

1.0 Introduction

The Queen Elizabeth National Spinal Injuries Unit is responsible for the management of all patients in Scotland who have a traumatic injury to the spinal cord. Since commissioning in 1992 it has continued to develop the management of the acute injury and long term care of its patients to maximise function and to prevent the complications of paralysis.

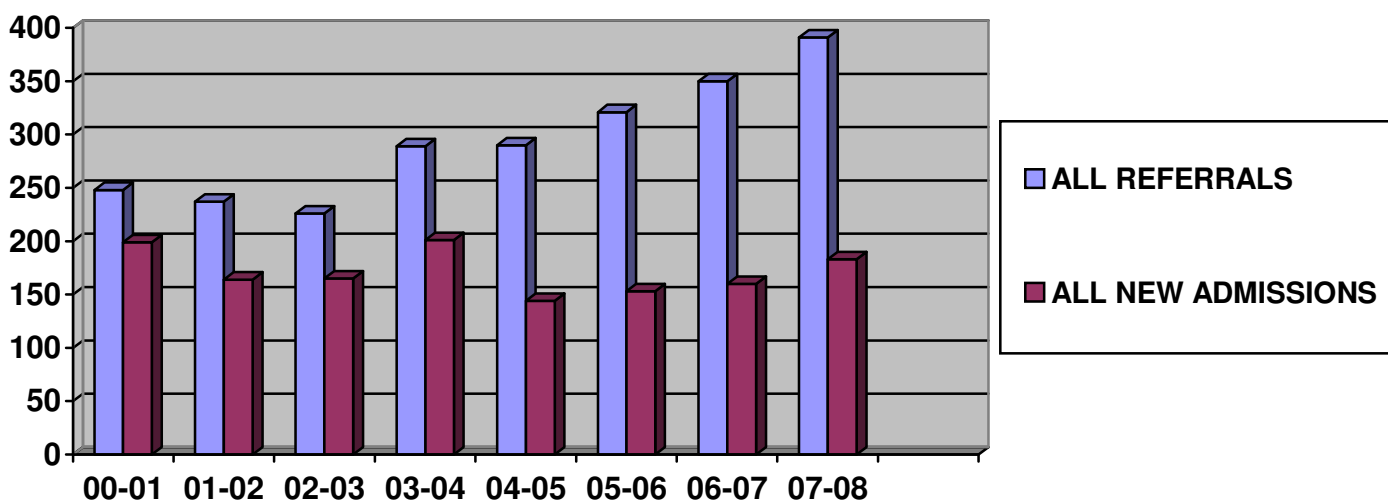
The renovation of Philipshill Ward, and the new build of the Step Down Unit and Research Mezzanine have dominated the year. Despite these issues and the some difficulties with nurse staffing levels the unit has continued to provide and develop its patient services.

2.0 Activity

The annual report and its associated appendices contain a comprehensive analysis of the Spinal Injury Unit activity and the individual reports of each department or associated body

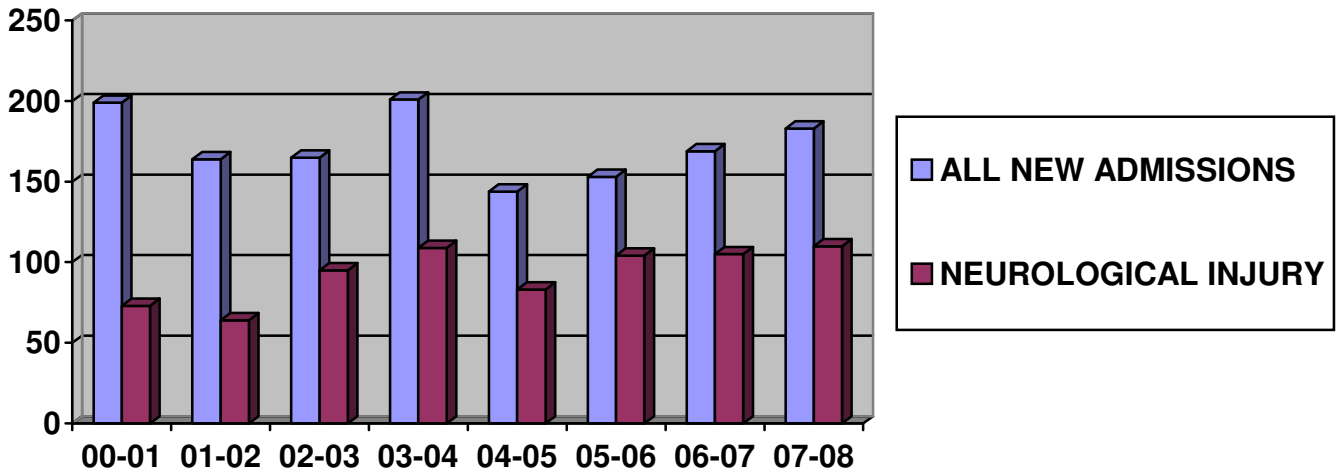
2.1.1 New In-Patient Activity

The number of patients referred to the unit (391) continues to grow. All patients with a neurological injury are admitted as soon as clinically indicated. Spinal fractures without neurology are admitted dependant on need and availability of beds. Many patients are managed with advice in their base hospitals.



Again the total number of admissions increased slightly over the year. The number of neurological injured patients (110) remains relatively stable and is consistent with the population size. There was an increase in the number of non-neurological injured spinal fractures (73). A total of 208 patients were referred for advice but not admitted and managed in the referral hospital.

| | 2001/ 2002 | 2002/ 2003 | 2003/ 2004 | 2004/ 2005 | 2005/ 2006 | 2006/ 2007 | 2007/ 2008 | TOTAL 1992-2008 |
|-------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------------|
| NEW ADMISSIONS | 164 | 165 | 201 | 144 | 153 | 169 | 183 | 2526 |
| Neurological | 64 | 95 | 109 | 83 | 104 | 105 | 110 | 1216 |
| Non-neurological | 100 | 70 | 92 | 61 | 49 | 64 | 73 | 1310 |



The number of patients with a neurological deficit continues to show a small year on year increase. The large increase in referrals is related to spinal fractures without neurology. These patients are referred, because of the severity of the fracture or seeking admission for conservative care. Opportunity to admit a full spectrum of fractures is limited because of the number of available beds and the varying case-mix amongst the neurological injuries. Referral of such patients varies between regions and wherever possible preference is given to areas without spinal surgical support, which inevitably refer a higher proportion of patients.

| Area | Referred | Admitted | Area | Referred | Admitted |
|----------------|----------|----------|--------------|----------|----------|
| GGHB | 141 | 48 | Highland | 14 | 9 |
| | | 34% | | | 55% |
| Lanark | 63 | 29 | Aberdeen | 11 | 11 |
| | | 46% | | | 100% |
| Argyll Clyde | 44 | 21 | Forth Valley | 13 | 7 |
| | | 47% | | | 53% |
| Ayrshire Arran | 33 | 17 | Tayside | 5 | 2 |
| | | 51% | | | 22% |
| Dumfries | 18 | 7 | Dumfermilne | 13 | 7 |
| | | 38% | | | 35% |
| Borders | 7 | 2 | Edinburgh | 10 | 7 |
| | | 35% | | | 70% |
| Other Scottish | 3 | 0 | Other ECR | 16 | 2 |
| | | 0% | | | 12% |

Orthopaedic consultants or neuro-surgeons managed over two hundred and eight patients without neurological deficit in the referral hospital with advice. The consultant staff or liaison nurses continued to support the management of a number of other cases in the referral hospital. A number of patients were managed in the Neuro-surgical and Orthopaedic wards of the Southern General Hospital because of concomitant injuries. In a few cases the referrals were inappropriate for admission but could be treated as outpatients.

