Queen Elizabeth National Spinal Injuries Unit

Annual Report
2024/25

NHS Greater Glasgow and Clyde

Queen Elizabeth National Spinal Injuries Unit
Queen Elizabeth University Hospital
1345 Govan Road
Glasgow
G51 4TF

www.spinalunit.scot.nhs.uk **E-mail:** ggc.spinalunit.generic@nhs.scot

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Executive Summary

Introduction

The Queen Elizabeth National Spinal Injuries Unit is sited on the campus of the Queen Elizabeth University Hospital and is 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 a 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 (SCI). In addition, to avoid patient harm the Unit will admit a small number of patients where it is not clear at the point of referral whether they are neurologically intact. Patients for whom SCI has been ruled out, are out of scope of the nationally funded pathway. Patients are primarily referred from Acute Trauma Services but referrals are also received from Accident and Emergency, 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 approximately one-third of cases. Patients with paralysis may remain in the Unit for several months after emergency treatment, for 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 clinical trials centre for investigations in both acute and long-term spinal injury.

The national pathway to admission, designed 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 2024 to March 2025 the Unit admitted **121** new patients, discharged **116** patients, treated **182** day cases and **2,245** out-patients, including **332** patients at outreach clinics across the country. Spinal neurosurgeons performed **38** spinal fixation operations.

Further details can be found on the website at Queen Elizabeth National Spinal Injuries Unit – NHS service for traumatic spinal cord injury in Scotland

Dr Mariel Purcell
Consultant in Spinal Injuries
Lead Clinician
Queen Elizabeth National Spinal Injuries Unit
Queen Elizabeth University Hospital
1345 Govan Road
Glasgow
G51 4TF

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. Morbidity and mortality are significantly increased outside specialised centres.

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 lifelong 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 local Health and Social Care Partnerships and voluntary groups to ensure that the difficult transition from secondary care to 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, HALO, URODYNAMICS, SPASM, INTRATHECAL PUMP, SKIN, ANNUAL REVIEW CLINIC, NEAR ME (VIRTUAL), HOUSING CLINIC
BI WEEKLY	GLASGOW: ORTHOTIST
BI MONTHLY	GLASGOW: SEXUALITY, CATHETER CARE, BOWEL CARE, NEUROSURGERY
MONTHLY	NEUROPROSTHETICS, RESPIRATORY, UROLOGY, FERTILITY, MDT THERAPY, EDINBURGH (OUTREACH),
TWO 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 database and ensure convenient local access for patients across Scotland. Medical and nursing staff attend the clinics accompanied by partner organisations for peer group support.

2. Activity Levels

The Queen Elizabeth National Spinal Injuries Unit (QENSIU) admits acutely injured spinal patients as soon as their condition allows. There is no waiting list for admission. In 2024/25 18% of patients were admitted within one day of injury, 35% within two days, and 65% within one week. The time to admission from injury is difficult to decrease 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 time to most UK spinal centres remains two to three months. Patients paralysed by ischaemia 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 119 patients referred with a neurological injury were admitted as soon as clinically stable. Numbers of paralysed patients are stable, the national figure remains at around 125 per year, a crude incidence rate of 2.3/100,000.

Figure 1
New Admissions: total and neurologically injured

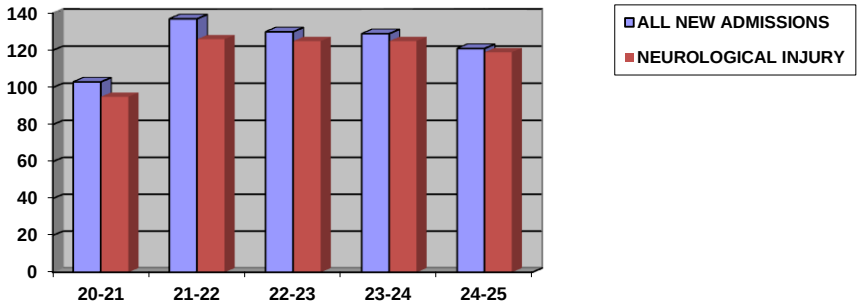


Table 2A
New Admissions: total and neurologically injured

	20/21	21/22	22/23	23/24	24/25	92-25
ALL NEW ADMISSIONS	103	137	130	129	**121**	**5,037**
Neurological	95	126	125	125	**119**	**3,040**
Non-neurological	8	11	5	4	**2**	**1,902**

Table 2B
Intact patients

In 2024/25 two patients were admitted to the Unit who after full assessment had not suffered a spinal cord injury.

Health Board	No of Patients	Total Bed Days
Western Isles	1	78
Lanarkshire	1	5
Total	**2**	**83**

Numbers of neurologically intact patients are at an all-time low. This is in keeping with national 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 and twenty seven patients with suspected spine pathology were referred but not admitted as they fell outside the scope of the service,173 of these non-admitted referrals had acute spine trauma. They were managed in the referring hospital with appropriate advice and support from consultant medical staff. Fifty four patients were referred from primary care electronically via TrakCare, largely inappropriate referrals requesting rehabilitation for patients with very minor trauma, degenerative disease of the spine or back pain.

Some patients were seen by consultant staff in ITU/HDU, the neurosurgical, orthopaedic and medical wards of the Queen Elizabeth University Hospital (QEUH) and other hospitals. The QEUH, a Major Trauma Centre (MTC), attracts increasing numbers of 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, AIS A,B,C**
GROUP II	**Cervical Injury 5 – 8**	**Low Tetraplegia, AIS A,B,C**
GROUP III	**Thoracic, Lumbar and Sacral Injury**	**Paraplegia, AIS A,B,C**
GROUP IV	**All levels of injury with Incomplete AIS D 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 often 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 rehabilitation input during their admission.

Figure 2
New Admissions by Case-Mix Complexity: Five year figures

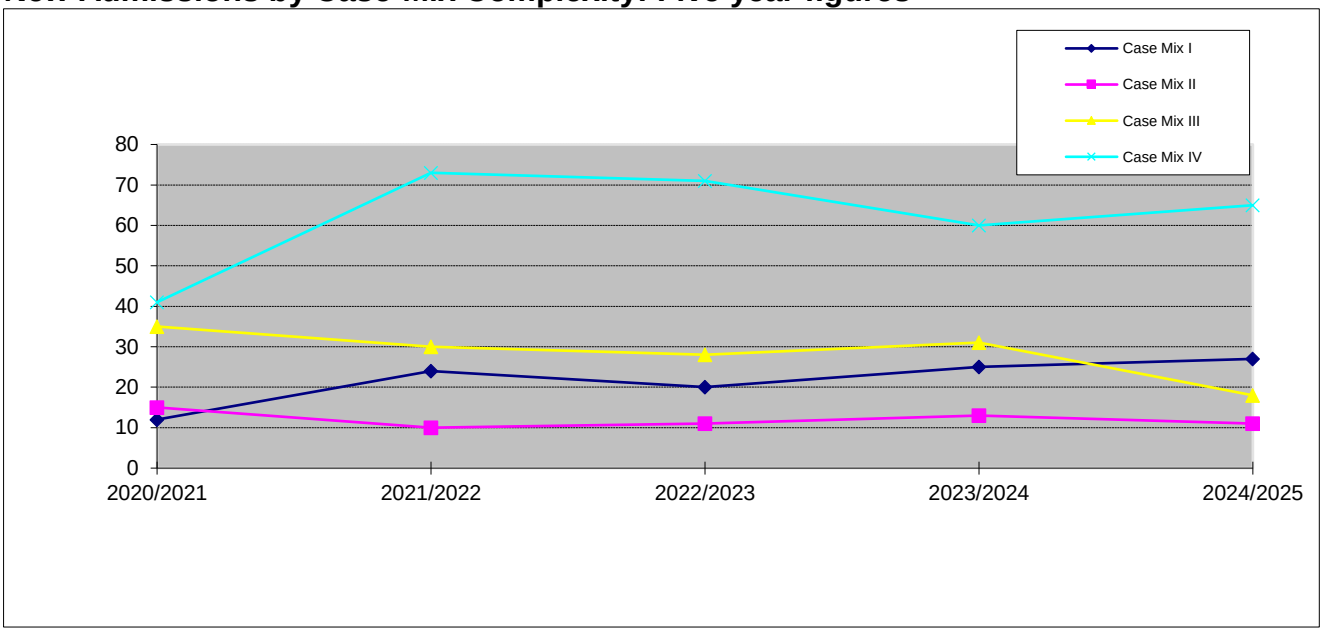


Table 3
New Admissions by case-mix complexity

GROUP	20/21	21/22	22/23	23/24	24/25	92-25
I	12	24	20	25	27	**532**
II	15	10	11	13	11	**764**
III	35	30	28	31	18	**1,100**
IV	41	73	71	60	65	**2,641**
Total	103	137	130	129	121	**5,037**

