Christmas lunch for patients at cost price.

Out-patient clinics

There was immediate switch to mainly telephone consultations. The NHS NearMe (Video conferencing system) was too complex to set up immediately as eHealth infrastructure did not fully support this. We continued face to face clinics for essential visits, halo adjustments, baclofen pump refill, examinations etc. Most staff meetings were carried out through video conferencing via Microsoft (MS) Teams. All PC's were equipped with webcams and new laptops were provided throughout the unit for staff who required these.

Education and Governance

The first Trainee Educational Meetings took place in April 2020 with the new intake. Multidisciplinary Meetings restarted in April 2020 with appropriate distancing. Audit and Clinical Governance Meetings started in May 2020 via MS Teams.

In July 2020 a fully ventilator dependent patient was discharged to his home with a 24 hour care package. Training of the patients 12 WTE care team took place in the Unit over the previous 3 months

Time to admission

There was no delay in admitting new cases. To relieve pressure on other units the Unit admitted some intact spinal trauma patients.

Executive Summary

Introduction

The Queen Elizabeth National Spinal Injuries Unit is sited on the campus of the Queen Elizabeth University Hospital and hosted by NHS Greater Glasgow and Clyde Health Board.

Aim and Date of Designation of Service

The Unit is responsible for the management of all patients in Scotland who have a traumatic injury to the spinal cord. Commissioned in 1992 it has continued to develop the management of the acute injury and life time care of all of its patients to maximise function and to prevent the complications of paralysis. Facilities include a combined Admission Ward and HDU (Edenhall) and a Rehabilitation Ward (Philipshill) with a Respiratory Care Unit. In addition there is a custom built Step-Down Unit for patients and relatives and Research Mezzanine (Glasgow University) which ensures that researchers are embedded in the Unit. Clinical services are provided at the Glasgow centre and outreach clinics throughout Scotland.

Description of Patient Pathways and Clinical Process

The Unit accepts referrals for patients who are injured or domiciled in Scotland and are referred with a non-progressive (usually traumatic) spinal cord injury. In addition it accepts some patients with complex fractures without neurological injury but who are at risk of paralysis. The number of these patients is gradually reducing in accordance with national policy but the Unit continues to receive patients whose injuries exceed the capacity of the treating health board and for whom no other pathway is available. Patients are primarily referred from Acute Trauma Services but referrals are also received from Accident and Emergency Medicine, General Medicine, Neurosurgical, Vascular and Cardiovascular units throughout Scotland.

The Unit admits most new patients within hours or days of injury. There is a High Dependency Unit for ill and ventilated patients and spinal surgery is performed in around one-third of cases. Patients with paralysis may remain in the Unit for several months and after emergency treatment and rehabilitation the Unit provides lifelong care, support and follow-up.

There are close links with national patient support groups and charities whose teams are embedded in the Unit.

The Unit is also a major clinical trials centre for investigations in both acute and long-term spinal injury.

The national pathway to admission, designed almost thirty years ago has proven to be robust and provides a safe model for delivery of care to spinal-injured patients in Scotland.

Discussion with colleagues internationally suggests that the Scottish figures would compare favourably against other international centres especially with regard to quick admission times and the model of lifelong care.

Key activity

During the reporting period, April 2020 to March 2021 the Unit admitted **103** new patients, and treated **434** day cases and **2,251** out-patients, including **421** patients in outreach clinics across the country. Surgeons performed **44** spinal operations.

Further details can be found on the website at www.spinalunit.scot.nhs.uk

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1. Service Delivery

Target Group

Traumatic spinal cord injury is relatively uncommon but can result in a devastating disability. It requires highly specialised multidisciplinary care to maximise the chances of recovery and reduce complications. Life expectancy outside specialised units is limited but should approach normal with appropriate immediate care and life long follow up.

Care Pathway for Service or Programme

The Unit is commissioned to care for all cases of non-progressive spinal cord injury in Scotland. The majority of these are traumatic injuries. Immediate care, comprehensive rehabilitation and life-long care is provided at the centre in Glasgow and followed by visits at outreach clinics throughout the country. If appropriate an integrated service is provided with local medical, nursing and AHP services. Close cooperation is sought with social services and voluntary groups to ensure that the difficult transition to secondary care either at home or a care establishment is achieved.

Table 1
Out-patient Clinic Location and Frequency

FREQUENCY	LOCATION
DAILY	GLASGOW: DROP IN CLINIC
WEEKLY	GLASGOW: NEW, RETURNS, HALO, URODYNAMICS, SPASM, PUMP, GENERAL SPINAL REVIEW, ATTEND ANYWHERE
BI WEEKLY	GLASGOW: AHP – ORTHOTIST, ACCUPUNCTURE
BI MONTHLY	GLASGOW: FERTILITY, SEXUALITY, RESPIRATORY, SKIN
MONTHLY	EDINBURGH (OUTREACH), GLASGOW NEUROPROSTHETICS, NEUROSURGERY
THREE MONTHLY	ABERDEEN, INVERNESS (OUTREACH)
SIX MONTHLY	DUMFRIES, BORDERS, ARBROATH (OUTREACH)
ANNUALLY	HUNTLY (OUTREACH)

The location and frequency of out-patient clinics and outreach services are based on the demographic data held on the National Database and ensure convenient local access for patients across Scotland. Medical, nursing and AHP staff attend the clinics accompanied by partner organisations for peer group support.

2. Activity Levels

QENSIU admits acutely injured spinal patients as soon as their condition allows. There is no waiting list for admission. In 2020-21 26% of patients were admitted within one day of injury, 45% within two days, and 63% within one week. 53% of patients with traumatic injuries were admitted within two days of injury. The time to admission from injury is difficult to decrease further because some polytrauma patients will always require several days for resuscitation and treatment of life and limb-threatening injuries before they are fit for transfer.

By comparison the mean admission times to most other UK spinal units are two to three months. Patients paralysed by infarch or infection increase the mean time to admission because these patients usually have a much more complicated pathway to diagnosis than the trauma group.

All 95 patients referred with a neurological injury were admitted as soon as clinically stable. Numbers of paralysed patients are stable and the national figure remains at around 100-120/year, a crude incidence rate of 2.3/100,000.

Figure 1
New Admissions: total and neurologically injured
There was considerable reduction in admission numbers due to global reduction in activity.

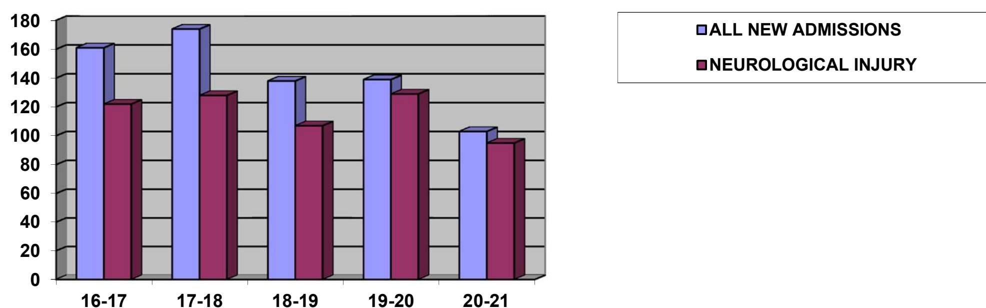


Table 2
New Admissions: total and neurologically injured

	16/17	17/18	18/19	19/20	20/21	92-21
ALL NEW ADMISSIONS	161	174	138	139	**103**	**4,520**
Neurological	122	128	107	129	**95**	**2,546**
Non-neurological	39	46	31	10	**8**	**1,879**

Numbers of neurologically intact patients have further reduced. This is in keeping with national and health board policy to treat such patients locally whenever possible. There is likely to be a long-term small number of patients without cord injury because of uncertainty of paralysis at time of referral. There are also a small number of patients with complex fractures but no neurology whose injuries exceed the capacity of the local hospital.

Two hundred patients were referred but not admitted as they fell outside the scope of the service and were not identified as being at a risk of neurological injury. They were managed in the referral hospital with appropriate advice and support from consultant medical staff.

Some patients were seen by consultant staff in the neurosurgical and orthopaedic wards of the Queen Elizabeth University Hospital (QEUH) and other hospitals. The QEUH attracts increasing numbers of major trauma from a very wide area and this has led to demands of consultants' time to see patients who would have previously merited telephone advice only.

New Admissions: Case Mix Complexity

The severity of a Spinal Cord Injury is dependent on the anatomical level of and the extent of neurological damage. This has considerable bearing on the type and extent of rehabilitation each patient requires. This case mix complexity has been classified as follows.

	Anatomy	Neurology
GROUP I	Cervical Injury 1 - 4	High Tetraplegia
GROUP II	Cervical Injury 5 - 8	Low Tetraplegia
GROUP III	Thoracic, Lumbar and Sacral Injury	Paraplegia
GROUP IV	All levels of Injury with	Incomplete or no Paralysis

Group I Patients with the most severe neurological injuries. They are the most dependent. The numbers are expected to vary considerably each year.

Group II and **Group III** Patients with a significant neurological loss and high dependency. They require the longest period of rehabilitation.

Group IV Patients with partial or no paralysis. Many have sustained major polytrauma with residual weakness and require significant input during their rehabilitation.