2.1.2. 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 |

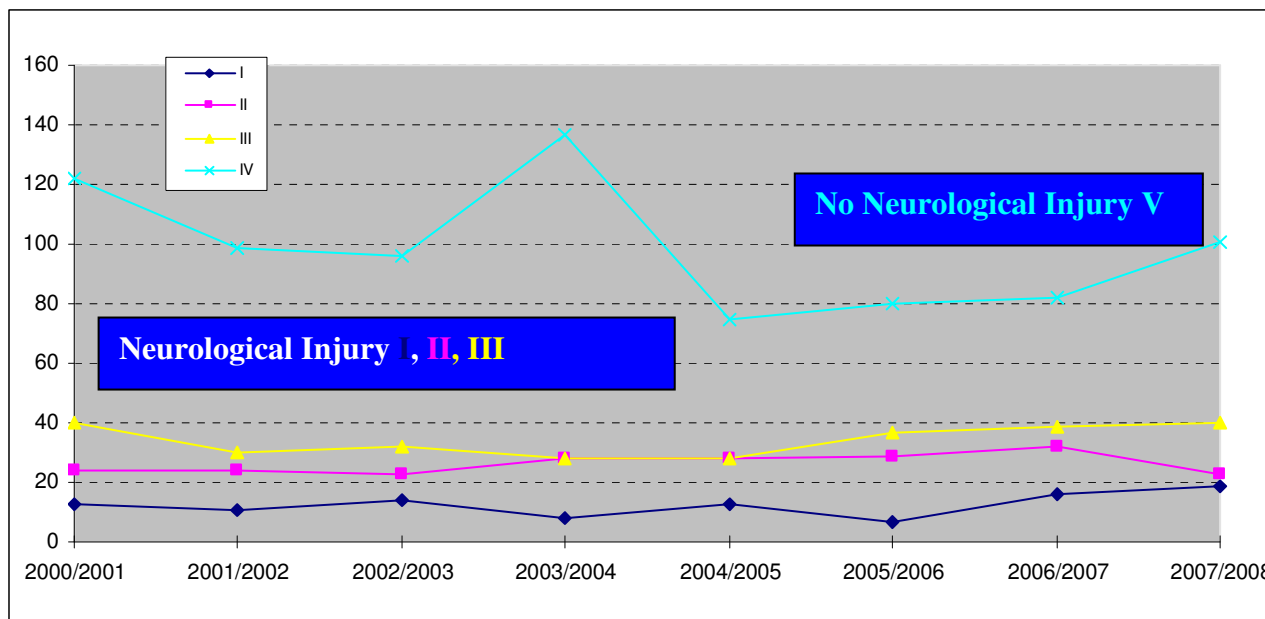
Group I Patients with the most severe neurological injuries. They are the most dependant. The numbers are expected to vary considerably each year.

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

Group IV Includes all patients with spinal fractures and incomplete or no paralysis. Many require significant input during their rehabilitation.

2.1.3 New Admissions by Case-Mix Complexity

Appendix DA2



| GROUP | 00/01 | 01/02 | 02/03 | 03/04 | 04/05 | 05/06 | 06/07 | 07/08 | 92/08 |
|--------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|
| I | 13 | 11 | 14 | 8 | 13 | 7 | 16 | 19 | 177 |
| II | 24 | 24 | 23 | 28 | 28 | 29 | 32 | 23 | 401 |
| III | 40 | 30 | 32 | 28 | 28 | 37 | 39 | 40 | 561 |
| IV | 122 | 99 | 96 | 137 | 75 | 80 | 82 | 101 | 1387 |
| | | | | | | | | | |
| Total | 199 | 164 | 165 | 201 | 144 | 153 | 169 | 183 | 2526 |

There was a significant increase in the number of highly dependant Group I patients compared with the previous year. A decrease was seen in the dependent groups II and a stable number in Group III. The number of patients admitted with no neurology rose again. The variation in complexity in Group IV is better demonstrated by ASIA grades. The rate of throughput appears higher than any other spinal injury unit in the UK.

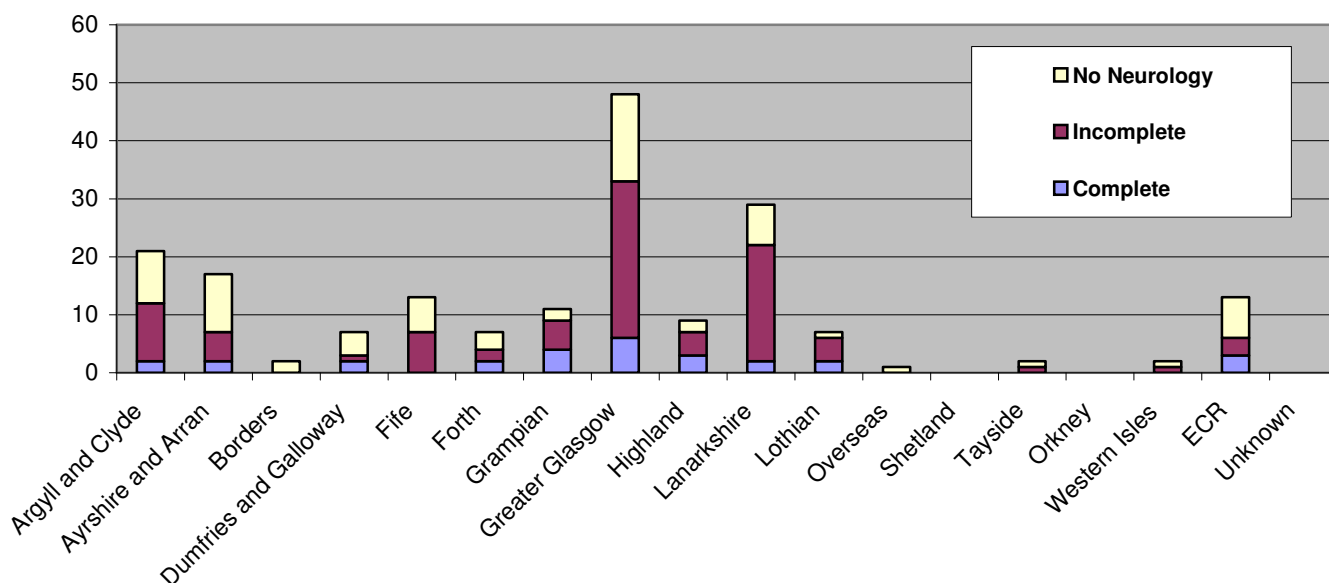
2.1.4 New Admissions by ASIA Impairment Level & Health Board