Figure 3
Historical trends in case-mix complexity

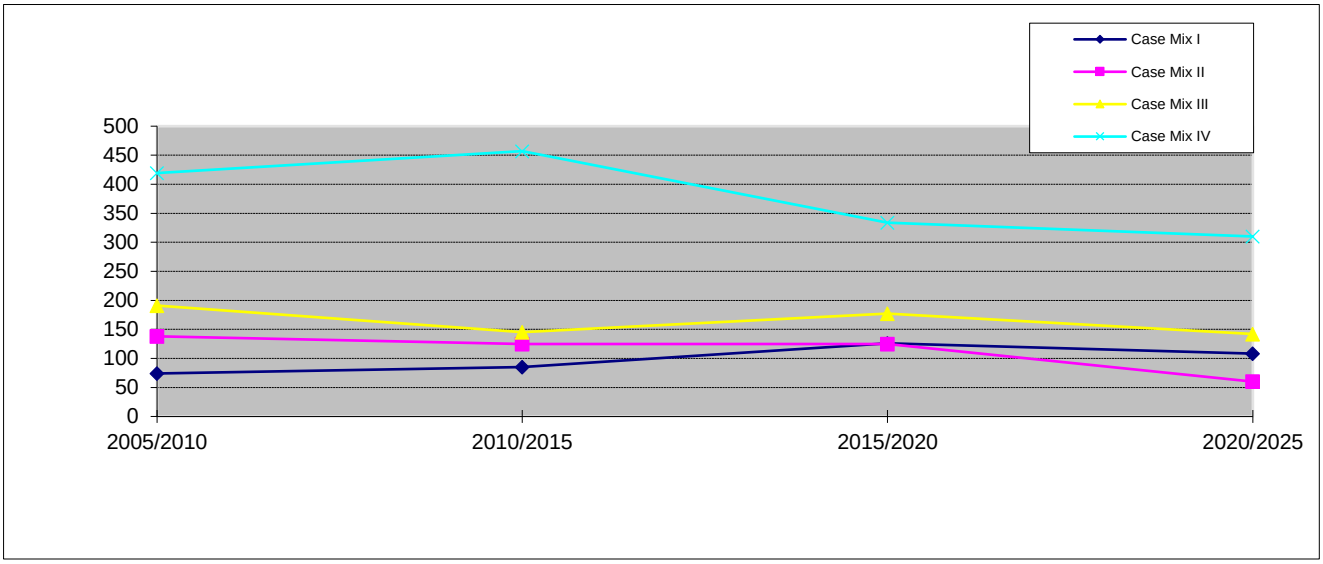
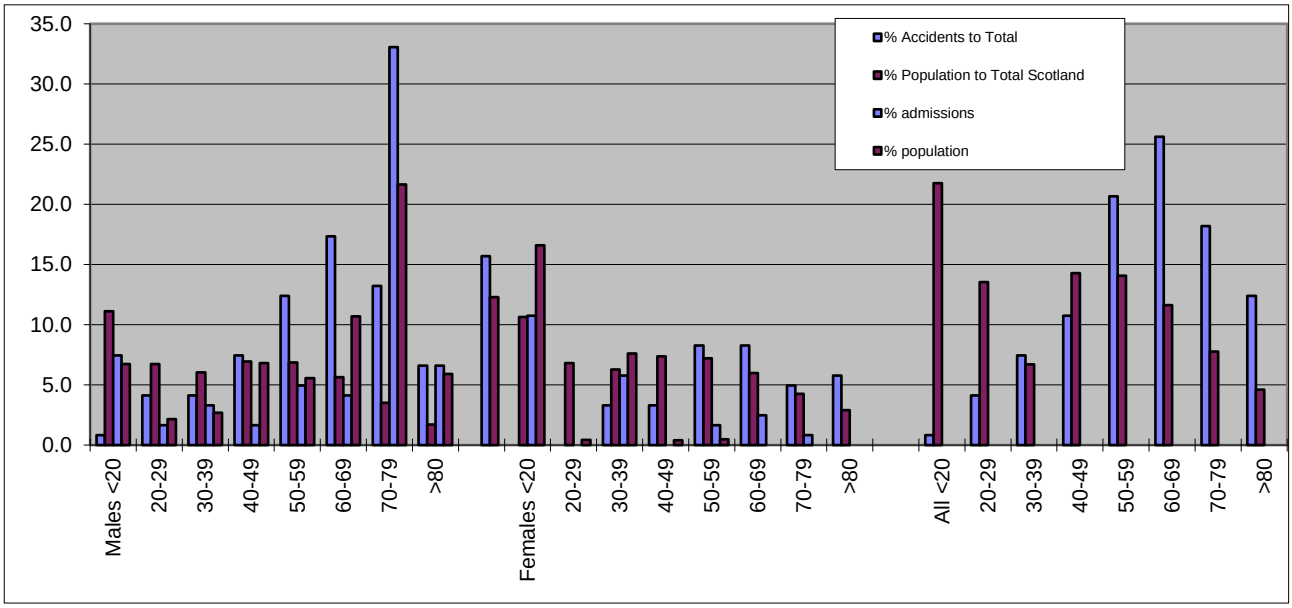


Figure 3 includes all admissions since 2005 and shows a steady rise in high tetraplegic patients (45% increase over 10 years) and reduction in numbers of lesser injured patients (Group D and intact). The high tetraplegic patients are the most demanding of acute care and have the highest dependency.

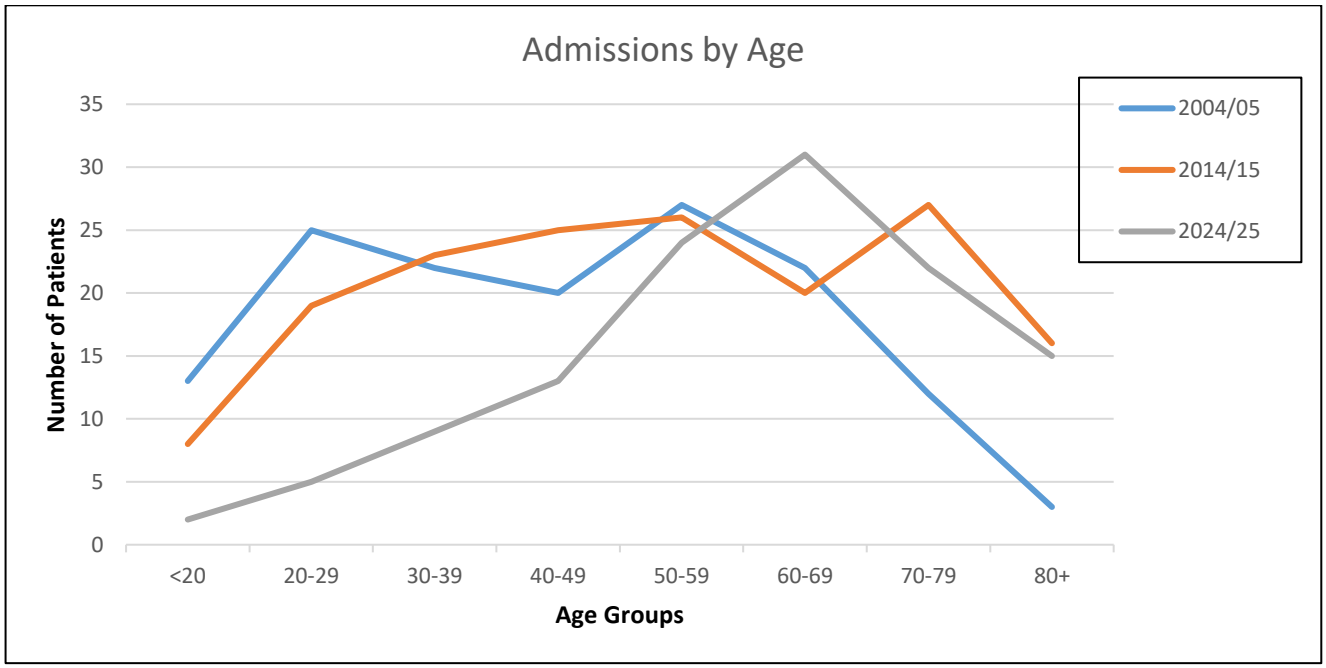
Figure 4A
New Admissions by Age Group



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

Figure 4B

Admissions by Age



Referrals by Age

Overall the admission age profile is little changed over the last few years with the peak age cohort now well established as the 50-79 year old patients. The mean age of admissions was 61 this year, 7 years older than 10 years ago. This older group have greater co-morbidity affecting their capacity for rehabilitation. They make large demands on general medical care, far beyond the original medical capacity envisaged when the Unit was created. With reference to figure 4B the Unit admitted large numbers of patients with no neurological deficit in 2004/2005 and 2014/2015, included in the number of patients in this figure.

Details of Referral and Admission by Region

The service is commissioned to admit all patients with non-progressive cord injury, but there continues to be a large number of referrals of patients outwith 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 remains stable at 348. The national referral/admission ratio (RAR) remains stable at 35% meaning that just over one third of referred patients are admitted. (The RAR in the early 2000's was around 70%).

Fifty four patients are referred from primary care electronically via TrakCare, largely inappropriate referrals requesting rehabilitation for patients with very minor trauma, degenerative disease of the spine or back pain.

Table 4

Referring Board	Total Referrals	Admissions	Not Admitted	% Admitted	Complex Advice Given
Greater Glasgow & Clyde	169	40	129	24	45
Lanarkshire	46	19	27	41	2
Ayrshire & Arran	31	9	22	29	3
Dumfries & Galloway	8	4	4	50	0
Borders	2	2	0	100	0
Highland	14	8	6	57	0
Grampian	10	5	5	50	2
Forth Valley	7	6	1	86	0
Tayside	13	7	6	54	2
Fife	5	2	3	40	3
Lothian	29	13	16	45	5
Shetland	0	0	0	0	0
Western Isles	3	2	1	67	0
Orkney	1	0	1	0	0
ECR	8	3	5	38	0
Overseas	2	1	1	50	0
Total	**348**	**121**	**227**	**35**	**62**

The number of patients not admitted but requiring complex advice has increased to 62. In these cases the referring team will have contacted the 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 teams.

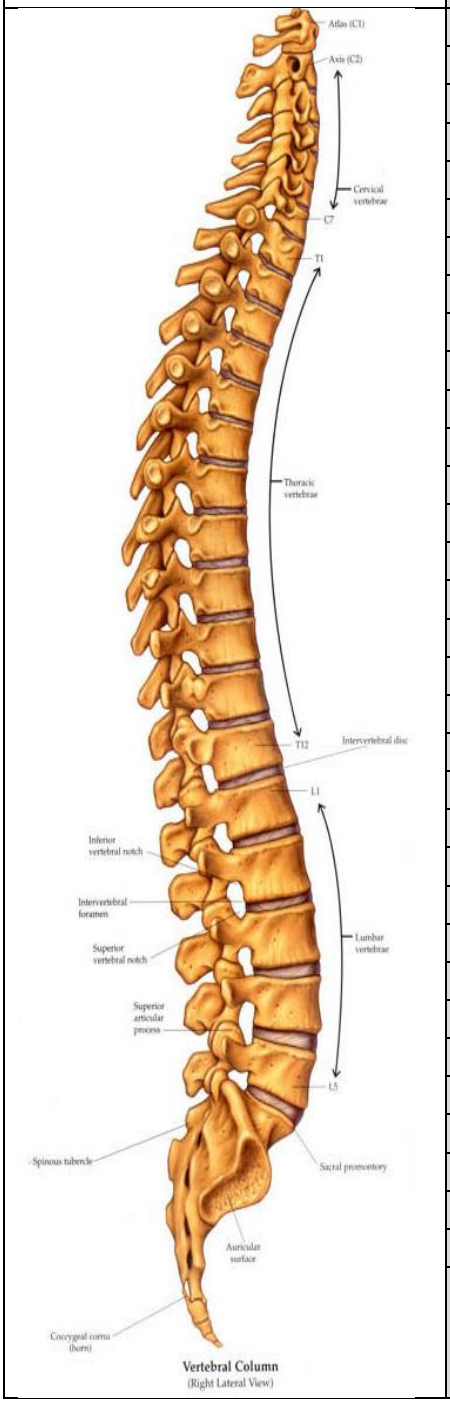
Table 5
Health Board Referrals and Referring Speciality: Non Admissions

Referring Board	Referring Specialty				Total
	Trauma & Ortho	Neuro	A&E	Other	
Greater Glasgow & Clyde	42	7	21	59	129
Lanarkshire	6	1	8	12	27
Ayrshire & Arran	12	0	4	6	22
Dumfries & Galloway	1	0	3	0	4
Borders	0	0	0	0	0
Highland	0	0	1	5	6
Grampian	1	1	0	3	5
Forth Valley	1	0	0	0	1
Tayside	1	4	0	1	6
Fife	0	0	2	1	3
Lothian	0	10	0	6	16
Shetland	0	0	0	0	0
Western Isles	1	0	0	0	1
Orkney	0	0	0	1	1
ECR	2	0	0	3	5
Overseas	0	0	0	1	1
Total	67	23	39	98	227

There is a historic over-referral pattern from some Health Boards but this has changed significantly over recent years with the opening of all MTC's in Scotland. The pattern of referral is likely to change further over the coming year as these Centres become more established.