Figure 2
New Admissions by Case-Mix Complexity: five year

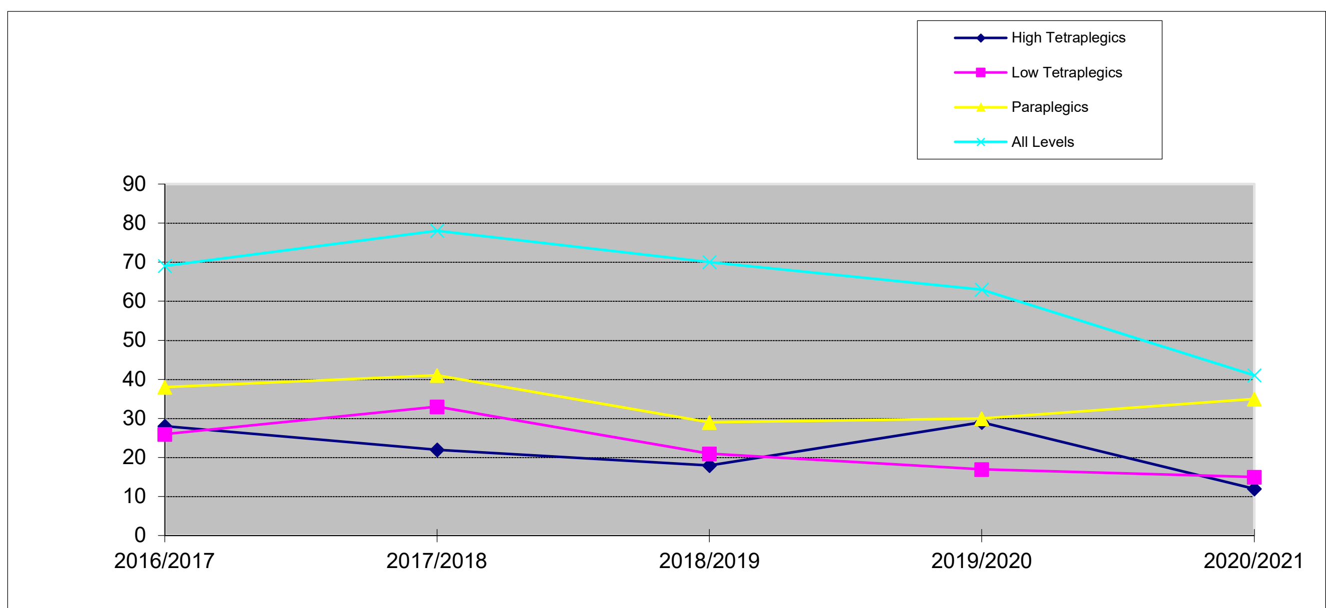


Table 3
New Admissions by case-mix complexity 2015-2021

GROUP	16/17	17/18	18/19	19/20	20/21	92/21
1	28	22	18	29	12	432
II	26	33	21	17	15	719
III	38	41	29	30	35	994
IV	69	78	70	63	41	2,375
Total	161	174	138	139	103	4,520

Figure 3
Historical trends in case-mix complexity

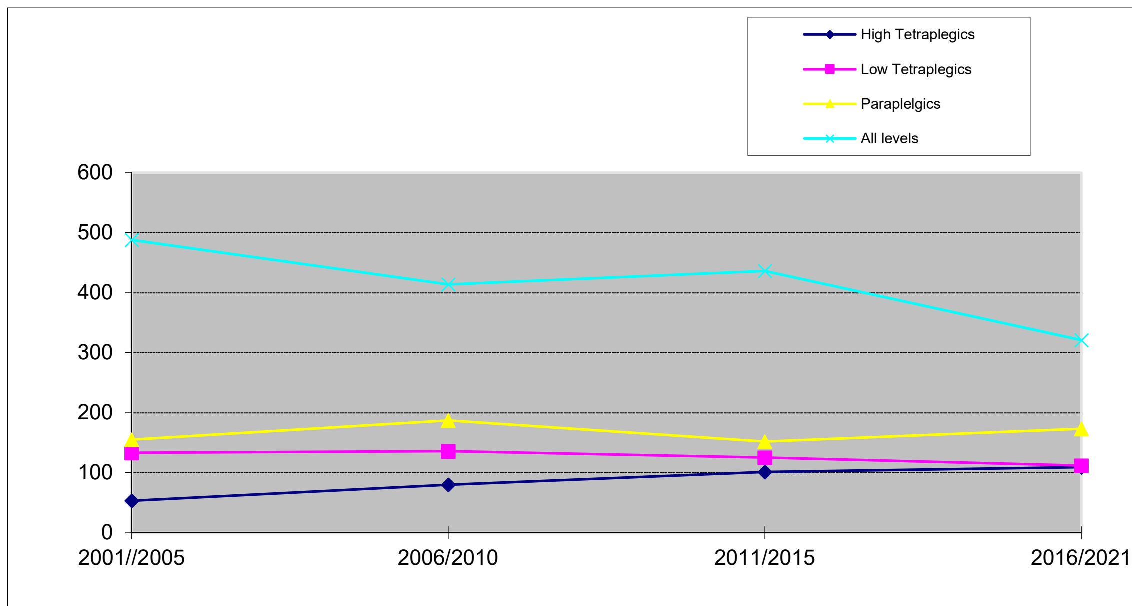
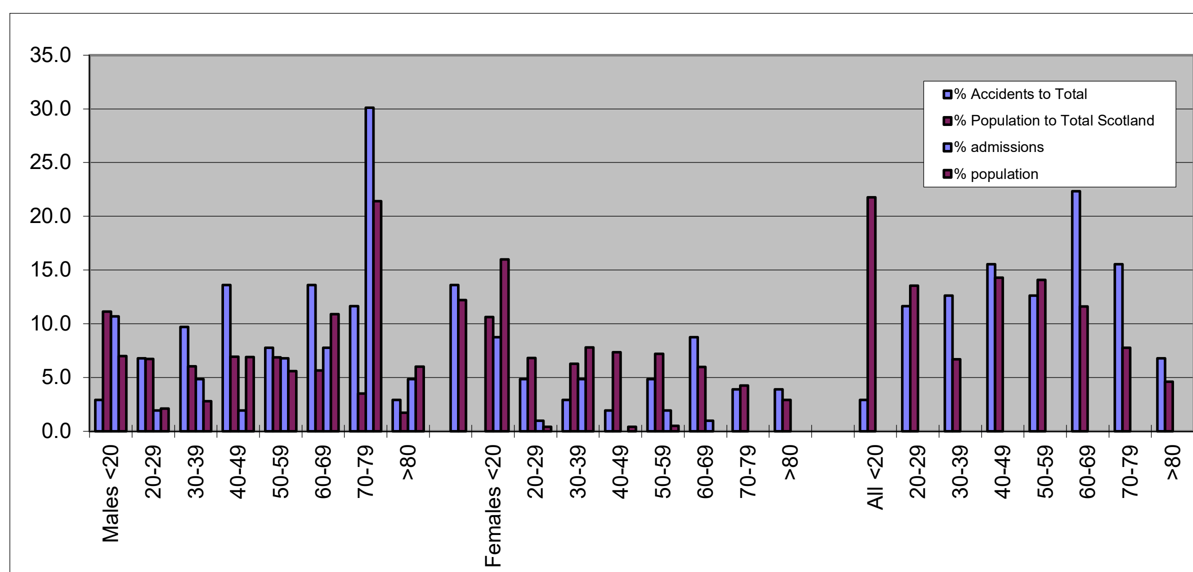


Figure 3 includes all admissions since 2000 and shows a steady rise in high tetraplegic patients and reduction in numbers of lesser injured patients (Group D and intact). The high tetraplegic patients are the most demanding of acute care and rehabilitation.

Figure 4
New Admissions by Age Group



There is a sustained rise in middle-aged and older patients who are far frailer and find it much more challenging participate in therapy. The number of injuries in those under twenty remains low.

Referrals by Age

The reduced admissions numbers make it impossible to draw conclusions in historic trends in age patterns. Overall the admission age profile is little changed from the last few years with the peak age cohort now well established as the 60-69 year old patients. This older group have a large amount of co-morbidity which affects their capacity for rehabilitation. They make large demands on general medical care far beyond the original medical capacity envisaged when the Unit was created.

Details of Referral and Admission by Region

The service is commissioned to take admit all patients with cord injury or complex fractures at risk of cord damage but there continue to be a large number of referrals for patients out with this group who do not require admission. The referral itself is not a neutral process and inappropriate referrals can lead to delays in management locally.

The total number of referrals fell to 303 due to the pandemic. The national referral/admission ratio (RAR) remains stable at to 34% (33% in 19/20) meaning that one-third of referred patients are admitted. (The RAR in the early 2000's was around 70%). Numbers of referrals for elderly patients with cervical fractures without paralysis continue to remain low due to changes in national and local management policies. These lie out with the remit of the National Service and are managed locally.

Table 4

Referring Board	Total Referrals	Admissions	Not Admitted	% Admitted	Complex Advice Given
Greater Glasgow and Clyde	139	31	108	22	15
Lanarkshire	26	14	12	54	1
Ayrshire and Arran	30	11	19	37	2
Dumfries and Galloway	30	5	25	17	5
Borders	2	2	0	100	0
Highland	10	5	6	50	2
Grampian	11	8	3	73	1
Forth Valley	11	7	4	64	1
Tayside	14	5	9	36	0
Fife	4	2	2	50	1
Lothian	17	9	7	53	3
Shetland	1	1	0	100	0
Western Isles	7	2	5	29	0
ECR	1	1	0	100	0
Overseas	0	0	0	0	0
Total	**303**	**103**	**200**	**34**	**31**

The number of patients not admitted but requiring complex advice has decreased to 31. In these cases the referring team will have contacted the Spinal Unit several times for advice. In occasional cases of complex but neurologically intact patients it remains appropriate for consultants to assist the local team but it is not possible or sensible for the National Spinal Injuries Unit staff to micromanage referrals which ordinarily should be under the care of the local orthopaedic or medical team. There remains an expectation amongst some referrers that the Unit has a responsibility for all spinal problems and such inappropriate referrals can lead to delays in management.