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 |

| 2007/2008 | A | B | C | D | E | Total |
|---------------------|-----------|-----------|-----------|-----------|-----------|------------|
| Argyll & Clyde | 2 | 2 | 3 | 5 | 9 | 21 |
| Ayrshire & Arran | 2 | 1 | 0 | 4 | 10 | 17 |
| Borders | 0 | 0 | 0 | 0 | 2 | 2 |
| Dumfries & Galloway | 2 | 0 | 0 | 1 | 4 | 7 |
| Fife | 0 | 0 | 0 | 1 | 6 | 7 |
| Forth Valley | 2 | 0 | 1 | 1 | 3 | 7 |
| Grampian | 4 | 1 | 3 | 1 | 2 | 11 |
| Greater Glasgow | 6 | 5 | 8 | 14 | 15 | 48 |
| Highland | 3 | 0 | 2 | 2 | 2 | 9 |
| Lanarkshire | 2 | 2 | 6 | 12 | 7 | 29 |
| Lothian | 2 | 0 | 3 | 1 | 1 | 7 |
| Overseas | 0 | 0 | 0 | 0 | 1 | 1 |
| Shetland | 0 | 0 | 0 | 0 | 0 | 0 |
| Tayside | 0 | 0 | 1 | 0 | 1 | 2 |
| Orkney | 0 | 0 | 0 | 0 | 0 | 0 |
| Western Isles | 0 | 0 | 1 | 0 | 1 | 2 |
| ECR | 3 | 0 | 0 | 3 | 7 | 13 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 28 | 11 | 28 | 45 | 71 | 183 |

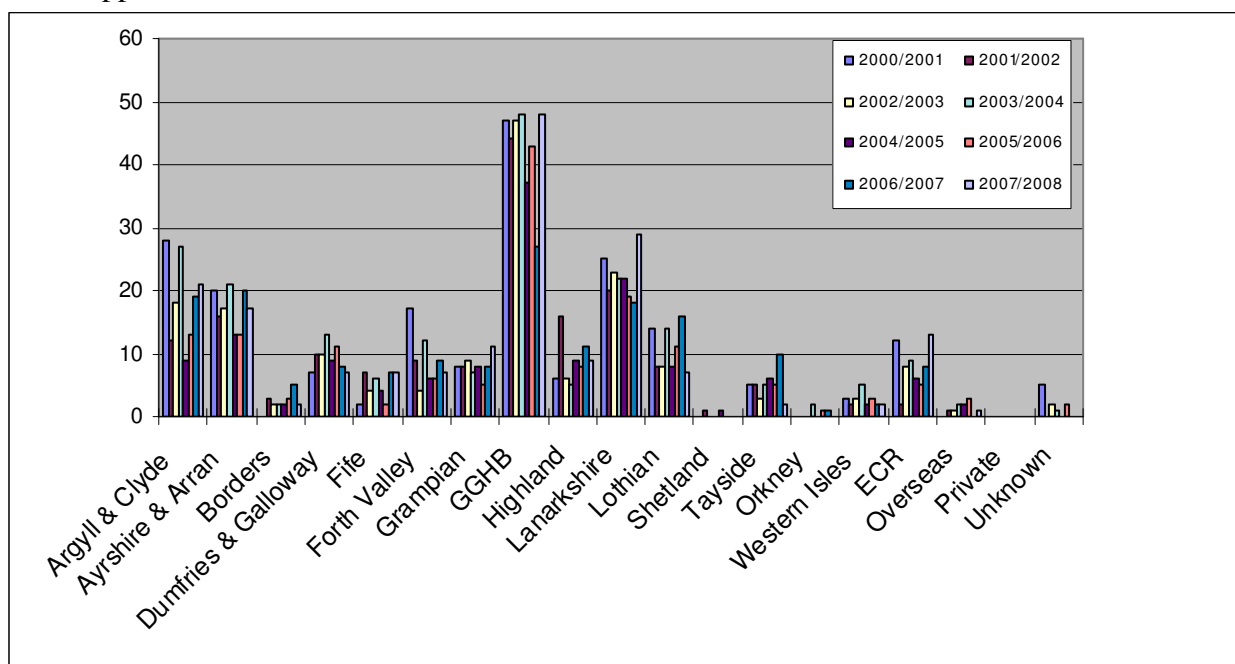
2.1.41 Admissions by Neurological Deficit and Health Board



GGHB is responsible for the largest number of complete and incomplete spinal cord injuries. The number of non-neurological injuries admitted from all regions and particularly from GGHB has stabilised. The distribution of complete and incomplete injuries varies by year. All areas except Orkney and Shetland referred one or more patients with a neurological deficit. The distribution of admissions and the annual variation since the unit opened justifies the economic benefits of a national service.

2.1.5 New Admissions by Health Board Of Residence 2000-2008

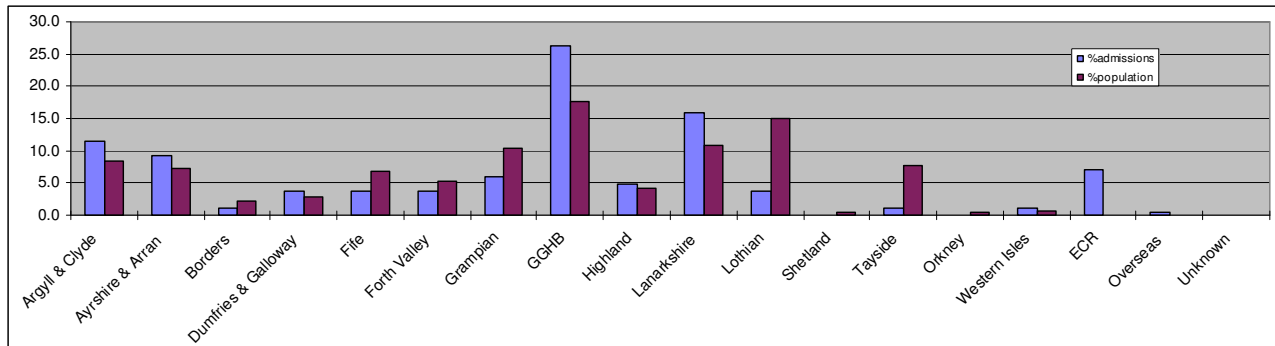
Appendix DA3



An increased referral pattern from some health boards reflects leisure-related accidents. Patients domiciled in Scotland but who are injured abroad are repatriated when clinically indicated and then recorded under their own health board.