Numbers referred from GGC remain inappropriately high (only 24% of referrals admitted), however this includes a small number of semi-elective referrals, referred from primary and secondary care often electronically via TrakCare, 31% of acute injury referrals from GGC were admitted. Referrals for non-traumatic and progressive conditions are redirected appropriately.

Table 6
Admissions by Anatomical Level and Severity

	Level	Complete	Incomplete	Intact Injury level	Total
	C 1	0	7	0	7
	2	0	6	0	6
	3	4	11	0	15
	4	7	24	0	31
	5	2	15	2	19
	6	2	1	0	3
	7	1	4	0	5
	8	0	0	0	0
	Sub-total	16	68	2	86
	T 1	0	4	0	4
	2	0	1	0	1
	3	2	0	0	2
	4	3	3	0	6
	5	1	2	0	3
	6	0	2	0	2
	7	0	2	0	2
	8	0	1	0	1
	9	1	1	0	2
	10	1	1	0	2
	11	0	2	0	2
	12	1	2	0	3
	Sub-total	9	21	0	30
	L 1	0	3	0	3
	2	0	1	0	1
	3	0	1	0	1
	4	0	0	0	0
	5	0	0	0	0
	Sub-total	0	5	0	5
	S1-5	0	0	0	0
	Sub-total	0	0	0	0
	TOTAL	25	94	2	121

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

Cervical injuries continue to predominate at 71% of total injuries. 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. The number of high complete tetraplegics is similar to last year at 11 (12 in 2023/24) resulting in a high number of acute ventilated bed days at 909.

Table 7
Mechanism of Injury

	2020/ 2021	2021/ 2022	2022/ 2023	2023/ 2024	2024/ 2025
Fall*	**55**	**78**	**78**	**65**	**74**
RTA	**20**	**22**	**24**	**21**	**16**
Motor vehicle	8	8	10	10	8
Motorcyclist	3	9	7	4	3
Bicyclist	7	5	7	7	4
Pedestrian	2	0	0	0	1
Medical	20	20	13	21	27
Industrial Injury	1	2	0	0	1
Assault	0	1	1	0	1
Penetrating Injuries	2	0	2	0	0
Sporting Injury	4	4	5	8	1
Domestic Injury	0	0	1	0	1
Self Harm	0	9	5	8	0
Other	1	1	1	6	0
Total	**103**	**137**	**130**	**129**	**121**

** includes diving injuries*

Falls remain the most common cause of injuries. There had been an increase in the number of patients admitted with infection as the cause of their spinal cord injury, similar to other specialist centres in the UK. Numbers of patients with sporting related injury and spinal cord injury related to deliberate self-harm remain variable.

Table 8A
Out-patient Activity

	20/21	21/22	22/23	23/24	24/25
Return	2,230	2,196	2,170	1,900	**2,200**
New	21	45	45	62	**45**

Out-patient activity remains stable. Out-patient activity of the Unit is focused on the post discharge management of spinal cord 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

	20/21	21/22	22/23	23/24	24/25
Return	2,230	2,196	2,170	1,900	**2,200**
DNA Return	207	272	464	327	**281**
New	21	45	45	62	**45**
DNA New	3	4	4	16	**8**

The DNA rate has stabilised, all clinic appointments within the Unit and at Outreach are offered face to face apart from NHS Lothian Outreach Clinic which remains displaced and therefore virtual. At patient request, a proportion of appointments are by telephone or Near Me for patient convenience.

Table 9
Out-patient Activity by Centre

	20/21	21/22	22/23	23/24	24/25	CHANGE YEAR	TOTAL 1992-2025
New QENSIU	21	45	45	62	45	(27.4%)	**3,687**
Return QENSIU	1,809	1,828	1,768	1,550	1,867	20.5%	**52,319**
Edinburgh	145	151	158	125	120	(4.0%)	**5,084**
Inverness	74	60	69	73	64	(12.3%)	**1,630**
Aberdeen	100	73	81	68	66	(2.9%)	**1,701**
Dumfries & Galloway	24	17	22	19	18	(5.3%)	**501**
Borders	23	18	17	18	15	(16.7%)	**476**
Arbroath	35	34	34	34	33	(2.9%)	**578**
Huntly	20	15	21	13	17	30.8%	**252**
Total	**2,251**	**2,241**	**2,215**	**1,962**	**2,245**	**14.4%**	**66,228**

Table 10
Attendance and Location Outreach Clinics

Location	% Attendance 23/24	% Attendance 24/25	Number of Clinics	Number of Patients
Aberdeen	79%	86%	5	66
Inverness	96%	100%	4	64
Dumfries	83%	95%	2	18
Arbroath	89%	89%	3	33
Borders	100%	79%	2	15
Huntly	87%	94%	1	17
Edinburgh	89%	92%	11	119
Ave Rate	89%	91%	28	332

All Outreach Clinics were re-established face to face in July 2021 apart from the Lothian Clinic which remains virtual. The Spinal Injuries Lothian Outreach Clinic was displaced due to clinic capacity pressures in Lothian. At this time no appropriate alternative location for this clinic has been identified. Due to the ongoing virtual nature of the Lothian Outreach Clinic, increasing numbers of established Lothian patients are travelling to the Unit in Glasgow for face to face appointments. Lothian patients injured in recent years are all attending the Unit in Glasgow for outpatient care.

Table 11
Out-patient Activity by Specialty at QENSIU

	20/21	21/22	22/23	23/24	24/25
Neurosurgery	215	216	238	273	235
Urology	0	0	0	22	73
Skin Care	0	2	1	0	4
Pain / Spasm	108	89	81	22	16
Neuroprosthetics	11	23	18	9	35
Orthotics	142	181	210	227	205
Sexual Dysfunction	4	8	9	6	3
Respiratory	23	21	19	13	18
Fertility	0	4	4	1	2
MDT Therapy	0	0	0	0	25
Catheter Change	0	0	0	0	1
Housing Clinic	0	0	0	0	15
Spinal Injury Annual Review	1306	1,284	1,188	1,017	1,236
Total	1809	1,828	1,768	1,590	1,868

Urological Surgeon was appointed to the service in autumn 2023 for one session a week.

All patients attending the Fertility Clinic had a procedure performed and are included in the day case activity table 12

Neuro-prosthetics includes assessment and surgery for upper limb problems principally in tetraplegic people

The Spinal Injury Annual Review Clinics remain the core component of the outpatient activity and numbers remain stable. These are nurse led with only 36% 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.

Day Case Activity

Day case numbers have reduced significantly largely due to an unusually low number of halo fixations this year. 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 the nature of consultations, which often 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. Patients who live outwith the West of Scotland attend local Halo, Pain and Spasticity Clinics.

The re-establishment of the urological surgeon sessional commitment within the Unit over a year ago has been successful**.**
This year new nurse led and therapy led clinics have been established, specifically the Catheter Care, Bowel Care, MDT Therapy Clinic and Housing Clinic. Feedback on all have been positive.
Due to ongoing senior medical staffing shortages the Spasticity Clinic and the Fertility Clinic have been paused for some months.

Table 12
Day Case Attendances by Reason

	20/21	21/22	22/23	23/24	24/25
Urology/Urodynamics/Catheter Change	45	64	55	56	**82**
Halo Fixation	85	159	101	24	**23**
Skin	1	2	0	0	**0**
Orthopaedic/Neurosurgery	0	0	0	0	**0**
Acupuncture / Pain / Spasm	278	309	287	237	**67**
Sexual Dysfunction	4	1	4	4	**1**
Fertility	21	33	41	2	**9**
Other	0	0	0	0	**0**
Total	**434**	**543**	**488**	**323**	**182**

Table 13
Day Case Attendances by Health Board

Day Case Attendances by Health Board						
	19/20	**20/21**	**21/22**	**22/23**	**23/24**	**24/25**
Ayrshire and Arran	56	31	63	53	20	**17**
Borders	0	3	2	0	1	**0**
Dumfries and Galloway	10	1	4	14	7	**3**
Fife	9	8	9	17	21	**8**
Forth Valley	66	25	22	22	10	**15**
Grampian	2	5	2	7	2	**3**
Greater Glasgow and Clyde	298	214	283	229	167	**85**
Highland	19	25	39	22	10	**11**
Lanarkshire	131	81	78	88	61	**14**
Lothian	43	35	36	29	17	**20**
Shetland	0	0	0	0	0	**0**
Tayside	11	6	5	7	7	**5**
Orkney	0	0	0	0	0	**0**
Western Isles	0	0	0	0	0	**1**
ECR	0	0	0	0	0	**0**
Total	**645**	**434**	**543**	**488**	**323**	**182**

Table 14
Supporting Surgical Services
Multi-disciplinary rehabilitation is the keystone of the workload in this patient population. Surgical support is required from neurosurgery, urology, orthopaedics and maxillofacial surgery.

Service	**Acute Operations**	**Elective Operations**
Neurosurgery	**38**	**1**
Urology	**0**	**38**
Other	**10**	**14**
	Clinics	**Patients**
Neurosurgery 4 x Month	**38**	**275**
Urology	**10**	**73**

The number of acute surgical procedures required is stable with an increase in elective urological procedures performed following the appointment of a urological surgeon to the service one session a week in autumn 2023. 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, an MS Teams meeting led by a neuroradiologist. Spinal fixation surgery is performed by spinal neurosurgeons. The Unit maintains a theatre list in the QEUH for thoracolumbar fixations and elective surgery e.g. urological surgery. 21% of the Unit's

QEUH lists were cancelled this year at short notice due to theatre staffing shortages. The mean time to spinal fixation surgery post trauma was 9.5 days this year.

Table 15
Ventilated Bed Days

Patients with high-level spinal cord injury often require temporary or permanent ventilator support. The Respiratory Care Team consists of Consultants in Spinal Injuries and a Respiratory Care Spinal Nurse Specialist 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
20/21	**Edenhall**	12	22	258
	RCU	2	39	78
21/22	**Edenhall**	9	20	179
	RCU	1	7	7
22/23	**Edenhall**	23	32	742
	RCU	0	0	0
23/24	**Edenhall**	14	42	587
	RCU	1	366	366
24/25	**Edenhall**	**18**	**51**	**909**
	RCU	**5**	**138**	**692**

Each patient is counted only once but may be responsible for multiple episodes of care or inter-ward transfers if their condition varies. Edenhall, the HDU ward, again provided care for a significant number of acutely ventilated patients. Acutely ventilated patients require 1:1 nursing, the Edenhall nursing team supported by medical and physiotherapy colleagues have therefore been under additional pressures caring for this group. Three of these 18 patients now require long term ventilation. When medically stable, established long term ventilator dependent patients are moved to the Respiratory Care Unit (RCU) in Philipshill.
Currently there are 3 ventilator dependent patients in RCU who are delayed discharges, 1 of these patients has been delayed since 2023/24, nursing staff in RCU in particular this year have been under significant additional pressures caring for this group.
While the average ventilated days in Edenhall seems high at 51, this figure includes the patients who remain long term ventilator dependent. The mean time to wean a patient from a ventilator in Edenhall is 29 days this year.
The mean age of ventilated patients is 61, a significant increase on previous years e.g. it was 45 five years ago

The introduction of the Respiratory Bundle for newly injured vulnerable tetraplegic patients has resulted in less patients requiring invasive ventilation. The respiratory bundle developed by the wider team involves aggressive respiratory prophylactic techniques such as the elective use of non-invasive ventilation, high flow nasal oxygen, nebulised bronchodilators, mucolytics and manual techniques to maintain respiratory hygiene.