Table 5
Health Board Referrals and Referring Speciality: Non Admissions
Non Admitted referrals

Referring Board	Level of Injury		Referring Specialty				Total
	Cervical	Thor/Lum	Ortho	Neuro	A&E	Other	
Greater Glasgow and Clyde	35	73	46	6	13	43	108
Lanarkshire	6	6	5	1	1	5	12
Ayrshire and Arran	10	9	11	0	5	3	19
Dumfries and Galloway	11	14	17	0	4	4	25
Borders	0	0	0	0	0	0	0
Highland	0	6	3	0	1	2	6
Grampian	2	1	1	1	0	1	3
Forth Valley	3	1	3	1	0	0	4
Tayside	3	6	5	3	0	1	9
Fife	1	1	2	0	0	0	2
Lothian	3	4	1	4	0	2	7
Shetland	0	0	0	0	0	0	0
Western Isles	4	1	4	0	0	1	5
ECR	0	0	0	0	0	0	0
Overseas	0	0	0	0	0	0	0
Total	78	122	98	16	24	62	200

There is a historic over-referral pattern from some Health Boards but this has improved particularly in Lanarkshire. Numbers referred from GGC remain inappropriately high (only 22% of referrals admitted) which may suggest inadequate support or training for the orthopaedic services. This lies out with the remit of the National Service. Orthopaedics (49%) remains the principle user of the service. Accident and Emergency (12%) Neurosurgery (8%) provide smaller numbers and “Others” (31%) include Medicine, Neurology, Care of the Elderly etc. Referrals for non-traumatic and progressive conditions are redirected appropriately.

Table 6
Admissions by Anatomical Level and Severity

Level	Complete	Incomplete	No Neurology	Total
C 1				
2	1	5	4	10
3	2	6	0	8
4	1	5	0	6
5	4	14	2	20
6	1	10	0	11
7	0	3	0	3
8				
Sub-total	9	43	6	58
T 1	1	0	0	1
2	1	0	0	1
3	0	0	0	0
4	3	1	0	4
5	0	1	0	1
6	3	7	0	10
7	0	0	0	0
8	1	1	0	2
9	0	1	0	1
10	0	0	1	1
11	1	1	0	2
12	2	6	0	8
Sub-total	12	18	1	31
L 1	3	2	0	5
2	0	1	1	2
3	0	3	0	3
4	0	1	0	1
5	0	0	0	0
Sub-total	3	7	1	11
S1-5	1	2	0	3
Sub-total	1	2	0	3
TOTAL	25	70	8	103

(Multi-level injuries were counted from the highest level)

Cervical (neck) injuries continue to predominate. This is now an established pattern and a change from the early days of the Unit when the split was 50:50 cervical:thoracolumbar. The overall preponderance of tetraplegic patients continues to put increasing demands on nursing and therapy time.

Table 7
Mechanism of Injury

	2016/ 2017	2017/ 2018	2018/ 2019	2019/ 2020	2020/ 2021
Fall*	**89**	**89**	**85**	**68**	**55**
RTA	**33**	**40**	**18**	**30**	**20**
Motor vehicle	17	21	4	13	8
Motorcyclist	9	7	8	6	3
Bicyclist	6	9	5	9	7
Pedestrian	1	3	1	2	2
Medical	23	29	17	27	**20**
Industrial Injury	7	5	4	2	**1**
Assault	0	0	2	0	**0**
Penetrating Injuries	0	1	1	1	**2**
Sporting Injury	4	5	5	5	**4**
Domestic Injury	0	0	0	0	**0**
Self Harm	2	3	6	5	**0**
Other	3	2	0	1	**1**
Total	**161**	**174**	**138**	**139**	**103**

** includes diving injuries*

Falls remain the most common cause of injuries. There was a reduction in road traffic injuries perhaps reflecting reduced population activity through lockdown. Medical causes have reduced, probably within normal variation. There was one death in the Unit of an elderly patient with significant co-morbidity. Paralysis in this group may sometimes not be survivable but whenever clinically realistic, the Unit will accept such patients for assessment and treatment.

Table 8A
Out-patient Activity

	16/17	17/18	18/19	19/20	20/21
Return	1943	1704	1743	1914	**2210**
New	91	50	54	70	**41**

There was an unexpected increase in out-patient activity, probably due to the increased convenience of telephone consultations. Out-patient activity of the Unit is focused on the post discharge management of acute injuries and lifelong follow up. Dedicated clinics in Spinal Medicine and Neurosurgery supplement the nurse led Annual Review Clinics for those patients with a neurological deficit. Increasingly efficient clinical management limits annual increases in return patients.

Table 8B
Out-patient DNA Activity

	16/17	17/18	18/19	19/20	20/21
Return	1,943	1,704	1,743	1,914	**2,230**
DNA Return	540	383	369	348	**207**
New	91	50	54	70	**21**
DNA New	24	14	11	7	**3**

The DNA rate improved, probably due to convenience of phone and video consultations and due to staff telephoning and texting patients before appointments.

Table 9
Out-patient Activity by Centre

	16/17	17/18	18/19	19/20	20/21	CHANGE YEAR	TOTAL 1992-2021
New QENSIU	91	50	54	70	**21**	**(70%)**	**3,490**
Return QENSIU	1565	1345	1362	1551	**1,809**	**17%**	**45,306**
Edinburgh	148	142	153	139	**145**	**4%**	**4,530**
Inverness	59	63	64	67	**74**	**10%**	**1,364**
Aberdeen	77	60	71	76	**100**	**32%**	**1,413**
Dumfries & Galloway	11	28	36	21	**24**	**14%**	**425**
Borders	42	22	13	21	**23**	**10%**	**408**
Arbroath	24	26	32	26	**35**	**35%**	**443**
Huntly	17	18	12	13	**20**	**54%**	**186**
Total	**2,034**	**1,754**	**1,797**	**1,984**	**2,251**	**13%**	**57,565**

Due the COVID-19 pandemic, staff were unable to attend outreach clinics at other hospitals but maintained virtual clinics. All patients were contacted and remained under review. The apparent large changes in patient numbers in the smaller outreach clinics is due to timing of bi-annual clinics which may not fall neatly within the reporting period.

Table 10
Attendance and Location Outreach Clinics

Location	% Attendance 19-20	% Attendance 20-21	Number of Clinics	Number of Patients
Aberdeen	92%	**99%**	**5**	**101**
Inverness	96%	**100%**	**4**	**74**
Dumfries	100%	**100%**	**2**	**24**
Arbroath	84%	**83%**	**3**	**42**
Borders	88%	**100%**	**2**	**23**
Huntly	93%	**100%**	**1**	**20**
Edinburgh	89%	**88%**	**11**	**164**
Ave Rate	96%	**94%**	**28**	**448**

Table 11
Out-patient Activity by Specialty at QENSIU

	16/17	17/18	18/19	19/20	20/21
Thoracolumbar*	5	0	0	0	0
Neurosurgery	204	171	214	219	215
Urology+	235	63	0	0	0
Skin Care	32	36	23	26	0
Pain / Spasm	9	7	25	53	108
Neuroprosthetics	48	26	26	21	11
Orthotics	N/A	N/A	N/A	226	142
Sexual Dysfunction	11	6	9	7	4
Respiratory	18	17	25	17	23
Fertility ^	4	5	0	3	0
Spinal Injury Annual Review	999	985	1,040	979	1,306
Total	1,565	1,316	1,362	1,551	1,809

+included for historical comparison after retiral of Urological Surgeon.
#Increase of outpatient activity is due to Orthotics clinics which were sourced externally in previous years however this is now an "in-house" service provided by GGC and recorded on Trak system.
^ All patients attending the fertility clinic had a procedure performed and are included in the day case activity table 12

The Spinal Injury Annual Review clinics remain the core component of the outpatient activity and numbers remain stable. These are nurse led with only 54% of patients requiring medical input. There is an open door policy for patients and inevitably some activity remains under-reported from drop-in/ad hoc review. Neuro-prosthetics includes assessment and surgery for upper limb problems principally in tetraplegic people.

Day Case Activity

Day case numbers are reduced due to the pandemic. These services offer important care for minor surgical procedures, medical interventions and nursing care. The level of Day Case activity is self-limited due to the finite population of spinal injured patients. It is suspected that Sexual Dysfunction attendance is under-recorded due to difficult nature of consultations which take place out with the standard clinic environment.

Day Case activity remains limited by geographical constraints and there is a natural trend towards seeing patients closer to Glasgow. Halo service attendance has further reduced because more patients who are neurologically intact are being seen appropriately by local services.

Table 12
Day Case Attendances by Reason

	16/17	17/18	18/19	19/20	20/21
Urology/Urodynamics	62	53	32	33	45
Halo Fixation	143	135	232	91	85
Skin	11	13	7	10	1
Orthopaedic/Neurosurgery	0	0	2	0	0
Acupuncture / Pain / Spasm	442	450	450	481	278
Sexual Dysfunction	3	6	10	5	4
Fertility	20	20	16	25	21
Other	4	4	8	0	0
Total	**685**	**681**	**757**	**645**	**434**

Table 13
Day Case Attendances by Health Board

Day Case Attendances by Health Board					
	16/17	17/18	18/19	19/20	20/21
Ayrshire and Arran	56	35	51	56	31
Borders	6	10	1	0	3
Dumfries and Galloway	11	1	1	10	1
Fife	20	21	13	9	8
Forth Valley	35	40	33	66	25
Grampian	8	1	6	2	5
Greater Glasgow and Clyde	335	359	432	298	214
Highland	22	15	11	19	25
Lanarkshire	125	136	173	131	81
Lothian	52	51	35	43	35
Shetland	0	0	0	0	0
Tayside	5	8	1	11	6
Orkney	5	1	0	0	0
Western Isles	0	1	0	0	0
ECR	5	1	0	0	0
Unknown	0	0	0	0	0
Total	**685**	**681**	**757**	**645**	**434**

Table 14
Supporting Surgical Services
Multi-disciplinary rehabilitation is the keystone of the workload in this patient population. Surgical support is required from orthopaedics, neurosurgery and plastic surgery. Approximately twenty per cent of the patients have additional limb injuries.