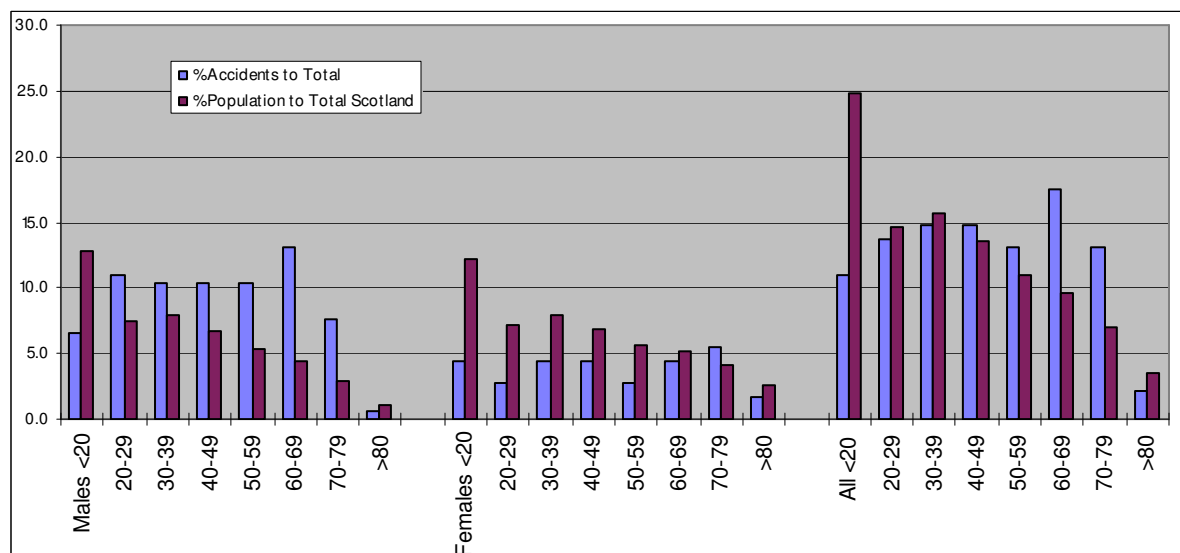
2.1.6 Admissions by Health Board compared with Population Size

Appendix DA4



There has been positive encouragement for consultant medical staff in Lothian, Tayside and Grampian to develop services for those patients with no neurological injury. This leads to a dis-proportionate number of admissions from other areas compared with population size Support is always available from the unit in the management of these patients. Regions with higher than expected admissions are centres for farming and outdoor pursuits as well having a significant proportion of B roads.

2.1.7 New Admissions by Age Group



The age distribution is as expected. There is a disproportionate preponderance of males in all age groups. The number of injuries in those under twenty remains low. The increase in age-related degenerative spinal fractures continues. The management of an increasing number of elderly patients with cervical injuries with no neurological deficit are managed as outpatients, and not reflected in these figures.

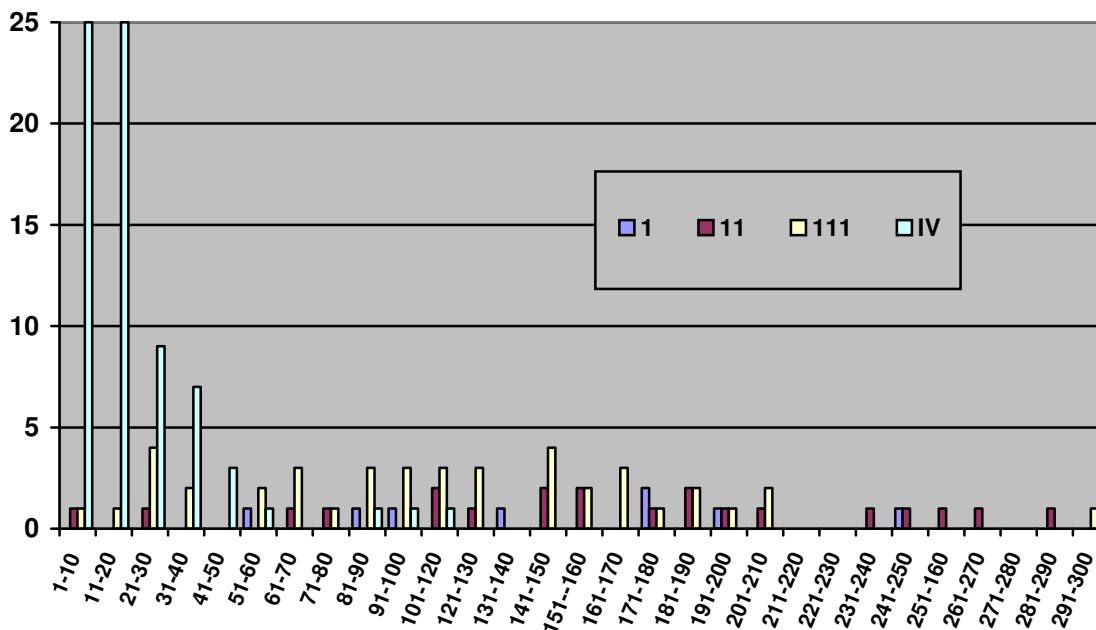
2.1.8 Length of Stay for Traumatic Injury by Level of Spinal Cord Lesion

| Case mix | No. of patients | Mean L.O.S. (days) | Range of L.O.S. |
|----------|-----------------|--------------------|-----------------|
| I | 8 | 395 | 55 – 1303 |
| II | 21 | 161 | 6 – 288 |
| III | 42 | 111 | 6 – 297 |
| IV | 102 | 16 | 1 – 107 |
| All | 173 | 74 | 1 – 1303 |

Throughout the last ten years there has been significant effort spent on reducing the length of stay within the unit. The wide variation of length of stay within each classification is indicative of the variation in the rehabilitation needs within each group.

There is a significant variation in the resources used by each group as has previously been demonstrated. The non-neurological group having a significant lower length of stay and impact on the service. An in depth analysis was done in 2006.

Length of Stay by Grade of Injury



Over seventy five percent of Group iv (no neurology) were discharged within four weeks, fifty percent within ten days. The distribution follows the predicted dependence and rehabilitation needs of the respective injuries.

2.19 Admissions by Anatomical Level and Severity

| | Level | Complete | Incomplete | No Neurology | Total |
|--|--------------|-----------|------------|--------------|------------|
| | C 1 | 0 | 0 | 7 | 7 |
| | 2 | 1 | 3 | 17 | 21 |
| | 3 | 2 | 3 | 1 | 6 |
| | 4 | 7 | 14 | 3 | 24 |
| | 5 | 4 | 18 | 6 | 28 |
| | 6 | 1 | 6 | 7 | 14 |
| | 7 | 1 | 6 | 1 | 8 |
| | | 16 | 50 | 42 | 108 |
| | T 1 | 0 | 1 | 0 | 1 |
| | 2 | 0 | 0 | 0 | 0 |
| | 3 | 2 | 0 | 0 | 2 |
| | 4 | 2 | 0 | 2 | 4 |
| | 5 | 1 | 2 | 1 | 4 |
| | 6 | 0 | 3 | 1 | 4 |
| | 7 | 0 | 1 | 2 | 3 |
| | 8 | 1 | 3 | 1 | 5 |
| | 9 | 1 | 0 | 1 | 2 |
| | 10 | 1 | 5 | 1 | 7 |
| | 11 | 0 | 3 | 0 | 3 |
| | 12 | 5 | 2 | 5 | 12 |
| | | 13 | 20 | 14 | 47 |
| | L 1 | 1 | 4 | 5 | 10 |
| | 2 | 0 | 2 | 6 | 8 |
| | 3 | 0 | 3 | 3 | 6 |
| | 4 | 0 | 2 | 1 | 3 |
| | 5 | 0 | 0 | 1 | 1 |
| | TOTAL | 1 | 11 | 16 | 28 |
| | TOTAL | 30 | 81 | 72 | 183 |

Higher level counted in five multi level injuries

2.2 In-patient Procedures

The acute management and rehabilitation of the spinal injured patient can involve a significant number of in-patient surgical procedures. This section outlines the major surgical procedures carried out during the year.