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 spinal cord dysfunction 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

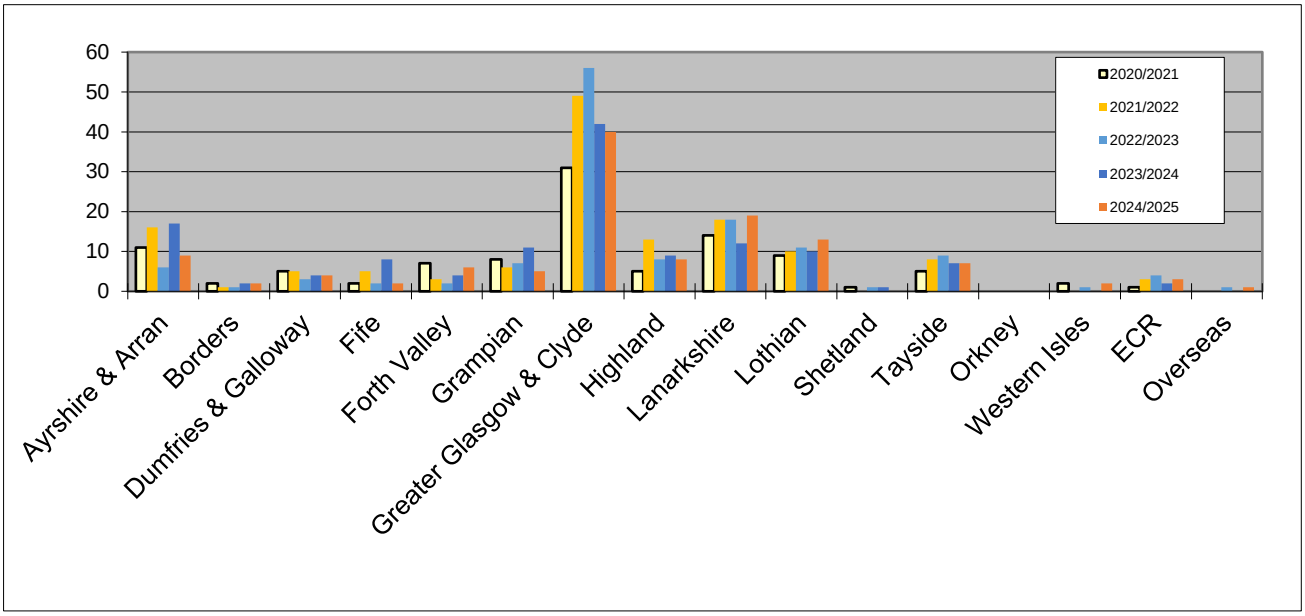
2024/25	A	B	C	D	E	Total	Total 2023/24
Ayrshire and Arran	3	1	0	5	0	9	17
Borders	2	0	0	0	0	2	2
Dumfries and Galloway	1	0	2	1	0	4	4
Fife	0	0	2	0	0	2	8
Forth Valley	1	1	2	2	0	6	4
Grampian	2	0	1	2	0	5	11
Greater Glasgow and Clyde	6	2	9	23	0	40	42
Highland	3	0	1	4	0	8	9
Lanarkshire	3	2	0	13	1	19	12
Lothian	3	0	3	7	0	13	10
Overseas	0	0	0	1	0	1	0
Shetland	0	0	0	0	0	0	1
Tayside	0	1	1	5	0	7	7
Orkney	0	0	0	0	0	0	0
Western Isles	0	1	0	0	1	2	0
ECR	0	2	1	0	0	3	2
TOTAL	24	10	22	63	2	121	129

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.

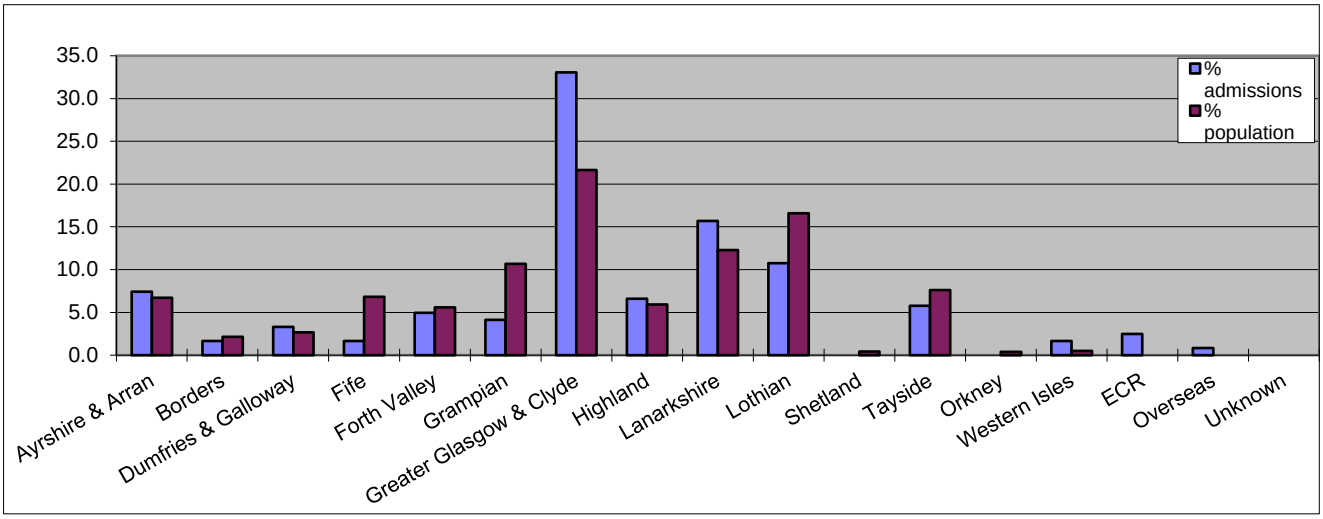
This resulted in the development of the Spinal Clinical Nurse Specialist service and Outreach Clinics in areas identified from the database as having a concentration of patients. All Outreach Clinics are medical consultant led with nursing staff attending although due to medical staffing shortage in 2024/25, medical staff presence at Outreach Clinics was paused for over 6 months. We are delighted to welcome volunteers from Spinal Injuries Scotland (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 Spinal Clinical Nurse Specialists, there is a Spinal Respiratory Nurse Specialist to manage the care of patients who have domiciliary ventilation, Education Nurse Facilitator, Unit Support Nurse and two Discharge Co-ordinators. They all provide assistance to the Lead Nurse.

Figure 5
New Admissions by Health Board of Residence 2019-2025



Four non-Scottish patients were admitted (ECR & Overseas). A small number of such patients is to be expected.

Figure 6
Admissions by Health Board compared with Population Size



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

Table 17
New Out-patient Activity by Health Board

	20/21	21/22	22/23	23/24	24/25
Ayrshire and Arran	1	10	4	5	**8**
Borders	0	0	1	3	**0**
Dumfries and Galloway	0	0	0	0	**2**
Fife	0	0	1	2	**2**
Forth Valley	0	2	2	1	**0**
Grampian	0	0	1	1	**0**
Greater Glasgow and Clyde	10	22	23	35	**23**
Highland	1	0	3	2	**3**
Lanarkshire	7	9	9	6	**7**
Lothian	1	0	0	6	**0**
Shetland	0	0	0	0	**0**
Tayside	1	0	1	1	**0**
Orkney	0	0	0	0	**0**
Western Isles	0	1	0	0	**0**
ECR	0	1	0	0	**0**
Total	**21**	**45**	**45**	**62**	**45**

3.2 Efficient

Table 18
Length of Stay by Level of Spinal Cord Injury

Discharged Patients 2024/25

Case-Mix	No. of Patients	Mean L.O.S.	Range of L.O.S.
I	28	146	11 – 403
II	10	95	14 – 256
III	20	132	11 – 207
IV	58	63	4 – 276
All	116	98	4 - 403

Case-mix I, II and III are the most paralysed group with grossly disordered pathophysiology, case-mix I 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
% of Utilised Bed Days by ASIA Scale
Discharged patients 2024/25

ASIA scale on admission	No. of patients	Mean length of stay (days)	Range	Utilised bed days %
A	22	141	11- 403	27
B	9	136	14 – 255	11
C	25	132	36 – 262	29
D	58	63	4 – 276	32
E	2	42	5 – 78	1

Length of stay in the tables above is the actual length of stay per case-mix and per ASIA Impairment Scale in total, it does not take into account that 24% of patients had a delayed discharge, occupying 1,028 bed days, thereby extending the reported length of stay. High complete tetraplegics this year resulted in 909 acute ventilated bed days in total.

Table 20
Bed Utilisation

National Spinal Injuries Unit Edenhall HDU = 12 Beds Philipshill = 32 Beds		
Funded Bed Complement	**Actual Occupied Bed Days By SCI patients**	**% Occupied by SCI patients**
44	**11,082**	**81%**

Occupancy figures for spinal cord injured patients are largely unchanged, due to bed pressures in NHS GG&C, the Unit accommodated 188 non-spinal injured patients who are not counted in the above figures, occupying a total of 1,273 bed days. The position will be reviewed at the next report.