Service	Clinics	Patients	Acute Spinal Operations	Elective Operations
Thoracolumbar 2 x Month	0	0	Thoracolumbar fixations 14	0
Neurosurgery 4 x Month	39	232	Cervical fixations 17	1
Skin Care/Other/Pump	49	76	5	7

Numbers of surgical procedures are down due to difficulties with theatre availability during the pandemic. All referrals and new admissions are discussed at the weekly MDT meeting involving spinal, surgical and radiology consultants along with juniors. This ensures a consensus approach to management for the benefit of the patients and mutual support of consultant staff for difficult clinical decisions. Patient scans are reviewed at this weekly MDT, this Microsoft Teams meeting is led by a neuroradiologist. All spinal fixation surgery is performed by spinal neurosurgeons. Thanks are due to the surgical team for maintaining the thoracolumbar fixation service in the QEUH.

Table 15
Ventilated Bed Days

High-level spinal cord injury often requires temporary or permanent ventilator support. The Respiratory Care Team consists of a Consultant Respiratory Physician and a Respiratory Care Sister who work closely with the neuro-anaesthetic service providing in-patient care and a domiciliary ventilation service throughout Scotland.

		No. Patients	Ave. Ventilated Days	Total Ventilated Days
16/17	**Edenhall**	16	14	287
	RCU	2	121	242
17/18	**Edenhall**	15	26	395
	RCU	2	21	41
18/19	**Edenhall**	10	21	213
	RCU	3	2	6
19/20	**Edenhall**	15	25	376
	RCU	4	94	377
20/21	**Edenhall**	**12**	**22**	**258**
	RCU	**2**	**39**	**78**

Each patient is counted only once but may be responsible for multiple episodes of care or inter ward transfers if their condition varies. RCU continues to prove its worth in continuing to provide step-down ventilation within the rehabilitation ward and freeing up acute ventilator beds in Edenhall Ward. The need for long-term ventilation fortunately remains rare and numbers are expected to vary widely year to year.

3. Performance and Clinical Outcomes

3.1 Equitable

Geographical Access for nationwide services

New Admissions by ASIA Impairment Level & Health Board

The ASIA grading system is recognised internationally as a measure of dependency and can be used to classify improvements over time.

A	Complete: No motor or sensory function
B	Incomplete: Sensory but not motor function is preserved below the neurological level and includes S4-5
C	Incomplete: Motor function is preserved below the neurological level, and more than half of key muscles below the neurological level have a motor grade less than three
D	Incomplete: Motor function is preserved below the neurological level, and at least half of the key muscles below the neurological level have a grade more than three
E	Normal: Motor and sensory function is normal

Table 16

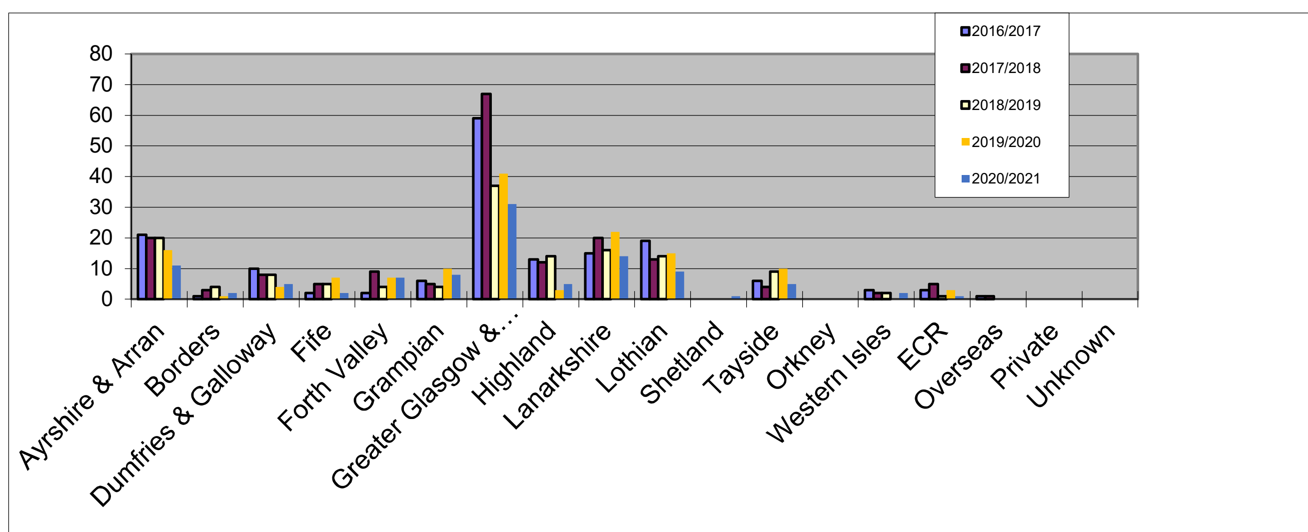
2020/21	A	B	C	D	E	Total
Ayrshire and Arran	3	0	2	4	2	11
Borders	0	0	0	2	0	2
Dumfries and Galloway	0	1	2	2	0	5
Fife	0	1	0	1	0	2
Forth Valley	3	1	3	0	0	7
Grampian	2	1	4	1	0	8
Greater Glasgow and Clyde	8	2	10	8	3	31
Highland	2	0	0	3	0	5
Lanarkshire	2	1	1	6	4	14
Lothian	3	0	3	3	0	9
Overseas	0	0	0	0	0	0
Shetland	1	0	0	0	0	1
Tayside	2	0	0	3	0	5
Orkney	0	0	0	0	0	0
Western Isles	1	0	0	0	0	1
ECR	1	0	0	1	0	2
Unknown	0	0	0	0	0	0
TOTAL	28	7	25	34	9	103

The Unit continues to admit patients from all areas of Scotland. The distribution of admission of paralysed patients and the annual variation since the Unit opened justifies the clinical and economic benefits of a national service.

As a national service it is important to provide outpatient and domiciliary services throughout Scotland.

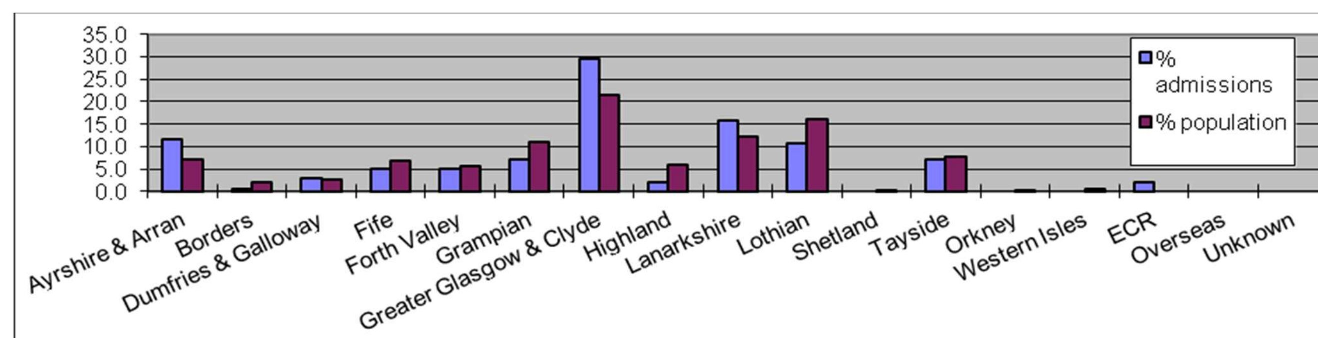
This resulted in the development of the Liaison Sister Service and outreach clinics in areas identified on our database as having a concentration of patients. All outreach clinics are Medical Consultant led with Nursing and Occupational Therapy staff attending as required. We are delighted to welcome volunteers from SIS who also see and advise patients and carers. There is a continued demand for nurse specialists to provide important inpatient and outpatient advice to local care teams as well as patients themselves. As well as two Liaison Sisters there is an Education Sister, Respiratory Sister, and two Discharge Planners. They all provide assistance to the Senior Nurse.

Figure 5
New Admissions by Health Board of Residence 2016-2021



There has been a further drop in admissions from GGC due to reduction in admissions of non-paralysed patients. One non-Scottish patient was admitted. (ECR & Overseas). A small number of such patients is to be expected. The Unit did not admit any private patients.

Figure 6
Admissions by Health Board compared with Population Size



The distribution of per-capita admissions within Health Boards is unchanged. Now that the numbers of neurologically intact patients have reduced it would appear that there is a genuine higher incidence of spinal cord injury in the West of Scotland Health Boards. Further research would be required to establish the reason.

Table 17
New Out-patient Activity by Health Board

	16/17	17/18	18/19	19/20	20/21
Ayrshire and Arran	7	6	5	7	**1**
Borders	0	0	0	0	**0**
Dumfries and Galloway	3	3	0	3	**0**
Fife	0	0	0	1	**0**
Forth Valley	3	1	3	9	**0**
Grampian	1	0	0	0	**0**
Greater Glasgow and Clyde	59	24	36	30	**10**
Highland	3	6	3	8	**1**
Lanarkshire	12	8	6	12	**7**
Lothian	2	2	0	0	**1**
Shetland	0	0	0	0	**0**
Tayside	1	0	1	0	**1**
Orkney	0	0	0	0	**0**
Western Isles	0	0	0	0	**0**
ECR	0	0	0	0	**0**
Unknown	0	0	0	0	**0**
Total	**91**	**50**	**54**	**70**	**21**

3.2 Efficient

Table 18
Length of Stay by Level of Spinal Cord Injury
Discharged Patients 20-21

Case Mix	No. of Patients	Mean L.O.S.	Range of L.O.S.
I	**14**	**163**	**65 – 432**
II	**17**	**94**	**13 – 266**
III	**32**	**109**	**21 – 349**
IV	**39**	**38**	**1 – 139**
All	**102**	**87**	**1 – 432**

Groups 1 & 2 are the most paralysed group with grossly disordered pathophysiology and are the most ill group in the early part of their stay with high demands on medical and nursing resource. The rehabilitation goals may be limited in this group.