2.2.1 Surgical Stabilisation

Surgical stabilisation of spinal fractures is carried out to prevent further neurological damage, aid early rehabilitation and to promote good long-term function. Rarely late surgery is indicated to reduce pain and deformity or to deal with neurological complications. Failure of orthotic management is a further indication for surgery. A team approach to decision making is used to optimise patient outcome.

Over the year the orthopaedic surgeon carried out twenty-four thoraco-lumbar fixations and the neuro-surgical team twenty-nine cervical fixations on the spinal injury lists. Further stabilisation surgery and other procedures were carried out on other surgical lists. Thirty-four patients were treated with Halo immobilisation.

2.2.2 Spinal Injury Specific Surgery

A wide range of procedures, involving orthopaedics, plastic surgery, urology, general surgery, ENT and neurosurgery, are required for acute and long-term patients. The spinal unit staff and appropriate specialists from the Southern General Hospital provide this service. Over forty-three theatre lists were carried out over the course of the year involving sixty individual procedures and seven surgical specialities. This included nineteen major skin procedures. Additional upper limb and orthopaedic trauma cases were performed in the orthopaedic theatre. Day Case procedures carried out within the unit are recorded in a later section.

2.2.3 Implanted Pain Control

Chronic pain and spasms are a significant problem for patients with a spinal cord injury. One approach is the surgical implantation of reservoirs of analgesic drugs or anti-spasmodic drugs. No new pumps were implanted in the year. Two revision pumps were carried out in the year. A detailed report was provided last year.

Patients attend outpatient clinics with varying frequency to have pumps refilled or reprogrammed. Between five and twelve patients attend each clinic.

At present thirty-one pumps are implanted and operational. Twenty-one patients attend the QENSIU for refills and ten attend local hospitals.

| Pumps Active 07 – 08 | |
|-----------------------------|-----------|
| Isomed | 10 |
| Synchromed | 18 |
| Archimedes | 3 |

The overall programme is very successful but requires continued monitoring.

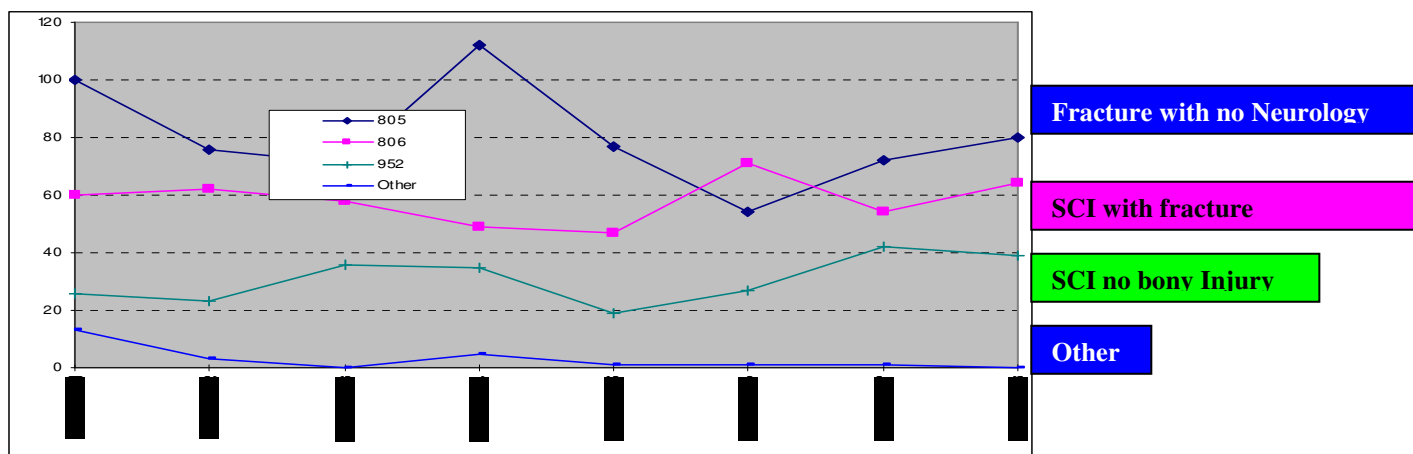
2.3 Admissions and Discharges by Degree of Injury

The degree of injury is dependent on the type and effect of the injury. A non-traumatic spinal cord injury may be more serious in terms of outcome and dependency than a traumatic lesion with a major neurological deficit. The spectrum of activity in the unit is shown by the appropriate ICD9 codes.

| | |
|---------------|---|
| ICD805 | Fracture of vertebral column without mention of spinal cord injury |
| ICD806 | Fracture of vertebral column with mention of spinal column injury |
| ICD952 | Spinal Cord Lesion without evidence of spinal bony injury |
| OTHER | Other Spinal Cord Related Conditions |

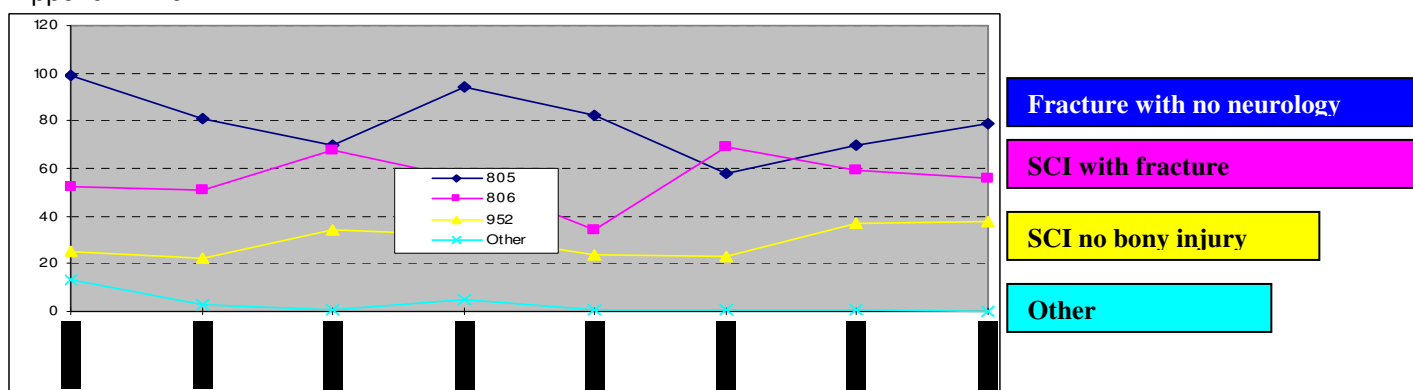
2.3.1 Admissions by Degree of Injury

Appendix DA5



2.3.2 Discharges by Degree of Injury

Appendix DA6



It is predicted that there will be around 80-90 spinal cord injuries per year for a population the size of Scotland (5.5 million). The exact nature will vary from year to year but all are admitted for treatment and rehabilitation.