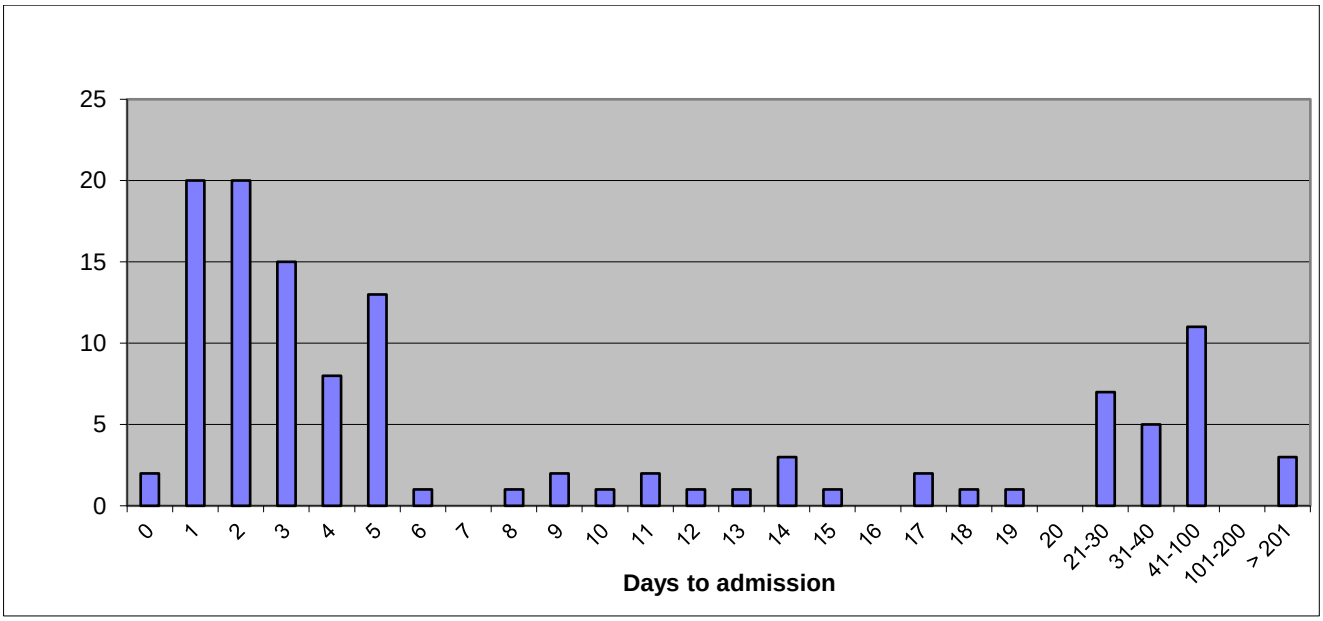
3.3 Timely

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 supports 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 for over 30 years. There were no delays in transfer due to lack of beds. Time to admission has decreased in 2024/25, with ongoing delayed referral from recently opened MTCs, as evidenced by an audit, fewer patients are referred from the Emergency Departments directly but from ITUs or Major Trauma Wards once stabilised.

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 is about two weeks.

Figure 7
Time from injury to admission



The policy is of immediate admission for all patients once they are clinically stable. Early referral is encouraged. In 2024/25 35% of patients were admitted within 48 hours of injury and 47% were admitted within 72 hours, 65% were admitted within one week, 45% of trauma patients were admitted within 48 hours of trauma.
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 outwith the trauma system.

They are referred and admitted much later than the trauma patients. All patients with non-traumatic conditions were assessed within 2 weeks of referral.

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 cooperation 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 (currently under review) 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
Audit this year confirmed a significant majority of patients were admitted within 24 hours of referral with 15% of trauma patients being admitted directly from Accident and Emergency Departments on the day of injury.

Approximately 20% of patients have associated orthopaedic injuries. Cooperation between ITU, the referring hospital and other specialised units can be required (Plastic Surgery, Oral and Maxillofacial Surgery, Renal, etc.).

Table 21
Days to Admission by Range

	No. of Patients	Mean Time (Days)	Range of Time
2020-2021	**103**	**19**	**0 - 375**
2021-2022	**137**	**116**	**0 - 12615**
2022-2023	**130**	**21**	**0 - 643**
2023-2024	**129**	**29**	**0 - 1126**
2024-2025	**121**	**206**	**0 – 21,838**

Table 21 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 2024/25 the median time to admission for all injuries was 2 days from injury.

Table 22
Delayed Discharge

	No. of Patients Discharged	No. of Patients Delayed	Mean Delay (days)	Range of Delay (days)	No Delay
2020/2021	102	9	65	7 - 322	91%
2021/2022	121	25	31	1 - 108	79%
2022/2023	119	31	47	1 - 218	74%
2023/2024	136	41	38	2 - 318	70%
2024/2025	116	28	37	1 - 230	76%

How delays to patient discharge from the Unit are calculated and recorded, has changed in recent years, we now follow the same delayed discharge recording method as GGC. Despite discharge planning weeks or months ahead a number of patients continue to have delays in discharge, previously generally due to lack of suitable accommodation. If accommodation or necessary carers were unavailable patients were transferred back to the referring hospital once they had completed their rehabilitation. Since the establishment of all MTC's in Scotland, repatriation to the referring hospital e.g. MTC or local Trauma Unit has proved challenging. Across Scotland challenges recruiting carers has led to significant delay to discharge. Staff at the Unit continue to work with local health and social care partnerships and housing organisations to minimise delays in return home.

Table 23
Delayed Discharge by Health Board

Health Board	No of patients	Total days delayed
Ayrshire and Arran	1	29
Dumfries & Galloway	0	0
Forth Valley	1	6
Grampian	3	15
Greater Glasgow & Clyde	16	730
Highland	1	106
Lanarkshire	3	58
Lothian	2	79
Tayside	1	5
Total	**28**	**1,028**

One thousand, and twenty eight bed days were occupied by delayed discharge patients making increasing demands on nursing time in particular. Sixteen patients from GGC were delayed accounting for a massive 730 bed days. In keeping with previous reports for comparison the total bed days delayed only takes into account the delays in patients

discharged by the end of the year. It does not, for instance, include the 3 current long term ventilator dependent inpatients who are delayed.

A multidisciplinary short life working group was established this year to review barriers to discharge and consider potential solutions. Some practice change e.g. the establishment of the Housing Clinic, process of referral to Health and Social Care Partnerships and involving each patient's regional trauma coordinator at discharge planning is established and will hopefully help reduce the number of delayed discharges.

Additional measures agreed in the 2022 Service Level Agreement

Table 24
Method of Mobilising by Level of Injury on Discharge

Level	Walking	Mobilising by wheelchair	Total
C1 – C4	29	29	58
C5 – C8	17	8	25
T1 – T12	10	18	28
L1 and below	4	1	5
Total	60	56	116

Twenty percent of patients had their first Goal Planning Meeting within 3 weeks of mobilising. Ninety nine percent of patients had their Spinal Cord Independence Measure recorded on admission, at the start of rehabilitation and on discharge.

In 2024/25 23 patients in total required to be ventilated, resulting in 1,601 ventilated bed days in total. There were 3 recorded ventilator associated pneumonias.

3.4 Effectiveness

Clinical Outcomes/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 are outlined in University of Glasgow - Research - Research units A-Z - Scottish Centre for Innovation in Spinal Cord Injury - Publications

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 centres can be made using data from their national commissioning database. The average time from trauma to admission for most English centres is two months, in Scotland it is much shorter. 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

	20-21	21/22	22/23	23/24	24/25
New Admissions	110	137	130	129	121
New Outpatients	21	45	45	62	45
Key Performance Indicators					
Referrals					
All patients referred	303	421	342	338	294
Telephone advice	200	366	212	209	173
Complex advice with support/visit	31	100	60	33	62
New patient activity					
All patients admitted with neurological injury	95	126	125	125	119
All patients admitted with non-neurological injury	8	11	5	4	2
Surgical stabilisations:					
- Thoracolumbar fixations	14	26	22	20	13
- Elective removal of metalwork	0	1	4	6	0
- Cervical fixations	18	21	28	31	25
- Halo immobilizations	11	22	18	2	2
Spinal injury specific surgery:					
-Other	12	6	28	19	52
Implant spasm and pain control:					
- New pumps implanted	0	1	0	1	1
Removal of pump	0	1	0	0	1
- Revision pumps	0	0	0	0	0
- Operational pumps	6	6	5	5	5
- Pump Refill QENSIU	6	6	5	5	5
- Pump Refill Local	N/A	N/A	N/A	N/A	N/A
Step down unit:					
- Episodes of care	0	6	24	30	24
- Number of families/people	0	11	35	62	52
- Number of days (nights)	0	93	182	81	54
- Relatives Room					
- Episodes of care	0	1	3	29	35
- Number of families / people	0	1	10	40	57
- Number of days (nights)	0	16	192	75	128
New inpatient occupied bed days					
Total Available (new & return)	15,534	15,497	15,853	16,791	13,734
Actual	10,299	11,776	13,569	14,530	11,082
Bed Occupancy %	66%	76%	86%	87%	81%
Mean length of stay					
I	163	166	186	165	146
II	94	99	143	98	95
III	109	110	135	122	132
IV	38	40	66	69	63
All	87	79	106	103	98

Range of length of stay	1-432	1-325	3-392	0-556	**4-403**
Delays in discharge (actual v's intended)					
Number of patients discharged	102	121	119	136	**116**
Number of patients with delayed discharged	9	25	31	41	**28**
Length of delay (mean/mode)	65	31	47	38	**37**
% with no delay	91%	79%	74%	70%	**76%**
Patient Recorded Outcome Measures					
% of utilised bed days by ASIA scale	N/A	N/A	See table 19	See table 19	See table 19
Delayed discharge by Health Board	N/A	N/A	See table 23	See table 23	See table 23
Method of mobilising by level on discharge	N/A	N/A	See table 24	See table 24	See table 24
Number of patients with ventilator acquired pneumonia (VAPs)	N/A	N/A	N/A	4	**3**
% of patients who had their first Goal Planning Meeting within 3 weeks of mobilising	N/A	N/A	24%	19%	**20%**
% of discharged patients who had Spinal Cord Independence Measure recorded	N/A	N/A	92%	93%	**99%**
Day case					
by NHS Board of Residence	See table 13	See table 13	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	**See Table 12**
Outpatient activity					
New Patient no's QENSIU	See Table 8A	See Table 8A	See Table 8A	See Table 8A	**See Table 8A**
Return Patient no's QENSIU	See Table 8A	See Table 8A	See Table 8A	See Table 8A	**See Table 8A**
New Patient QENSIU (DNAs/ % attendance)	14%	9%	9%	26%	**26%**
Return Patient QENSIU (DNAs/ % attendance)	9%	12%	21%	17%	**17%**
New Outreach Clinics by Centre	See Table 9	See Table 9	See Table 9	See Table 9	**See Table 9**
Return Outreach Clinics by Centre	See Table 9	See Table 9	See Table 9	See Table 9	**See Table 9**
Number of patients discharged from the service	Life Long Care	Life Long Care	Life Long Care	Life Long Care	**Life Long Care**
Allied Health Professionals activity	N/A	N/A	N/A	N/A	**N/A**
New Patient (DNAs/ % attendance)	See Table 8B	See Table 8B	See Table 8B	See Table 8B	**See Table 8B**
Return Patient (DNAs/ % attendance)	See Table 8B	See Table 8B	See Table 8B	See Table 8B	**See Table 8B**

3.5 Safe

Readmissions

Most neurologically injured patients discharged from the Unit never require readmission. Once re-established in the community, they attend annually at the Outpatient Department 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 25 readmissions to the Unit during the year, a shortfall on the contract estimate of 50 readmissions, most often due to elective surgery or top up rehabilitation to optimise independence.