Table 19
Bed Utilisation

National Spinal Injuries Unit Edenhall HDU = 12 Beds Philipshill = 36 Beds		
Bed Complement	**Actual Occupied Bed Days**	**% Occupied**
48	**10299**	**66%**

Occupancy figures for spinal cord injury patients are reduced. Due to the COVID-19 pandemic and other bed pressures the Unit accommodated many non-spinal patients who are not counted in the above figures. The position will be reviewed at the next report.

3.3 Timely

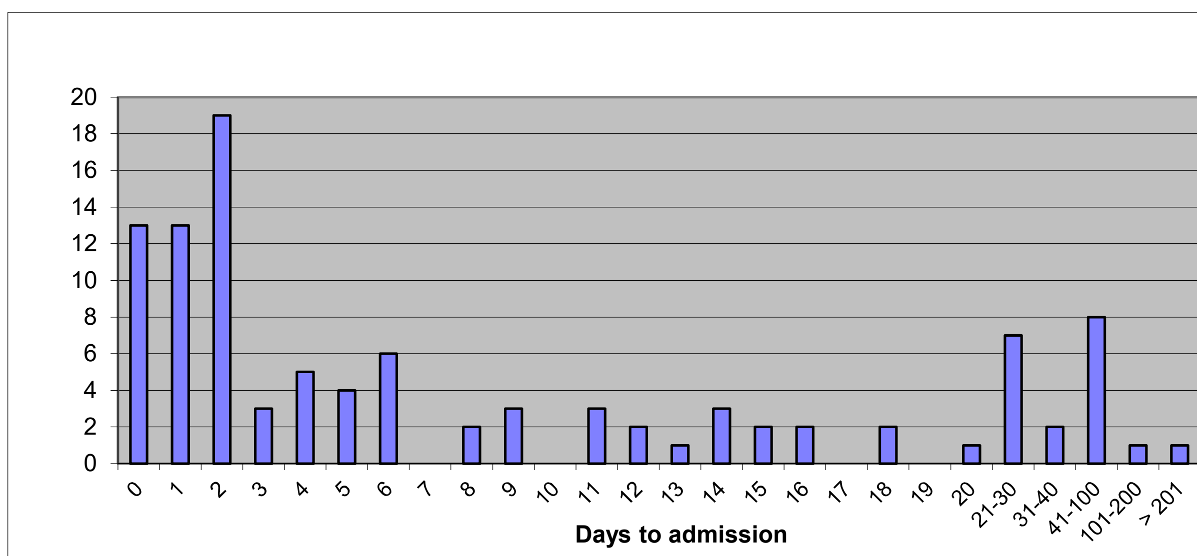
Waiting Times: Acute and Out-patient Clinics

The Unit admits on grounds of clinical priority and safety of transfer. Appropriate support facilities are available in the majority of hospitals in Scotland but international and regional data support early transfer if possible. Current national policy is to transfer patients to QENSIU as soon as clinically stable and this has proved a robust admission policy over twenty-nine years. There were no delays in transfer due to lack of beds. All patients were transferred as soon as they were fit and transport was available. The most highly dependent patients (Groups 1 & 2) made extra demands on resources but time to admission was unaffected.

There is an open door policy to the Nurse Led Clinics. Medical advice is always available. A small number of patients with established paralysis move to Scotland every year and the maximum waiting time for these new elective outpatient appointments remains at four weeks.

Time from injury to Admission

***Figure* 7**
Time from injury to admission



The policy is of immediate admission for all patients once they are clinically stable. Most patients are referred within twenty-four hours of injury. Early referral is encouraged. In 2020-21 26% of patients were admitted within twenty-four hours of injury and 45% were admitted within forty-eight hours. 63% were admitted within one week. **53% of trauma patients were admitted within forty-eight hours.**

The patients with non-traumatic injuries tend to skew admission times to the right because the initial spinal damage is often not so obvious and diagnosis and treatment of these patients is undertaken in neurological and medical units out with the trauma system. They are referred and admitted much later than the trauma patients.
As usual a “long tail” of patients were admitted weeks and months following injury. This time pattern is consistent with previous years. The emphasis remains on early admission to provide immediate support to the patient and family and to prevent complications.

Early referral and co-operation between the staff in the Unit and the referral hospital ensures immediate admission if clinically indicated. Consultant telephone advice is available 24/7 for those patients who are not immediately transferred. The referral proforma, transfer documentation and admission form continue to be successful in facilitating and auditing the process. They have been internationally recognised and copied and are publicly available on www.spinalunit.scot.nhs.uk

Approximately twenty per cent of patients have associated orthopaedic injuries. Co-operation between ITU, the referring hospital and other specialised units can be required (Plastic Surgery, Burns Unit, Oral and Maxillofacial Surgery, Renal, etc).

***Table* 20**
Days to Admission by Range

	No. of Patients	Mean Time (Days)	Range of Time
2016-2017	**161**	**38**	**0 - 2278**
2017-2018	**174**	**231**	**0 - 10688**
2018-2019	**138**	**218**	**0 - 10274**
2019-2020	**139**	**15**	**0 - 230**
2020-2021	**103**	**19**	**0 - 375**

Table 20 shows mean time to admission for all first-time admissions. This includes some patients who were initially managed outside QENSIU and admitted years, sometimes decades, after injury for elective treatment. These patients are coded as “new injuries” and grossly skew the mean time to admission but these numbers are included for consistency and transparency. In 20-21 the median time to admission for all injuries was 4 days.

Table 21
Delayed Discharge

	No. of Patients Discharged	No. of Patients Delayed	Mean Delay (days)	Range of Delay (days)	No Delay
2016/2017	160	9	27	7 – 76	94%
2017/2018	165	7	66	10 – 274	96%
2018/2019	139	10	62	16 - 171	93%
2019/2020	141	23	53	1 – 303	84%
2020/2021	**102**	**9**	**65**	**7 - 322**	**91%**

Despite discharge planning weeks or months ahead a small number of patients continue to have delays in discharge usually due to lack of suitable accommodation. If accommodation is unavailable patients are transferred back to the referring hospital once they have completed their rehabilitation. Staff at the Unit continue to work with local health and social care partnerships and housing organisations to minimise delays in return home. This makes increasing demands on nursing, occupational therapy and nursing time. We hope that, where appropriate, the Major Trauma Centre system will facilitate the return of patients to their base hospital pending final discharge.

3.4 Effectiveness

Clinical Outcomes/complication rates / external benchmarking

The Unit has provided outcome and activity figures since 1998 in this Annual Report and in specialised reviews. Clinicians and researchers have published many papers in the literature on a number of topics. Details of publications and complication rate are outlined in www.gla.ac.uk/research/az/scisci

External benchmarking remains difficult. We are not aware of any other publicly funded spinal service which provides care from injury to lifelong follow-up to such a geographically distinct population. We believe that the acuity and level of care provided in Glasgow, and the detail in the thirty year old database remain unique worldwide.

Some comparisons with English units can be made using data from their national commissioning database. The average time from trauma to admission for most English units is two months, in Scotland it is two days. Every study of acute spinal injury confirms that a specialist spinal unit is the best place for newly-injured people and the Unit continues to perform very highly in this respect.

Key Performance Indicators Summary

	17-18	18-19	19-20	**20-21**
New Admissions	174	138	139	**103**
New Outpatients	50	54	70	**21**
Key Performance Indicators				
Referrals				
All patients referred	594	526	427	**303**
Telephone advice	420	388	288	**200**
Complex advice with support/visit	85	106	89	**31**
New patient activity				
All patients admitted with neurological injury	128	107	129	**95**
All patients admitted with non-neurological injury	46	31	10	**8**
Surgical stabilisations:				
- Thoracolumbar fixations	24	31	36	**14**
- Elective removal of metalwork	9	4	3	**0**
- Cervical fixations	23	9	21	**18**
- Halo immobilizations	23	27	18	**11**
Spinal injury specific surgery:				
-Other	5	4	4	**12**

Implant spasm and pain control:				
- New pumps implanted	0	0	2	**0**
Removal of pump			1	**0**
- Revision pumps	0	0	0	**0**
- Operational pumps	11	11	7	**6**
- Pump Refill QENSIU	7	7	7	**6**
- Pump Refill Local	14	4	N/A	**N/A**
Step down unit:				
- Episodes of care	35	27	38	**0**
- Number of families/people	103	99	108	**0**
- Number of days (nights)	160	62	139	**0**
- Relatives Room				
- Episodes of care	49	42	35	**0**
- Number of families / people	61	57	49	**0**
- Number of days (nights)	286	128	332	**0**
New inpatient occupied bed days				
Total Available (new & return)	17,012	17,223	17,097	**15,534**
Actual	13,157	13,861	13,816	**10,299**
Bed Occupancy %	77%	80%	81%	**66%**
Mean length of stay				
I	125	164	171	**163**
II	114	140	176	**94**
III	113	132	130	**109**
IV	23	23	38	**38**
All	73	78	105	**87**
Range of length of stay	1 - 434	1 - 377	**5-600**	**1 – 432**
Delays in discharge (actual v's intended)				
Number of patients discharged	165	139	141	**102**
Number of patients with delayed discharged	7	10	23	**9**
Length of delay (mean/mode)	66	62	53	**65**
% with no delay	96%	93%	84%	**91%**
Day case				
by NHS Board of Residence	See Fig 9	See table 13	See table 13	See table 13
by reason for admission	See Table 12	See Table 12	See Table 12	See Table 12
Outpatient activity				
New Patient no's QENSIU	See Table 7B	See Table 8A	See Table 8A	See Table 8A
Return Patient no's QENSIU	See Table 7B	See Table 7B	See Table 8A	See Table 8A
New Patient QENSIU (DNAs/ % attendance)	28%	20%	7%	**14%**
Return Patient QENSIU (DNAs/ % attendance)	22%	21%	18%	**9%**
New Outreach Clinics by Centre	See Table 9	See Table 9	See Table 9	See Table 9
Return Outreach Clinics by Centre	See Table 10	See Table 10	See Table 9	See Table 9
Attendance at New Outreach Clinics by Centre (DNAs/ % attendance)				
Attendance at Return Outreach Clinics by Centre				