2.3.3 Admissions and Discharges for Non Traumatic Spinal Cord Injury (ICD 9 Code 952)

| 2007/2008 | Admissions | Discharges |
|-----------------------------|------------|------------|
| Central Cord Lesion | 21 | 21 |
| Infection | 7 | 4 |
| Vascular | 2 | 4 |
| Tumour | 0 | 1 |
| Surgical | 3 | 1 |
| Non-specific Lumbar Lesions | 4 | 5 |
| Penetrating Wounds gun/stab | 2 | 2 |
| Other | 0 | 0 |
| Total | 39 | 38 |

Appendix DA7

Non-traumatic spinal cord injury is misleading as it includes Central Cord Syndrome that is traumatic in origin but does not involve significant bony damage and often results in major paralysis. It usually occurs in the elderly population who have osteoarthritic changes in the cervical spine and results in a severe disability.

2.3.4 In-patient Bed Days

| 2007/2008 | | Edenhall (HDU) | | | RCU | | Philipshill (Rehab) | | |
|------------------------|---------------|-------------------|---------|---------|-------------------|--------------------|------------------------|---------------------|------------|
| Beds | | 12 | | | 4 | | 32 | | |
| Actual –TOBD | | | | | | | | | |
| Available | | | | | | | | | |
| Bed Occupancy % | | | | | | | | | |
| ALOS | | | | | | | | | |
| Bed Comp | Alloc staffed | Borrowed | Lent | Temp | Available staffed | Total Occ Bed Days | Pats on Pass | Actual Occ Bed Days | % Occupied |
| 48 | 17568 | 18 | 171 | 159 | 17574 | 14308 | 163 | 14145 | 81% |
| Disch | Deaths | Day Cases | TOS Out | TSS Out | Avr LOS | Avr Turn | DD&T | | |
| 2266 | 5 | 0 | 30 | 16 | 54.8 | 12.5 | 261 | | |

Previous information stream now unavailable. Replaced with new format as shown

Patients are admitted on a basis of clinical need. The majority of new injuries are admitted to Edenhall Ward for acute assessment. A few patients are admitted to Philipshill if they have had stabilisation in their referral hospital or have been treated conservatively and have entered the rehabilitation phase. It remains impossible to obtain separate ward occupancy figures for the unit from the HIS/PAS systems.

2.3.5 Delay Between Actual and Intended Date of Discharge

| | No. of Patients Discharged | No. of Patients Delayed | Mean delay (days) | Range of Delay (days) | NO DELAY |
|------------------|----------------------------|-------------------------|-------------------|-----------------------|------------|
| 2000/2001 | 189 | 27 | 68 | 1 - 877 | 85% |
| 2001/2002 | 157 | 11 | 19 | 1 - 107 | 92% |
| 2002/2003 | 173 | 8 | 46 | 2 - 212 | 95% |
| 2003/2004 | 187 | 7 | 52 | 1 - 188 | 96% |
| 2004/2005 | 141 | 0 | 0 | 0 | 100% |
| 2005/2006 | 151 | 9 | 65 | 7 – 174 | 94% |
| 2006/2007 | 167 | 9 | 54 | 14 -141 | 95% |
| 2007/2008 | 173 | 14 | 96 | 8 – 957 | 92% |

The philosophy of the unit is to set, as early as possible, realistic targets for each patient in their rehabilitation. One such target is a discharge date. This marks a point in but not the end of rehabilitation. Over the last five years there has been reduction in the number and length of delay but there are recurrent problem issues. Housing adaptation and nursing

home placements are often delayed by factors out with the control of staff. This has implications beyond the convenience of patients. Delays in moving onto the next stage of rehabilitation, such as discharge from the unit, can be demoralising and de-motivating for everyone particularly the patient. At the time of writing there are two patients whose discharge is delayed for other than medical reasons.

2.3.6 Re-admissions to the unit

The majority of neurologically injured patients discharged from the unit never require re-admission. They attend annually or bi-annually as out patients for lifelong follow up. In some ways readmission at any time must be regarded as a failure.

There were forty-eight readmissions to the unit during the year. This is an increase on previous years but a significant shortfall on the contract estimate of 200. A continued emphasis on discharge at the appropriate level of rehabilitation and education should ensure that the number of re-admissions remains at a satisfactorily low level.

2.4 Out patient Activity

The out patient activity of the unit is focused on the post discharge management of acute injuries and long term follow. Dedicated clinics in Orthopaedics, Neurosurgery, Urology, Rehabilitation and Pain Management supplement the nurse led Annual Review Clinics for those patients with a neurological deficit. Early discharge of patients, with no neurological injury and no expectation of future disability, is encouraged.

New patients are referred for consultant opinions regarding a wide range of associated conditions.

2.4.1 Summary of Out-patient activity

| | 2002/ 2003 | 2003/ 2004 | 2004/ 2005 | 2005/ 2006 | 2006/ 2007 | 2007/ 2008 |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Return | 2228 | 2412 | 2205 | 2235 | 2042 | 2283 |
| New | 88 | 93 | 121 | 122 | 122 | 319 |

The number of return outpatients is stable and reflects the prevalence of the spinal cord injured population in Scotland. The majority of the new patients are tertiary referrals involving complex medical investigation and assessment. They are generally managed as outpatients and are separate from acute new admissions.

2.4.2 Clinic Location and Frequency

| Frequency | Location | | |
|---------------|-----------------------------------|------------------------------------|---|
| Weekly | QENSIU New Skin Respiratory | QENSIU Return Halo Fertility | Orthopaedics Neurosurgery Urology |
| Monthly | Edinburgh | | |
| Three Monthly | Aberdeen | Inverness | |
| Six Monthly | Dumfries | Borders | Arbroath |

2.4.3 New Out-Patient Activity by Health Board

| | 2001/ 2002 | 2002/ 2003 | 2003/ 2004 | 2004/ 2005 | 2005/ 2006 | 2006/ 2007 | 2007/ 2008 |
|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Argyll & Clyde | 25 | 19 | 22 | 26 | 27 | 21 | 55 |
| Ayrshire & Arran | 7 | 5 | 8 | 8 | 7 | 8 | 18 |
| Borders | 0 | 0 | 0 | 1 | 0 | 1 | 3 |
| Dumfries & Galloway | 2 | 1 | 10 | 2 | 4 | 6 | 7 |
| Fife | 0 | 1 | 2 | 2 | 2 | 3 | 8 |
| Forth Valley | 3 | 4 | 7 | 4 | 11 | 9 | 23 |
| Grampian | 4 | 1 | 2 | 1 | 2 | 3 | 15 |
| Greater Glasgow | 29 | 32 | 22 | 41 | 26 | 37 | 114 |
| Highland | 1 | 1 | 1 | 0 | 14 | 4 | 6 |
| Lanarkshire | 16 | 20 | 15 | 27 | 19 | 19 | 40 |
| Lothian | 2 | 3 | 3 | 4 | 3 | 8 | 18 |
| Shetland | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Tayside | 1 | 0 | 1 | 1 | 3 | 2 | 7 |
| Orkney | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Western Isles | 0 | 1 | 0 | 2 | 2 | 0 | 2 |
| ECR | 0 | 0 | 0 | 1 | 2 | 1 | 3 |
| Total | 90 | 88 | 93 | 121 | 122 | 122 | 319 |