During the year of the 116 patients discharged following primary rehabilitation no patients were admitted to their local hospital acutely within 30 days of discharge from this Unit with a complication of spinal cord injury.

CCAAT Audits/ Care Assurance Visits

Care Assurance Audits are carried out both at an organisation level and locally. They are unannounced visits. These results highlight improvement where required and celebrate success. Edenhall, the HDU admissions ward, had 4 visits this year, a combination of Corporate, Sector and Peer visits resulting in Amber and Green compliance. Philipshill, the rehabilitation ward, had a Sector and a Peer visit and achieved one Gold award along with Green compliance.
A number of improvements were made to Edenhall following the amber audit. Support was given to the team by the Education Nurse Facilitator, Lead Nurse and the corporate team to ensure green compliance was achieved.

3.6 Person Centred

Person Centred Visiting

Visiting remains fully flexible with no set times, ensuring respect of people's individual needs in particular the safety, privacy and dignity of all patients. Visiting is guided by patients in partnership with the people who matter to them.

Family Unit / Step-Down Unit

In 2024/25 the Family Unit was used for 24 episodes by 52 people for a total of 54 days. The relatives' rooms were occupied for 128 days.

Patient Recorded Outcomes 2024/25

Across the year, the Unit carries out interviews with patients at the point of discharge to gain an understanding of their experience and their appraisal of their stay in rehabilitation. These patient reported outcome measures are then used by the spinal injuries staff to acknowledge successes and highlight areas in need of ongoing improvement. Consisting of 40 minute semi-structured interviews, the current evaluation was formed from a sample of patients during 2024/25.

Feedback from patients would suggest that staff communication remains clear, patients felt informed, and there was consistency of information across rehabilitation. Across their stay, patients felt listened to and respected by staff. Patients appreciated the role goal planning played in shaping their rehabilitation and typically felt they achieved their goals given the extent of their injuries. There was a sense that patients had access to all the equipment they needed to achieve their goals, albeit there could be frustration if they were unable to use specific equipment or resources owing to their difficulties. At the point of discharge, most believed it was the right time to be leaving the Unit and were aware of the ongoing support they could access from the Unit as an outpatient. The positive experiences of patients are captured in the direct quotes below:

- "The auxiliary staff were brilliant most of the time. … and … were great."
- "Dr … went through my scan with me and showed me what was going on. This was really helpful."
- "I felt some of the nurses really listened, .. was fantastic…"
- "The occupational therapists have been really helpful…I didn't think I'd be able to write again but I can now."

While the vast majority of feedback was positive, patients continue to report that reduced staffing levels have impacted negatively upon their participation in rehabilitation. This is predominately highlighted as an issue affecting nursing, albeit patients occasionally noted that physiotherapy sessions could be impacted. There continues to be feedback from the patients in the Unit regarding feeling unprepared for discharge and that for many, their accommodation in the community has not yet been found or adapted at the point of being ready to leave hospital. However, on the whole, patients appeared to acknowledge the difficulties that exist within the Health and Social Care Partnerships and the limited housing stock. Some of the challenges and frustrations of patients are captured by some of the comments below:

- "There's not enough staff for the swimming pool."
- "There is a big turnover of staff…and it is different [nursing] staff all the time."
- "Sometimes [nursing] staff numbers seemed low and this impacted on care, for example if you needed to get back to bed…I just give up when it's bank staff"
- "Sometimes I thought the nurses and the physios / OT's could communicate better about what I could and could not manage on the ward."

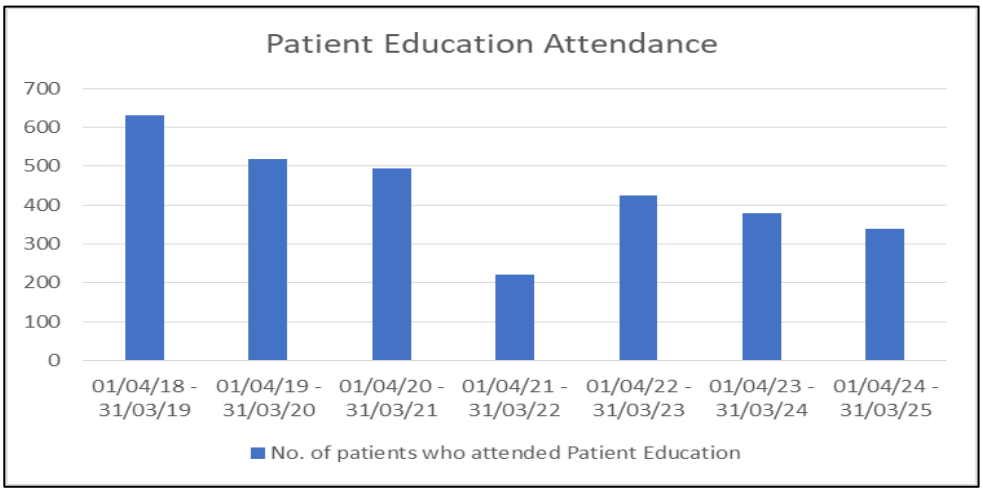
The Unit remains committed to addressing those areas of performance which are amenable to improvement and plans are already in place to address the themes which emerged from patient feedback. While some of the feedback highlights areas requiring improvement, the general themes confirm that the Unit continues to be perceived positively among patients and the quality of care and rehabilitation remains high.

Patient Education/Workshop Spinal Education

Education is fundamental, patients are required to learn new skills, to manage their care independently or direct others to do this for them.

The multi-disciplinary approach to education allows this to be a continual ongoing process. To compliment daily informal education we have a rolling 16 week programme supported by the MDT and peer support staff from a number of spinal charities, patient attendance was 338 last year. This is down on previous years and is not near pre pandemic levels.

Figure 8



Friends and family are encouraged to attend these sessions resulting in a positive impact on the patient learning experience allowing them to consolidate knowledge and discuss what they have learned.

Every opportunity is an opportunity to learn and develop a new skill a patient may need following discharge. “Teach Back” is used to assess understanding.
The charity Aspire support “Mind the Gap”, a questionnaire completed by patients assessing knowledge of SCI prior to discharge, collated by an impartial non clinical member of Aspire, any gaps in knowledge are addressed prior to discharge.

Friends and families benefit from a dedicated day where they have the opportunity to learn about SCI and the opportunity to gain support from the team and peer support staff. These sessions are also offered virtually.

Education and training is offered across Scotland, this can be conducted face to face or remotely, this is particularly useful prior to discharge, ensuring transition from hospital to community runs smoothly.
Teaching sessions are delivered to nursing, medical and therapy university students, bowel management in neurological conditions is now part of the nursing degree curriculum, the Education Nurse from the Unit supports the practical and theoretical component of this training at local universities.

Assess, Plan, Implement, Evaluate in Digital Clinical Notes

The Unit is an early adopter of many new corporate initiatives. One such initiative has been the introduction of Digital Clinical Notes (DCN). The DCN programme has been established to implement the active clinical notes functionality on TrakCare.

The core principles of person-centred care planning (Figure 9) were developed across NHS GGC following extensive engagement in 2021. These principles can best be aligned with the Assess, Plan, Implement, Evaluate (APIE) nursing model, the basis of the Care Plan to provide rigor and structure in completion of patient records.

An Evaluation Tool has been developed and used to collect quantitative and qualitative data on the care experience of patients as per the agreed Principles of Person-Centred Care

Planning in NHSGGC. The evaluation tool used has been tested in DCN and non-DCN areas and has undergone some refinement to consolidate the quantitative data from the Care Plans. It aims to sharpen the conversational approach with the patient to gather care experience to determine both whether this was consistent with that documented in the Care Plans, and if care experienced by patients is aligned with the principles of person-centred care planning.

This pre-implementation evaluation is being undertaken within the Unit

Figure 9: Core principles of Person-Centred Care Planning

4. Quality and Service Improvement

We continually strive to embrace new ideas in the Unit and encourage staff to share improvement ideas with the Team. Staff are encouraged to gain QI training opportunities to enhance both staff and patient experience, leadership programmes are shared and offered to all staff.

App Launch

In collaboration with Health Care Improvement Scotland the Unit has created a Spinal App to strengthen information and resources to support patients, families and caregivers.

The App aims to provide information about SCI to users, help users better understand the care journey and patients to live as independently as possible while being supported by the Unit. It is anticipated that patient's families and healthcare professionals from across the country will be able to use the App pre-admission, during admission and that it will be a lifelong resource.

The public facing side of the App has been completed and is in use with the official App Launch date set for the 13th May 2025. The App can be installed using the following QR code.

Copy link as text

Medicine Management

Sustainability and value are core principals. Within Philipshill, the rehabilitation ward, medication management was recently changed. In collaboration with Pharmacy, stock and non-stock ordering was reviewed, with a weekly stock check being performed and the oldest stock moved to the front of the storage area for use first, aiming to cut down on waste and therefore reduce cost.

Additional Therapy Staffing

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). A Business Case was submitted to the national commissioners for funding additional therapy time, funding for one year was approved resulting in enhanced staffing as follows;

B7 0.8 WTE Clinical Specialist OT
B7 0.8 WTE Clinical Specialist PT
B7 0.8 WTE Advanced Specialist SLT
B4 0.8 WTE SLT Health Care Support Worker
B3 1.0 WTE Generic Therapy Support Worker.

This enhanced staffing has enabled a comprehensive service review through audit and benchmarking against other SCI services around the UK and similar rehabilitation services around Scotland, as well as networking with local, national and international colleagues. Education pathways have been established for non-specialist services working with people with SCI around Scotland, either prior to or following admission to the Unit, to improve continuity of care.

Prior to February 2024, the Unit did not have a funded or dedicated speech and language therapy (SLT) service. This has now been established and enabled early intervention and regular input for SCI patients requiring assessment and treatment for communication and/or swallowing impairments. There is an improved awareness of the role of SLT across the MDT and new services and treatment techniques not previously available to patients have been introduced, including FEES (Fiberoptic Endoscopic Evaluation of Swallowing) and Above Cuff Vocalisation (ACV). We now have SLT input into MDT and goal planning meetings and Unit documentation. The Screening Tool for Oro Pharyngeal Swallowing Symptoms (STOPSS) for SCI is in the process of being adapted and access to alternative and augmentative communication / assistive technology has been enhanced.

The addition of a clinical specialist physiotherapist and occupational therapist to the already well established therapy team has resulted in a number of benefits. Through collaboration with the Rehabilitation Review Working Group, the discharge nurses were supported with key worker allocation, aiming to reduce the time from first mobilising to first goal planning meeting. A new timetabling system was developed and trialled in one room on Philipshill to enhance patients access to rehabilitation and efficiency of service delivery. A new Housing Clinic has been established by the occupational therapy team which supports patients to identify wheelchair accessible housing in collaboration with Housing Options Scotland. This has already reduced the time from first mobilising to submission of housing applications and

established a pathway for housing support post discharge. A combined physiotherapy/occupational therapy clinic was trialled over six months and was well received by patients and clinical staff. The majority of patients were managed fully within one session. Finally, the physiotherapy team has been supported to re-establish the aquatic physiotherapy service with sessions currently running twice a week most weeks. Additional areas for development were identified and work continues on improving documentation, use of outcome measures and rehabilitation technology, and establishing more effective and efficient ways to provide our hand therapy service and gym based rehabilitation programme.