(DNAs/ % attendance)				
Outpatients discharged in period				
Number of patients discharged from the service	Life Long Care	Life Long Care	Life Long Care	Life Long Care
Actual / Anticipated number of patients in service				
Allied Health Professionals activity	N/A	N/A	N/A	N/A
New Patient (DNAs/ % attendance)	See Table 7C	See Table 7C	See Table 8B	See Table 8B
Return Patient (DNAs/ % attendance)	See Table 7C	See Table 7C	See Table 8B	See Table 8B

3.5 Safe

Re-admissions to the Unit

Most neurologically injured patients discharged from the Unit never require re-admission. They attend annually as out-patients for lifelong follow up. In some cases readmission must be regarded as a failure, most often due to skin problems and self-neglect. There were 34 readmissions to the Unit during the year, a significant shortfall on the contract estimate of two hundred readmissions, most often due to skin problems, elective surgery or top up rehabilitation to optimise independence.

Safety Risk Register

The Unit complies with all corporate, regional and local requirements and supports risk awareness and risk management.

Scottish Patient Safety Programme (SPSP)

Deteriorating Patient

The combination of all bundles have resulted in:-

- Early detection and prompt treatment of Infection
- Reduction in rate of re-admission to HDU from rehabilitation
- Prompt return to therapy/rehabilitation thus reduction in bed occupancy days
- Early bladder management
- HDU no longer routinely catheterise Intact Injuries
- Cost savings related to reduced catheter associated UTI prevalence
- Reduction of stress and anxiety for patient and loved ones associated with deterioration.
- Quicker escalation of rehabilitation

All Improvement initiatives are continually improving the outcomes for Spinal Patients to assure they receive Safe, Effective, Person Centred Evidence Based care.

We continually review outcomes and share these with the Interdisciplinary Team at Audit and Governance meetings.

Red Flag Update
We continue to carry out our red flag alert system of any pressure sores inherited or acquired in the unit. This system has allowed us to identify pressure sores at an early stage and to make appropriate changes in patient care to prevent further deterioration. This year the red flag system has allowed us to identify 10 Early Warning Sign pressure sores and 37 Grade 1 pressure sores which has prevented further deterioration of wounds and subsequent delays in patient rehabilitation.

3.6 Person Centred

Person-Centred Visiting

Person Centred visiting was introduced to QENSIU in October 2019 unfortunately this was suspended due to COVID-19, essential visits continue with support offered from our psychologist and nursing teams to support patients through this difficult time. The use of ITsuch as zoom and facetime has been encouraged by staff offering support for patients to communicate with their loved ones throughout their rehabilitation. We have utilised Teams/Attend Anywhere and other digital communication to involve family with goal plan meetings/teaching carers and support for families.

Sustaining a spinal injury can completely change the life of a person and their family, facilitation flexible visiting reduces stress and anxiety and gives patients the connection to the people that matter most to them.

Patient Education/Workshop Spinal Education

Education is a fundamental aspect of the rehabilitation journey for spinal patients their families and loved ones. Patients are adapting to a new normal, learning how their body now functions. They require the knowledge and understanding to effectively manage their own lifelong care, with the ability to troubleshoot their way through problems and potentially direct others who may need to support them.

Our successful patient education programme which runs over 16 weeks, with 32 sessions, delivered by the multi-disciplinary team and peer support staff, did unfortunately come to a halt due to COVID-19 restrictions. However, following a brief period of adjustment whilst we adapted and prioritised care delivery we were able to recommence our programme on the 22nd April 2020.

A major part of the success of the programme is the contribution of our peer support staff from Spinal Injuries Scotland, Backup, Aspire and Wheelpower. Due to the COVID-19 it was impossible for them to contribute to the sessions. In a bid to fill this gap Spinal Injuries Scotland funded the use of zoom to enable them and the other charities to participate in the sessions remotely. This by no means takes the place of their physical presence in the unit but it has certainly helped answer and reassure patients in a way staff can’t do.

The use of remote access to patient education meant we could include patients, who for a variety of reasons could not attend the sessions in person. There is now no reason why a patient who wants to attend the sessions can’t, this has been a positive effect of COVID-19. We were also able to invite a patient from another unit to join the sessions. This is something we aim to continue post COVID-19 and offer to patient’s/staff from other parts of Scotland. Following discharge patients may also want to tap into a particular session again.

COVID-19 made it impossible to host our Relatives Day and monthly Relatives support evenings. We look forward to reintroducing these as restrictions ease and have looked to virtually facilitating a relatives day via MS Teams. There may also be scope to offer relatives support evenings virtually.

Despite low patient numbers attendance has remained consistently good. This may be due to the fact that there are none of the normal distractions such as visitor's outings etc. The patient's experience has become very insular over the last year with little opportunity to venture out into the world outside the Spinal Injuries Unit, this of course is an important aspect of rehabilitation both physically and emotionally.

Education sessions for students and new members of staff continue both face to face with social distancing, and remotely via MS Teams. Remote sessions are also delivered to 3rd year student nurses from the University of Glasgow.

We maintain close links with both the University of Glasgow and Glasgow Caledonian University. Students are allocated an Assessor and Supervisor. Personalised emails are sent out giving information about the Spinal Injuries Unit and what to expect from their practical learning experience. Feedback from students in both Philipshill and Edenhall wards is consistently positive, and many return to us as Registered Nurses.

Ensuring staff were equipped with the information and skills required to safely care for COVID-19 patients is an important part of the educational/unit support role during 2020/2021. Staff required accurate information in relation to donning and doffing practices. All staff were fitted with appropriate FFP3 face masks.

Family Unit / Step-Down Unit

Due to COVID-19 the step-down unit has not been used for its original purpose. We have used the activity area for in person socially distanced teaching and for timetabled essential visiting, we hope to utilise this step-down facilities very soon to help support acute admissions, long stay and pre-discharge. Families have appreciated being so close during the early stages of injury.

4. Quality and Service Improvement

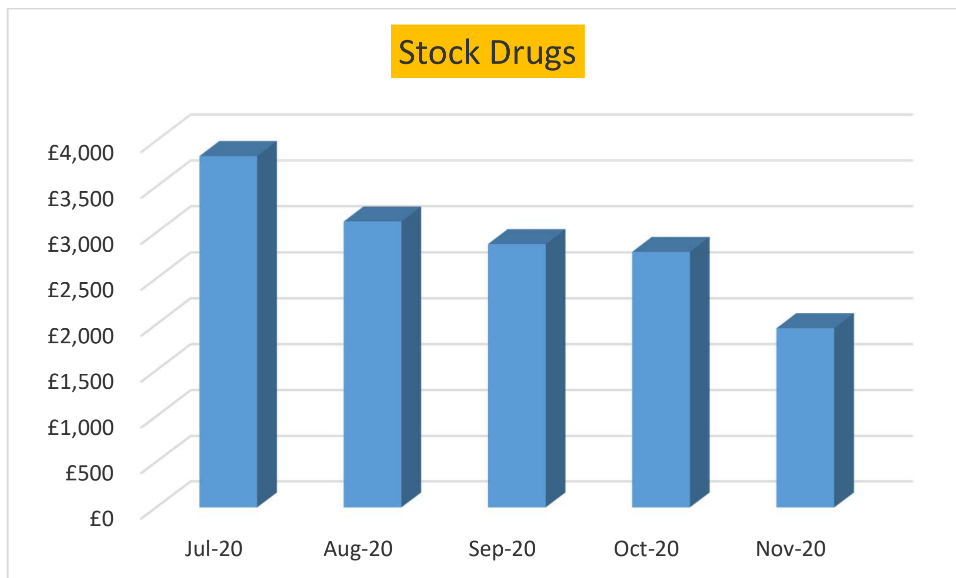
Medicine Management

To improve safety and efficiency of medicine administration Philipshill implemented an improvement initiative to reduce the risk of drug omission or errors, this came from a de-brief of a significant incident that occurred, implementation of small test of change helped the team stay focussed and prevented interruption, this change is embedded in to Philipshill and is now normal best practice.