2.4.3 Out -Patient Activity by Centre

| | 2002/ 2003 | 2003/ 2004 | 2004/ 2005 | 2005/ 2006 | 2006/ 2007 | 2007/ 2008 | CHANGE PREVIOUS YEAR | TOTAL 1992- 2008 |
|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------------------|------------------------|
| New QENSIU | 88 | 93 | 121 | 122 | 122 | 307 | + 151.6% | 1325 |
| Return QENSIU | 1880 | 2090 | 1851 | 1868 | 1690 | 1905 | + 12.7% | 22667 |
| Edinburgh Edenhall | 189 | 189 | 192 | 193 | 187 | 212 | + 13.4% | 2516 |
| Raigmore Inverness | 47 | 28 | 57 | 54 | 55 | 60 | + 9.1% | 570 |
| Aberdeen | 65 | 55 | 51 | 63 | 63 | 59* | (6.4%) | 466 |
| Dumfries | 24 | 19 | 15 | 19 | 16 | 18 | + 12.5% | 147 |
| Borders | 23 | 14 | 16 | 17 | 17 | 17 | No Change | 104 |
| Arbroath | | 17 | 23 | 21 | 14 | 24 | + 71.4% | 99 |
| | 2316 | 2505 | 2326 | 2357 | 2164 | 2602 | + 20.2% | 27894 |

The outpatient service continues to respond to the variable demand throughout the regions. The aim is to provide as local a service as practical and in line with need. The outreach clinics are designed to provide the same level of multidisciplinary care that is available in the parent unit. All outreach clinics are consultant led with the appointment of a further rehabilitation consultant.

2.4.4 Outpatient Activity by Specialty at QENSIU

| | | 2002/ 2003 | 2003/ 2004 | 2004/ 2005 | 2005/ 2006 | 2006/ 2007 | 2007/ 2008 |
|--|----------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Orthopaedics | DBA | 114 | 136 | 143 | 139 | 99 | 147 |
| Neurosurgery | RAJ | 126 | 108 | 57 | 88 | 60 | 54 |
| Neurosurgery | JB | 0 | 0 | 64 | 51 | 50 | 63 |
| Urology | GC/ VG | 287 | 267 | 256 | 292 | 336 | 407 |
| Skin Care | | 115 | 187 | 111 | 107 | 57 | 86 |
| Pain / Spasm | | 191 | 295 | 222 | 190 | 138 | 29 |
| Neuroprosthetics | TH/MF | 22 | 29 | 19 | 29 | 20 | 20 |
| Sexual Dysfunction | | 41 | 47 | 18 | 23 | 10 | 29 |
| Fertility | | | | | | | 6 |
| Respiratory | | | | | | | 6 |
| Spinal Injury Annual Review | TOTAL | 984 | 1021 | 961 | 949 | 920 | 1058 |
| | MEDICAL | 603 | 681 | 569 | 526 | 581 | 385 |
| | NURSING | 381 | 343 | 392 | 423 | 339 | 673 |
| Total | | 1880 | 2090 | 1851 | 1868 | 1690 | 1905 |

The Consultant Clinics in Orthopaedics and Neurosurgery see new and return patients until they can be discharged or referred to the annual review clinics. Urology clinics are available to investigate or treat bladder dysfunction at any stage. The provision of anaesthetic consultant pain sessions was successful in introducing new techniques and drugs into patient management. The loss of the consultant anaesthetic input in November 2006 has been problematic but is being addressed. Neuroprosthetics includes assessment and surgery for upper limb problems principally in tetraplegics.

The Spinal Injury Annual Review clinics are a large component of the commitment to life long care. These are nurse led with only fifty-five percent of patients requiring medical input. A new Respiratory Care Clinic will commence in 2007.

There is an open door policy for patients and inevitable some activity remains under-reported. The numbers exclude visit to hospitals and homes by medical staff and the Liaison Sisters.

2.5 Day Case Activity

Day case activity continues to offer an important service for minor surgical procedures, medical interventions and nursing care. The level of Day Case activity exceeds the contracted activity but will be self limited due to the finite population of spinal injured patients.

2.5.1 Day Case Attendances by Reason For Admission

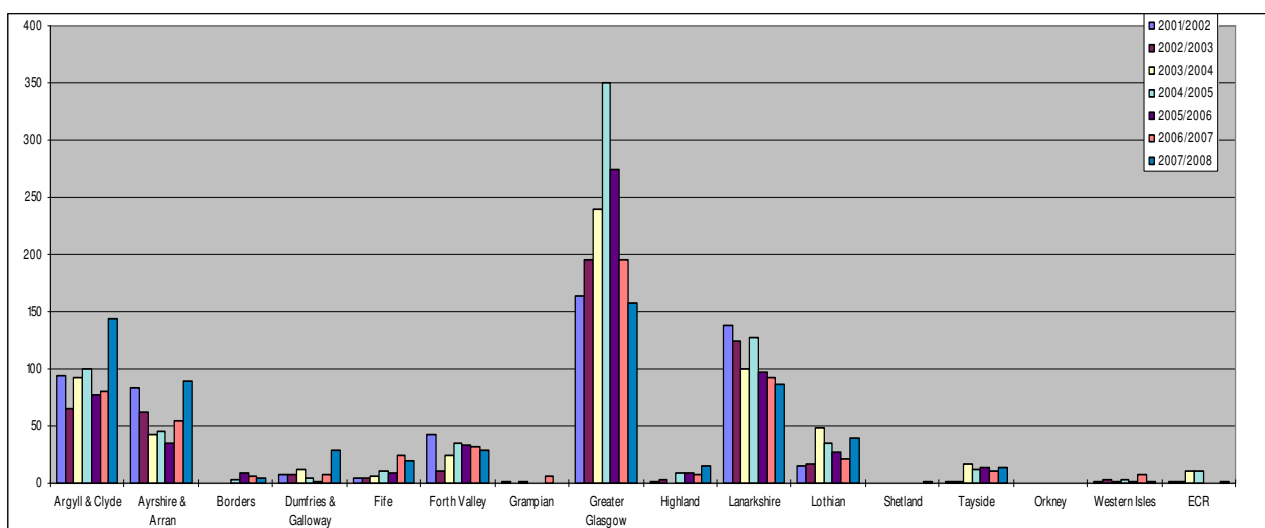
| | 2002/ 2003 | 2003/ 2004 | 2004/ 2005 | 2005/ 2006 | 2006/ 2007 | 2007/ 2008 |
|--------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Urology /Urodynamics | 21 | 21 | 24 | 18 | 18 | 26 |
| Halo Fixation | 242 | 226 | 220 | 182 | 129 | 216 |
| Skin | 5 | 20 | 21 | 12 | 18 | 26 |
| Orthopaedic/Neurosurgery | 1 | 0 | 0 | 0 | 1 | 0 |
| Acupuncture / Pain | 203 | 292 | 461 | 365 | 375 | 340 |
| Sexual Dysfunction | 21 | 33 | 17 | 8 | 4 | 4 |
| Fertility | 2 | 5 | 3 | 5 | 0 | 19 |
| Total | 495 | 597 | 746 | 590 | 545 | 631 |

The activity remains stable over the last few years except for a significant increase in pain and acupuncture interventions. It is appreciated that sexual dysfunction remains a under resourced area and suitable for development.