Progress reports were submitted to national commissioners during this trial period and we are delighted that as a result of the positive impact of these posts on the Unit services, funding was approved on a recurrent basis. These posts are in the process of being recruited to and we look forward to continuing the work started during the trial and further development of these roles.

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. In person teaching on Friday afternoons is now re-established, a great forum for discussion around evidence based practice.

The revised Management of Dysreflexia guideline and flowchart have recently been accepted by Clinical Governance for use, as have the pathway and documents associated with the Urodynamics Clinic. The Bowel Management Protocol and Bladder Management Protocol are under review.

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 dangerous event 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.

Recorded Adverse Events

Table 25

Category	Number
Pressure ulcer care	12
Medication incident	0
Contact with object	9
Medical device & equipment	10
Communication	2
Slips, trips & falls	77
Security	0
Moving & handling	5
Violence & aggression	25
Challenging behaviour	11
Fire alarm actuation	3
Needle-stick injury	1
Infection control issue	1
2222	13
Self- harm	1
Staffing levels	5
Radiology incident	0
Treatment issue	3
Patient Abscondment	2
IT Governance	0
Total	**180**

Table 26

Overall	
1 – Negligible	104
2 – Minor	69
3 – Moderate	5
4 – Major	2
5 – Extreme	0
Total	**180**

The Major adverse events were a fall with harm and a patient induced drug overdose.

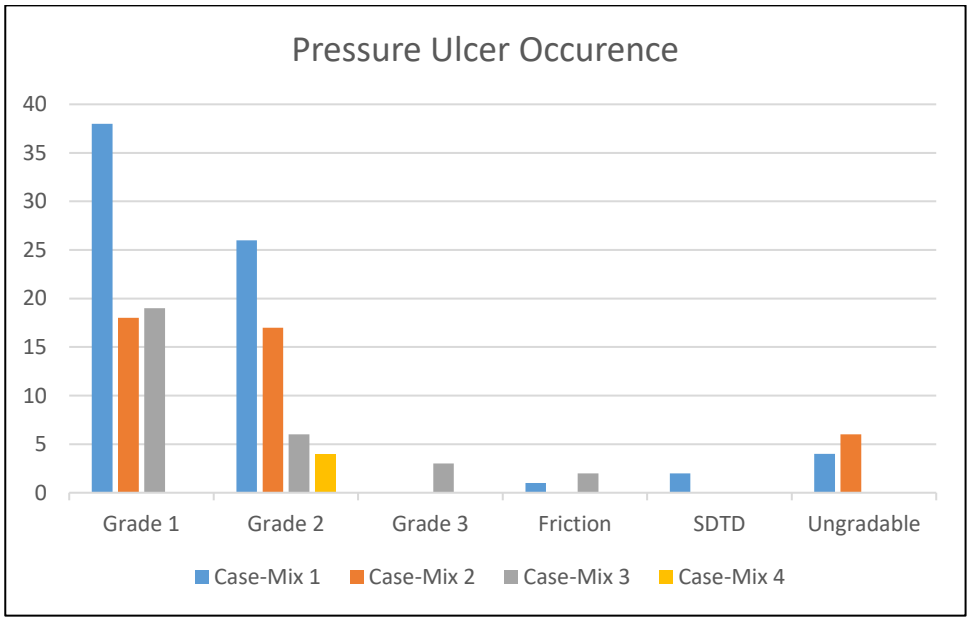
The number of falls within the rehabilitation ward in particular has slightly increased at 77 from 56 in 2023/24, the establishment of a short life working group with a focus on common causes of falls and prevention is under consideration.

Table 27
Focus on Slips, Trips and Falls

Type of Fall	Number of patients
Controlled	10
Fall from bed	6
Fall from chair	25
Fall from height	1
Fall from level	13
Slip	7
Trip	4
Unknown	2
Other	9

Pressure Ulcers
Pressure ulcers (PU), caused by prolonged pressure that injures the skin and underlying tissue are a common cause of harm in hospitals. They can have a significant and negative impact on the lives of people who experience them, their families, and carers.

Figure 10
Red Flags per Case-Mix



SDTD Suspected Deep Tissue Damage

The Red Flag process allows early detection of PU development with early implementation of steps to prevent further deterioration and promote healing. Patient's education and participation in good pressure care aims to reduce PU development lifelong.
We locally record all PU (both avoidable and unavoidable) of Grade one and moisture related damage. All avoidable hospital acquired PU of grade two or above are reported on Datix. As expected PU are seen most commonly in Case-mix 1 patients, high tetraplegics with the most severe neurological injuries, they have the highest dependency.

Hospital Acquired Infection

Infection Control Precautions

Standard Infection Control Precautions (SICPs) are the basic infection prevention and control measures necessary to reduce the risk of transmission of infectious agent from both recognised and unrecognised sources of infection. To be effective in protecting against infection risks, SICPs must be used continuously by all staff.

This year Edenhall, the HDU ward was audited on 4 occasions for SICPs, compliance varied between 77% and 93%. Following the 77% audit result an improvement plan was put in place with enhanced supervision audits carried out locally, staff were supported in making improvements and there was a period where Edenhall was closed for refurbishment. These improvements have resulted in a 93% SCIPS audit. Philipshill, the rehabilitation ward was audited on 3 occasions, compliance varied between 87% and 93%.

Table 28
Hospital Acquired Infection

	19/20	20/21	21/22	22/23	23/24	24/25
COVID	**0**	**Unknown**	**6**	**6**	**9**	**13**
Salmonella	**0**	**0**	**0**	**0**	**0**	**0**
Clostridium Difficile	**1**	**0**	**0**	**0**	**1**	**0**
Streptococcus pyogenes	**0**	**0**	**0**	**0**	**1**	**1**
Scabies/TB/varicella Zoster	**0**	**0**	**0**	**1**	**0**	**0**
MDR Acinetobacter	**0**	**1**	**0**	**0**	**3**	**0**

With the support of the GGC Infection Control Team, all patients with hospital acquired infection (HAI) are isolated or cohorted appropriately within the Unit to limit the spread of infection keeping other patients and staff safe. Edenhall receives patients in the early stages 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.

Morbidity and Mortality

All deaths are presented at regular morbidity and mortality meetings (M&M). There were five deaths in the Unit in 2024/25, all were expected.

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 four formal complaints, three of which were partially upheld and one fully upheld.

Consultants and senior nursing staff continue to provide advice to the Clinical Service Manager regarding complaints involving management of patients outwith the Unit.

The Unit also receives feedback via Care Opinion, a QR code to access Care Opinion is available throughout the Unit.

Touch In Tuesday

Following recent patient feedback we realised that a number of issues could have been easily resolved if management had been made aware. For this reason we have taken the proactive step to host an evening on the first Tuesday of every month to support patients and their friends/families during their stay in the Unit. This is a safe and supportive space. Data and feedback is being gathered on this initiative.

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

An equality, diversity and human rights e-learning module is live on LearnPro. All staff are required to complete the module 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.

NHS GG&C is holding its third Equality, Diversity and Inclusion Learning Event across the organisation, members of the Team are invited to attend. An interpreting service is available to all services users. The Unit used the face to face interpreting service to aid inpatient communication 23 times during 2024/25, for Mandarin, Arabic, Punjabi, French speaking patients. The telephone interpreting service was also widely used by the service.

6. Financial Reporting and workforce 2024/25

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

Financial Report for the Twelve months to 31st March, 2025

	AfC Banding	WTE	Contract Value £	Contract Value YTD £	Actual YTD £	Variance YTD £	Year End Forecast £	Year End Forecast Variance £
Dedicated Staff Costs								
Consultant		5.71	1,164,461	1,164,461	1,010,546	153,915	1,010,546	153,915
Specialty Doctor		1.00	110,822	110,822	62,439	48,384	62,439	48,384
Senior Medical		*6.71*	*1,275,283*	*1,275,283*	*1,072,984*	*202,299*	*1,072,984*	*202,299*
Junior Medical		2.48	198,630	198,630	219,685	-21,055	219,685	-21,055
		9.19	*1,473,913*	*1,473,913*	*1,292,669*	*181,244*	*1,292,669*	*181,244*
Administrative	4	6.50	272,415	272,415	272,415	0	272,415	0
Administrative	3	0.14	5,358	5,358	5,358	0	5,358	0
Administrative	2	2.49	87,703	87,703	87,703	0	87,703	0
		9.13	*365,475*	*365,475*	*365,475*	*0*	*365,475*	*0*
Senior Manager	8a	0.50	43,606	43,606	43,606	0	43,606	0
Nursing	7	10.10	684,598	684,598	528,183	156,415	528,183	156,415
Nursing	6	9.96	608,496	608,496	722,556	-114,059	722,556	-114,059
Nursing	5	53.30	2,808,737	2,808,737	2,505,032	303,705	2,505,032	303,705
Nursing	2	23.88	841,101	841,101	1,401,692	-560,590	1,401,692	-560,590
Housekeepers	2	2.00	70,444	70,444	68,584	1,860	68,584	1,860
Urology CNS	7	0.20	13,311	13,311	13,311	0	13,311	0
Phlebotomist	2	0.53	18,668	18,668	0	18,668	0	18,668
		100.47	*5,088,960*	*5,088,960*	*5,282,963*	*-194,002*	*5,282,963*	*-194,002*
Psychologist	8B	1.00	95,498	95,498	95,498	0	95,498	0
Clinical Physics	7	0.00	0	0	0	0	0	0
Orthotist	7	0.20	13,311	13,311	13,311	0	13,311	0
AHP	7	12.06	817,697	817,697	948,270	-130,573	948,270	-130,573
		13.26	*926,505*	*926,505*	*1,057,079*	*-130,573*	*1,057,079*	*-130,573*
Total Staff		**132.05**	**£ 7,854,854**	**£ 7,854,854**	**£ 7,998,185**	**- £ 143,331**	**£ 7,998,185**	**- £ 143,331**
Supplies Costs								
Drugs			183,484	183,484	196,866	-13,382	196,866	-13,382
Surgical Sundries			542,012	542,012	433,252	108,760	433,252	108,760
CSSD/Diagnostic Supplies			5,039	5,039	4,276	762	4,276	762
Other Therapeutic Supplies			125,140	125,140	52,022	73,118	52,022	73,118
Equipment/Other admin supplies			62,413	62,413	53,293	9,119	53,293	9,119
Hotel Services			45,703	45,703	51,233	-5,530	51,233	-5,530
Direct Supplies			**£ 963,790**	**£ 963,790**	**£ 790,943**	**£ 172,847**	**£ 790,943**	**£ 172,847**