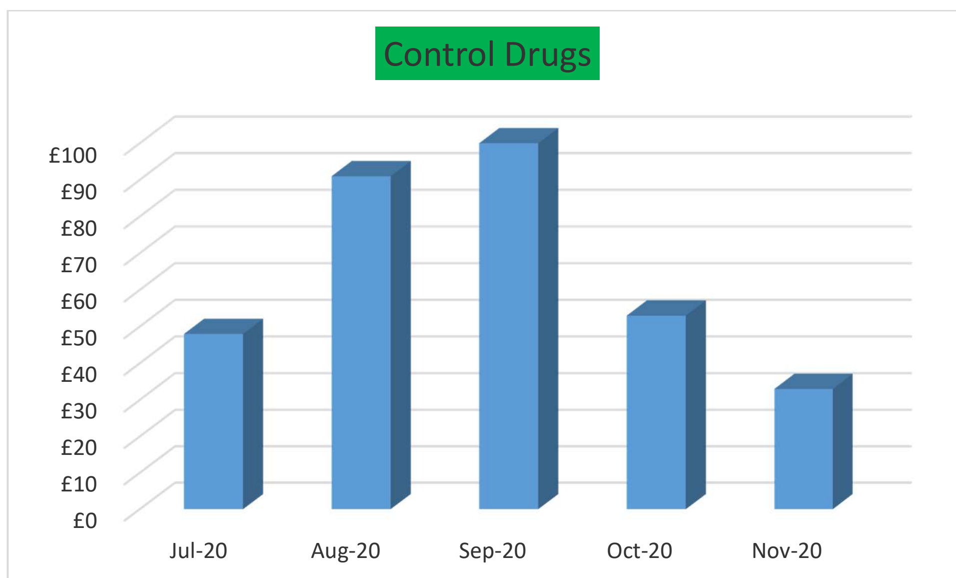
Nurse in charge now designates a medicine co-ordinator who wears a assigned badge, they are responsible to ensure that any prescriptions or alterations are amended on the drug prescription Kardex, the co-ordinator meets with medical staff at 15:00hrs every day it is the responsibility of the co-ordinator to liaise with nursing teams regarding any prescriptions required, amendments to be made, drugs to be ordered for pass/discharge. Pharmacy have also been consulted on this process to facilitate and address any issues.

Nurses have protected time following the drug round to review all Kardex's and ensure nothing has been omitted prior to completing the drug round. Thus preventing avoidable omissions.

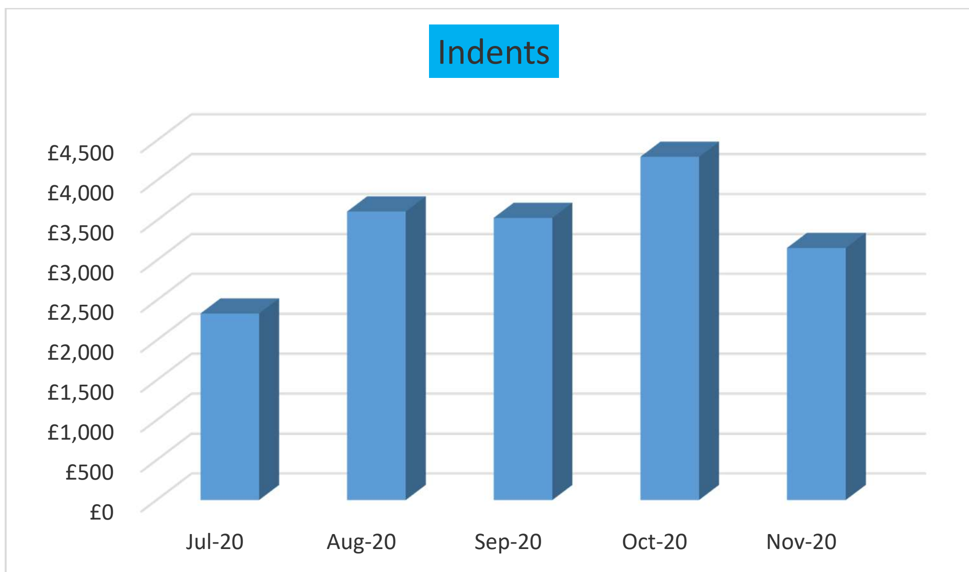
As part of the Value Management Collaborative, Philipshill reviewed medication stock levels, working with the pharmacy technician to calculate medication expenditure over a 4 month period. Reducing stock that was not routinely getting administered demonstrated a remarkable cost savings, we are currently undergoing further work to review the costing from November 2020 to present.



On reflection of current omission/drug error, it was heightened the CD drugs were overstocked and packaging was very familiar, a best practice poster was developed to familiarise staff with generic names and packaging and we reduced the supply of CDs, as a result CD errors and expenditure has reduced.



We also monitored pharmacy indents, this demonstrated fluctuation of costing due to boarding medication and sundries



Huddle/Communication

Effective communication amongst health care professionals is challenging. The Unit introduced a morning huddle where a senior representative someone from all disciplines within Unit meet.

The aim is to anticipate care needs for that day. The huddle gives the team the opportunity to identify real time issues around quality and safety. This allows planning for changes in daily workflow, and make adjustments that will improve service delivery for patients and staff.

The Unit also participates in the neighbouring huddle with the Institute of Neurological Sciences (INS), and during the pandemic this has switched to the MS Teams platform. Collaboration and communication has been vital between the teams during the pandemic to ensure safe staffing and the opportunity to raise concerns has been vital.

Philipshill introduced an afternoon huddle, this gives the team opportunity to pause and reflect on any safety issues that may have occurred throughout their shift, there is the t opportunity to heighten improvement and celebrate success of the day, staff report it is a very worthwhile tool to ensure communication is passed over efficiently and effectively on a daily basis.

Value Management Collaborative 2020/2021
Philipshill have been chosen to be part of the national "Value Management Collaborative" the aim is to test and spread quality improvement methods combining cost and quality data at a team level to deliver improved patient outcomes, experience and value.

This is underpinned by three components:

- creating the conditions for quality improvement through organisational culture, leadership and infrastructure interventions
- team, ward level quality, value improvement interventions and coaching
- quality improvement, coaching capacity and capability building

The practice of Value Management includes the use of a standard visual management board to review performance (including financial performance) every week, weekly meetings with a coach to structure analyses, and *continuous* improvement work, focusing on safety, cost, quality and capacity.

Each multidisciplinary team includes Team Lead, Lead Nurse, Management accountant, Clinical Service Manager and General Manager.

The team utilise:

- weekly collection of quality and finance data
- a visual management board that includes the display of data over time, linked analyses, and related improvement work
- multi-disciplinary weekly huddles in which point-of-care team members, team leads, finance staff, and leadership meet to discuss shared learning from the data and continuous improvement work

5. Governance and Regulation: Critical Incidence Reporting

5.1 Clinical Governance

Senior medical and nursing staff meet quarterly with colleagues in the Directorate Clinical Governance programme, specifically as part of the INS Medical Specialties/Spinal Injuries Clinical Governance Meeting. Standing items include Significant Adverse Event Reviews (SAER), Mortality Review, Risk Register and putting audit into practice. The Unit continues to adopt National Management Guidelines, as appropriate.

5.2 Risks and Issues & 5.3 Adverse Events

A formal Critical Incident Reporting system is in place with a Clinical Incident defined as a potential or actual danger to patients, which could have been prevented by a change in practice. The Unit utilises the DATIX Incident Reporting system and these incidents are reviewed within defined timeframes. The Unit is included in the Regional Services Directorate for reporting purposes.

Table 22

Category	**Number**
Pressure ulcer care	10
Medication incident	14
Contact with object	3
Medical device & equipment	9
Communication	2
Slips, trips & falls	42
Other	10
Security	6
Moving & handling	2
Violence & aggression	22
Challenging behaviour	7
Fire alarm actuation	2
Needlestick injury	2
Infection control issue	4
2222	1
Self harm	1
Staffing levels	0
Radiology incident	0
Treatment issue	0
Patient abscondment	2
IT security	0
Patient observation	0
Total	**139**

Table 23

Slips, Trips and Falls	
Fall from bed	0
Fall from chair	4
Fall from level	16
Slip/trip on level	2
Suspected fall	3
Unwitnessed	14
Controlled	3

All category 4/5 clinical incidents are investigated according to NHSGGC policy. During the year there has been 1 category 4 incident.

1. Fall with harm – an independent patient sustained a lower limb fracture during a wheelchair transfer. Reviewed by Falls Coordinator and deemed as unavoidable, all care given was appropriate and did not contribute to the incident.

Table 24

Overall	
1 - Negligible	88
2 - Minor	41
3 - Moderate	9
4 - Major	1
5 - Extreme	0
Total	**139**

Table 25
Pressure Area Care

Hospital Acquired QENSIU =			
Grade 2 = 5	Grade 3 = 0	Grade 4 = 0	Un-gradeable = 5

All pressure sores must be considered to be a failure of care to some extent. The best way of preventing sores out with the Unit is to continue to admit new patients as soon as clinically safe to do so. The "red flag" system of Unit nursing and medical staff review every sore developing on the ward and make recommendations on any necessary changes in care.

Following review by tissue viability the pressure area care incidents recorded 9 deemed as unavoidable and care deemed as appropriate. 1 incident recorded as avoidable due to gaps in care recordings. Following this an action plan was implemented and will be continued to be monitored.

The Unit continues to monitor levels of Hospital Acquired Infection in line with NHS GGC policy. Due to the pandemic, significant changes have been implemented with regards to patient placement and ensuring safe flow of patients. Pathways have been introduced and modified during the course of the pandemic. Regular patient and staff testing has also been introduced to maintain a safe clinical environment.

Table 26A
Hospital Acquired Infection

	2016/ 2017	**2017/ 2018**	**2018/ 2019**	**2019/ 2020**	**2020/ 2021**
Total patients req. Isolation	1	5	15	3	1
Salmonella	0	0	0	0	0
Clostridium Difficile	2	1	0	1	0
MRSA	0	2	6	2	0
Streptococcus pyogenes	0	1	0	0	0
Scabies/ TB /Varicella Zoster	0	1	0	0	0
MDR Acinetobacter	0	0	0	0	1
Patients treated in isolation	1	4	10	3	1
Patients not treated in isolation	0	1	5	0	0
Patients not suitable for isolation	0	0	3	0	0
No single room available	0	1	2	0	0

The rise in isolation patients is due to the national policy of initially isolating patients transferred from non-Scottish hospitals. It is anticipated that this number will stabilise or even rise. It is not a marker of increased infections.

Edenhall Ward receives patients in the early stage after multiple trauma and many come from ITU or HDU areas and are a high risk group. The relatively low rates of infection continue to be a tribute to the standard of nursing care and policies within the Unit especially as regards bowel and bladder care.

Table *26B*

2020-2021	MRSA	C.Diff	MDR Acinetobacter
Edenhall	0	0	1
Philipshill	0	0	0

5.4 Complaints / Compliments

Complaints

A formal complaint/suggestion system is in place at both Unit and hospital level. This has proved invaluable in monitoring quality and modifying the service. The management team recorded two formal complaints, one fully upheld and one not upheld. Consultants and senior nursing staff continue to provide advice to the CLO regarding complaints involving management of patients out with the Unit.

The Unit also receives feedback via Care Opinion.

Compliments

Significant contributions are received from grateful patients, families and community groups to assist in purchasing items for patient treatment and comfort.

5.5 Equality

A new equality, diversity and human rights e-learning module is now live on LearnPro. All staff are required to complete as part of their statutory and mandatory training. Robust systems have been put in place to monitor compliance with all LearnPro modules for all staff. The Welcome to the Ward poster at the entrance to the ward continue to detail the variety of methods that patients and their families can leave feedback. A review of the signage within the Unit has been undertaken and work is in progress to replace and upgrade to ensure ease of navigation of the Unit. NHSGGC carry out regular Equality Impact Assessment Tools (EQIA) for clinical areas. The Unit EQIA was conducted in 2014. A new telephone interpreting service is available to all services users.

6. Financial Reporting and workforce 2020-21

NHS Greater Glasgow & Clyde
Acute Services Division
Regional Services Directorate
Spinal Injuries Unit

Financial Report for the twelve months to 31st March 2021

	AfC Banding	WTE	Contract Value £	Contract Value YTD £	Actual YTD £	Variance YTD £
Dedicated Staff Costs						
Consultant		5.71	950,699	950,699	942,757	7,942
Specialty Doctor		1.00	89,456	89,456	104,818	-15,362
Senior Medical		*6.71*	*1,040,155*	*1,040,155*	*1,047,576*	*-7,421*
Junior Medical		2.48	160,334	160,334	160,334	0
		9.19	*1,200,489*	*1,200,489*	*1,207,910*	*-7,421*
Administrative	4	6.50	186,479	186,479	186,479	0
Administrative	3	0.14	3,798	3,798	3,798	0
Administrative	2	2.49	66,581	66,581	66,581	0
		9.13	*256,858*	*256,858*	*256,858*	*0*
Senior Manager	8a	0.50	41,513	41,513	41,513	0
Nursing	7	7.80	403,100	403,100	418,164	-15,064
Nursing	6	9.36	502,955	502,955	547,107	-44,152
Nursing	5	54.30	2,178,282	2,178,282	2,343,474	-165,192
Nursing	2	23.88	644,479	644,479	717,634	-73,155
Housekeepers	2	2.00	66,237	66,237	51,153	15,084
Phlebotomist	2	0.53	13,004	13,004	0	13,004
		98.37	*3,849,570*	*3,849,570*	*4,119,046*	*-269,476*
Psychologist	8B	1.00	75,381	75,381	84,918	-9,537
Orthotist	7	0.20	10,955	10,955	10,955	0
AHP	7	12.26	625,826	625,826	686,766	-60,940
		13.46	*712,162*	*712,162*	*782,639*	*-70,477*
Total Staff		**130.15**	**£ 6,019,079**	**£ 6,019,079**	**£ 6,366,453**	**- £ 347,373**
Supplies Costs						
Drugs			174,613	174,613	149,771	24,842
Surgical Sundries			515,807	515,807	325,938	189,869
CSSD/Diagnostic Supplies			4,795	4,795	4,314	481
Other Therapeutic Supplies			119,090	119,090	67,667	51,423
Equipment/Other admin supplies			59,395	59,395	76,149	-16,754
Hotel Services			43,493	43,493	46,221	-2,728
Direct Supplies			**£ 917,193**	**£ 917,193**	**£ 670,060**	**£ 247,133**
Charges from other Health Boards						
Lothian Spinal Clinic			5,965	5,965	0	5,965
Charges from other Health Boards			**£ 5,965**	**£ 5,965**	**£ 0**	**£ 5,965**
Allocated Costs						
Medical Records			121,782	121,782	121,782	0
Building Costs			218,905	218,905	218,905	0
Domestic Services			80,421	80,421	80,421	0
Catering			219,076	219,076	219,076	0
Laundry			79,094	79,094	79,094	0
Neuroradiology			92,136	92,136	92,136	0
Laboratories			93,244	93,244	93,244	0
Anaesthetics			43,986	43,986	43,986	0
Portering			85,655	85,655	85,655	0
Phones			56,437	56,437	56,437	0
Scottish Ambulance Service			10,570	10,570	10,570	0
General Services			32,281	32,281	32,281	0
Allocated Costs			**£ 1,133,587**	**£ 1,133,587**	**£ 1,133,587**	**£ 0**
Total Supplies			**£ 2,056,745**	**£ 2,056,745**	**£ 1,803,647**	**£ 253,098**
Overhead Costs						
Fixed costs						
Rates			62,449	62,449	62,449	0
Capital Charge			435,774	435,774	435,774	0
Overheads			159,239	159,239	159,239	0
Total Overheads			**£ 657,462**	**£ 657,462**	**£ 657,462**	**£ 0**
Total Expenditure		**130.15**	**£ 8,733,286**	**£ 8,733,286**	**£ 8,827,561**	**- £ 94,275**
Postgraduate Dean Funding			-136,802	-136,802	-136,802	0
Total Expenditure net of Postgraduate Dean Funding			**£ 8,596,484**	**£ 8,596,484**	**£ 8,690,759**	**- £ 94,275**
Income from non-Scottish resident patients					-16,614	16,614
Total Net Expenditure		**130.15**	**£ 8,596,484**	**£ 8,596,484**	**£ 8,674,145**	**- £ 77,661**

7. Audit & Clinical Research / publications

Clinical Audit Program

Audit meetings are held monthly in the National Spinal Injuries Unit. In the last year there were 3 primary audits performed with at least monthly re-audits. Audits were performed by medical staff, nursing staff, physiotherapists and occupational therapists reflecting the team's desire to monitor and improve the overall service provided to patient. Examples of audits performed include:-

- Analgesia prescribing and documentation audit
- Medicines Reconciliation management
- Catheter associated UTI audit

Staff participate in National and Regional audits and have presented quality improvement resulting from audit at the corporate level.

Research

Doctors at the Unit work with scientists in the purpose-built Research Mezzanine. This suite of offices, conference space and small laboratories is based in the Unit and allows unique integration of researchers within an acute spinal injuries unit.

The current list of publications can be found on https://www.gla.ac.uk/research/az/scisci

All research was suspended by R&D NHS GGC in late March 2020 due to the coronavirus pandemic. With specific approval from R&D "low risk" projects commenced again in September 2021 following an individual risk assessment. There are patients currently being recruited to 6 projects with 6 more awaiting final approval. Current projects include contribution to a European-wide data collection study- EMSCI, functional electrical stimulation to enhance respiratory function acutely, functional electrical stimulation cycling in acute SCI, an early detection and intervention strategy to delay the onset of osteoporosis and reduce fracture incidence, FES intervention to enhance bone density in chronic patient after SCI and brain computer interface to enhance upper limb function acutely.

Upcoming studies awaiting approval include 2 transcutaneous spinal cord stimulation in chronic complete tetraplegics and an NIHR funded duroplasty study.

All studies take place within QENSIU in laboratory space within the mezzanine, equipment is shared across the Unit and partner University sites.

Papers and Authorship

Research Profile available on request/or https://www.gla.ac.uk/research/az/scisci

8. Looking Ahead

Most developments in the Unit were put on hold during the COVID-19 pandemic.

The comprehensive review of the service in 2017 noted that the Unit's therapy departments were considerably understaffed compared to peer units in the UK and further investigation confirmed that the Unit was also understaffed in comparison to rehabilitation services of Major Trauma Centres (MTCs). The MTCs are an important benchmark because the majority of Unit patients suffer Major Trauma and **the Unit takes 20% of ALL major trauma admitted to GGC hospitals** so it would be appropriate to staff it accordingly. As noted in previous reports the increase in older and sicker patients also puts increasing demands on all departments. A formal staffing review was undertaken and a case has been submitted to the national commissioners for a significant increase in therapy staffing.

Until the onset of the pandemic the Unit had advanced plans to host the Guttmann Meeting in June 2020. This is the premier annual UK scientific meeting for spinal cord injury but was cancelled due to the COVID-19 pandemic and cancelled again in 2021. We are hoping to finally hold this in 2022.

The Horatio's Garden team have almost completed the garden room. This will be an extensive glazed area in which patients can enjoy the garden from indoors.

Due to COVID-19 pressures the Unit has lost its clinic space in the Astley Ainslie Hospital for Lothian patients and we are exploring alternative venues in Edinburgh and East Lothian to host the clinic. All other clinics remain intact.

The Unit first received patients in 1992 and the original concept, admission and treatment pathways remain robust since conception. Despite an increase in numbers of paralysed patients, their age and severity of paralysis the Unit continues to look after the majority of newly paralysed patients from the first few days of injury through to lifelong care. Time from injury to admission remains low and we believe this model of prompt admission and treatment provides the best possible long-term outcomes for patients.

Thanks must be given to the National Services Division and NHS Greater Glasgow and Clyde for their help and support in delivering the service.