Charges from other Health Boards			**£ 6,740**	**£ 6,740**	**£ 0**	**£ 6,740**	**£ 0**	**£ 6,740**
Allocated Costs								
Medical Records			133,074	133,074	133,074	0	133,074	0
Building Costs			230,026	230,026	230,026	0	230,026	0
Domestic Services			103,098	103,098	103,098	0	103,098	0
Catering			275,502	275,502	275,502	0	275,502	0
Laundry			103,328	103,328	103,328	0	103,328	0
Neuroradiology			120,366	120,366	120,366	0	120,366	0
Laboratories			121,650	121,650	121,650	0	121,650	0
Anaesthetics			55,316	55,316	55,316	0	55,316	0
Portering			111,900	111,900	111,900	0	111,900	0
Phones			60,479	60,479	60,479	0	60,479	0
Scottish Ambulance Service			11,943	11,943	11,943	0	11,943	0
General Services			35,275	35,275	35,275	0	35,275	0
Allocated Costs			**£ 1,361,956**	**£ 1,361,956**	**£ 1,361,956**	**£ 0**	**£ 1,361,956**	**£ 0**
Total Supplies			**£ 2,332,486**	**£ 2,332,486**	**£ 2,152,899**	**£ 179,587**	**£ 2,152,899**	**£ 179,587**
Overhead Costs								
Fixed costs								
Rates			65,621	65,621	65,621	0	65,621	0
Capital Charge			435,774	435,774	435,774	0	435,774	0
Overheads			167,329	167,329	167,329	0	167,329	0
Total Overheads			**£ 668,725**	**£ 668,725**	**£ 668,725**	**£ 0**	**£ 668,725**	**£ 0**
Total Expenditure		**132.05**	**£ 10,856,065**	**£ 10,856,065**	**£ 10,819,809**	**£ 36,256**	**£ 10,819,809**	**£ 36,256**
Postgraduate Dean Funding			-151,631	-151,631	-151,631	0	-151,631	0
Total Expenditure net of Postgraduate Dean Funding			**£ 10,704,434**	**£ 10,704,434**	**£ 10,668,178**	**£ 36,256**	**£ 10,668,178**	**£ 36,256**
Income from non-Scottish resident patients					-48,810	48,810	-48,810	48,810
Income from delayed discharges: NHS Tayside						0	0	0
Income from delayed discharges: NHS Lanarkshire						0	0	0
Total Net Expenditure		**132.05**	**£ 10,704,434**	**£ 10,704,434**	**£ 10,619,368**	**£ 85,066**	**£ 10,619,368**	**£ 85,066**
			£ 276,132	£ 276,132	211,595	64,536	211,595	64,536
	Contract value		£ 10,980,565	10,980,565	10,830,963	149,602	10,830,963	**149,602**
					£		**£**	
Fixed					9,828,425		9,828,425	
Variable					790,943		790,943	
					£ 10,619,368		**£ 10,619,368**	
Qensiu Ahp Project - G39841								
Physiotherapist	7	1.00	67,782	67,782	55,692	12,090	55,692	12,090
Occupational Therapist	7	1.00	67,782	67,782	0	67,782	0	67,782
Dietician	6	0.80	44,432	44,432	0	44,432	0	44,432
Occupational Therapist	6	0.00		0	52,812	-52,812	52,812	-52,812
Speech & Language Therapist	7	0.80	54,226	54,226	61,181	-6,955	61,181	-6,955
SALT Support	4	1.00	41,910	41,910	41,911	-1	41,911	-1
		4.60	**276,132**	**276,132**	**211,595**	**64,536**	**211,595**	**64,536**

7. Audit & Clinical Research / publications

Clinical Audit Program

The clinical audit meetings are held on average once a month in a hybrid format. The invitation has been extended to include other rehabilitation teams to promote learning and improve networking. All members of the Multidisciplinary Team have been involved in carrying out and presenting these audits on a variety of different topics. Examples of some of the topics presented this year include:

- The Effectiveness of iCan charts on the rehabilitation ward – re-audit
- Venous Thromboembolism risk assessment and prescribing- rolling audit
- MDT Therapy Outpatient Clinic – an audit of the MDT Therapy Clinic
- An audit of bowel chart use on the rehabilitation ward
- QENSIU Outcome Measure/EMSCI

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

Student projects

The physiotherapy department have been working in conjunction with physiotherapy students at Glasgow Caledonian University and Queen Margaret University to work on SCI related research projects as part of their Doctoral and MSc programmes. In the last year, these have included:

- Remote rehabilitation intervention following discharge from the Unit (completed)
- QENSIU Physiotherapy service review (completed)
- Access to online physical activity resources by people with SCI in the community (completed)
- Confidence levels of non-specialist physiotherapists in Scotland when working with people with SCI (completed)
- Upper limb FES cycling in acute SCI (ongoing)
- Evaluation of aquatic physiotherapy in early SCI at the Unit (ongoing)

Research

The Scottish Centre for Innovation in Spinal Cord Injury (SCISCI) is an umbrella group to support translational research in a clinical setting. QENSIU acts as an embedded research micro site within the NHS to promote research and to provide access and stimulation for clinicians, patients and researchers to work together. The group conducts research in all areas of spinal cord injury from clinical review and outcome through understanding and promoting neural repair and regeneration to active intervention assessment and treatment strategies all based on basic science. The research is patient orientated and extends from basic research

to understand how the spinal cord works to robotic walking and brain computer interfaces. Psychological studies and the impact of disability are equally important. The aim is to scientifically assess the extent, natural history and recovery pattern of SCI and harness agents that promote and optimise the functioning and health of those living with disability.
2024/2025 was a busy year for the Unit with involvement in a large number of research projects with our team continuing to undertake world leading research across a range of areas of SCI. The last year saw people with a SCI take part in 8 different clinical studies, with more research studies funded for 2025/2026.

Areas of focus in 2024/25 included trials investigating:

- A European-wide data collection study investigating the changes in the body following a spinal cord injury (EMSCI).
- Electrical spinal stimulation to enhance walking function in chronic SCI (E-Walk)
- Intensive physiotherapy to improve rehabilitation outcomes for inpatients with spinal cord injury (Intensive motor training)
- Virtual reality upper limb therapy
- Neurofeedback to improve spasticity after incomplete spinal cord injury

Research Spotlight

Online Rehabilitation in the Community

This project explored the feasibility and effectiveness of a 12-week online rehabilitation programme during the transition period from in-patient rehabilitation to home. Fifteen participants were recruited, provided with an individualised exercise programme delivered via an online platform, www.giraffehealth.com. Participants were monitored weekly and exercises progressed remotely. Results found trends towards improvement in cardiovascular fitness, strength and independence. The intervention was found to be acceptable by participants who favoured it over traditional methods of delivery. This study is being prepared for publication.

Knowledge and confidence of physiotherapists in non-specialist services

This project explored the knowledge and confidence of physiotherapists working in non-specialist services in treating people with Spinal Cord Injury (SCI) in Scotland. A total of 168 physiotherapists were surveyed. Of these, 134 reported to be treating people with SCI, of which almost half reported to be confident. Many expressed dissatisfaction with their knowledge and skills and expressed interest in further SCI training. This study is being prepared for publication and additional training to support physiotherapists is currently being planned.

Pathfinder

This project, which focused on the use of electrical spinal stimulation to improve upper extremity performance in individuals with spinal cord injury has now completed recruitment, with a manuscript of the results now under review. The PhD student working on this project was awarded the best poster award at IFESS 2024 for a poster titled "Effect of Transcutaneous Electrical Spinal Cord Stimulation on Upper Limb Motor Recovery in Spinal Cord Injury" and was invited to submit the full paper for the special issue in the journal Artificial Organs.

Other projects

The Unit was the only UK site and one of three European sites participating in the international study “Non-invasive spinal cord electrical stimulation for arm and hand function in chronic tetraplegia: a safety and efficacy trial”, the findings of this trial have now been published with the lead article published in Nature Medicine. The project “Neurofeedback to improve spasticity after incomplete spinal cord injury” is completed and the manuscript is under preparation, the project “Electroencephalograph predictors of central neuropathic pain in subacute spinal cord injury” has also been completed and the results published in Biomedicines.

Upcoming Projects

Our researchers have already received funding to undertake two new projects in 2025/26. The first of these, led by University of Glasgow, will aim to assess whether spinal cord stimulation can improve function in the acute stage of spinal cord injury. The team, will also partner with sites in Australia, Spain and the USA to examine whether spinal cord stimulation can improve the walking function of a range of patients living in the community. Our researchers are also actively involved in preparing a number of other research grants which will hopefully see us begin even more exciting research in 2025/26.

Publications and conferences

Our researchers published 12 articles on SCI in 2024/25. More information about these articles can be found in our research report, or on the SCISCI website: University of Glasgow - Research - Research units A-Z - Scottish Centre for Innovation in Spinal Cord Injury - About
Our researchers were also active at a number of conferences, presenting their work at the International Functional Electrical Stimulation Society Annual Conference, England, and the International Spinal Research Trust Annual Meeting in London, amongst others.

Connect with us

Our dedicated research website is updated on a regular basis. We can now also be found on @ScisciScotland

Research database

We are compiling a database of people living with a SCI who would be interested in taking part in research. This will enable our researchers to conduct their research more efficiently, and enable people with a SCI to have access to world leading research. All ethical and governance approvals are in place. More information can be found at: https://www.gla.ac.uk/research/az/scisci/getinvolved/

8. The Year Ahead

We celebrated the launch of the Spinal App, an MDT developed wonderful resource for patients, families and their caregivers, in parallel with the App launch the content and design of the Unit website are under review, a more professional facing platform.
We successfully applied for endowment funds to refurbish the dayroom, this should be completed later this year.

Self-Administration of Medicines (SAM) will be introduced in the coming months into Philipshill, the rehabilitation ward. There is currently no SAM policy available in NHS GGC, the Lead Nurse is working with the Safe Medicine's Group and Governance to implement this, safely aligning with the electronic prescribing system.

The creation of a Value and Sustainability short life working group is planned for next year to review local efficiencies.

The Unit has recruited a number of new members of staff to the Nursing Team, they are being supported to complete the Clinical Skills and Nurse Prescribing Course over the coming years. We endeavour to implement an educational framework to support continuous development across all job families to enhance roles, to promote recruitment and retention, to develop new care delivery models and to improve clinical pathways.

Staff wellbeing is an ongoing focus, we aim to continue to embed a culture of caring, kindness and equality in the Unit.

Horatio's Garden has been invited by the Unit and NHS GGC to increase accessibility to the garden directly from Philipshill four and six bedded bays in 2025/26. This will benefit patients by allowing easier access to the many health and wellbeing benefits of being in the garden sanctuary and mean that it will be much easier to facilitate those in beds to access the garden.

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.