2.5.2 Day Case Attendances by Health Board

Day Case activity remains limited by geographical constraints. Some patients who could be managed as a day-case require in-patient stay due to difficulties in travelling. If indicated procedures are arranged in the patients locality either by staff from the unit or appropriate specialists. One bed in Philipshill Ward is designated as an intervention bed so that patients who have to travel long distances are not disadvantaged.

Appendix DA8



3.0 Waiting Times

3.1 Waiting Times Outpatient Clinics

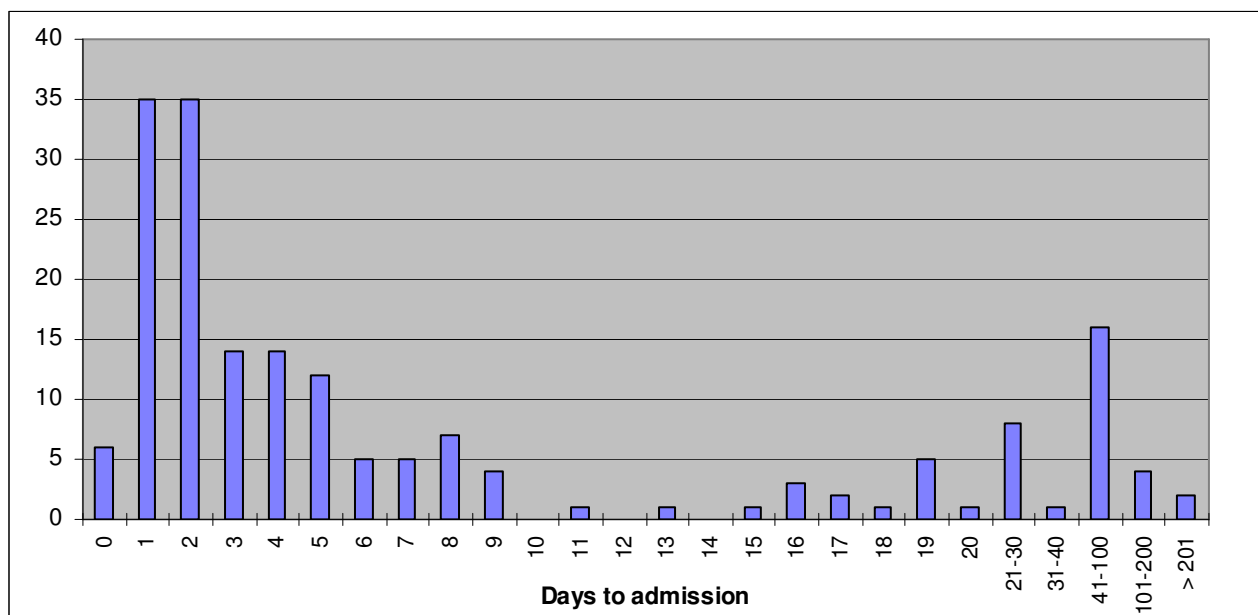
There is an open door policy to the Nurse Led Spinal Injury Clinics. Medical advice is always available and is requested in fifty five per cent of patients. Patient satisfaction remains high with this team approach. The maximum waiting time for new elective outpatient appointments is four weeks.

3.2 Waiting Times Acute Admissions

Acute referrals are admitted as soon as appropriate on clinical grounds. It is unit policy to try and admit all patients with neurological injury within forty-eight hours as long as there are no concomitant medical problems. Patients requiring specialised Neurosurgical or orthopaedic care are managed in the appropriate ITU or ward prior to transfer.

3.3 Time from Injury to Admission

The policy is of early admission for neurological injury with non-neurological injury admitted as beds became available. Most patients are referred within twenty-four hours of injury. In 2007-08 twenty two per cent of patients were admitted within twenty-four hours of referral. Forty two per cent were admitted within forty-eight hours and fifty-six per cent within four days. Sixty-nine percent were admitted within one week. Early admission to the Spinal Injury Unit provides immediate support to the patient and family. A previous audit of acute admissions indicated that only one third were due to bed issues with the rest related to severity of injury, transport difficulties or delay in diagnosis or presentation.



Early admission to the unit continues to be a priority. It may become of increasing relevance if early intervention strategies become available.

Early referral and co-operation between the staff in the Unit and the referral hospital ensures immediate admission if clinically indicated. Telephone advice is always available for those patients who are not immediately transferred. The referral proforma, transfer

documentation and admission form continues to be successful in facilitating and auditing the process. It has been internationally recognised and copied.

Direct admission to orthopaedic or neurosurgical wards for surgical stabilisation may increase the time to admission but may be appropriate to reduce transfers of potentially unstable patients.

Approximately twenty-percent of patients have associated orthopaedic injuries. Co-operation between Surgical Intensive Therapy (SGH), the referring hospital and other specialised units can be required (Plastic Surgery, Burns Unit, Maxilla-Facial, Renal etc).

Most patients admitted after five days have conditions that do not require immediate treatment or have additional co-morbidities that require medical intervention in the referring hospital prior to transfer. A few new patients have undergone initial rehabilitation in another centre and are admitted to the unit for reassessment or treatment of complications.

| | No. of Patients | Mean Time (Days) | Range of Time |
|------------------|------------------------|-------------------------|----------------------|
| 2000-2001 | 199 | 163.3 | 0 -12575 |
| 2001-2002 | 164 | 103 | 0 -12012 |
| 2002-2003 | 165 | 62 | 0 - 4948 |
| 2003-2004 | 201 | 83 | 0 - 6596 |
| 2004-2005 | 144 | 231 | 0 -11237 |
| 2005-2006 | 153 | 518 | 0- 21075 |
| 2006-2007 | 169 | 815 | 0 -17416 |
| 2007-2008 | 183 | 19 | 0 - 637 |

In the previous years the mean was distorted as the figures include all new patients even those who had old injuries or had nearly completed their rehabilitation in other centres. Eighty seven percent of patients were admitted within one month of injury. Six patients were admitted after one hundred days. These patients had been initially cared for in other centres or had developed a secondary complication due to a further insult at a previous fracture.

4. Quality of Care Issues

4.2.1 National Service Division Visit

Close co-operation between the staff of the unit and National Services Division has an important role in maintaining the service and permitting service development. It also ensures that there is an early response to increased or changing clinical needs.

The Annual and six-monthly report acts as a focus to continually evolve and evaluate the service.

4.2.2 Formal 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. Increasing standards set within the unit, increased security and the smoking ban have all created new challenges in obtaining patient and family trust and support.

The management record two formal complaints regarding placement following discharge. It has been subject to a full investigation by management.

At unit level a number of useful suggestions have been made regarding catering, parking and the ambulance service. This has resulted in a number of meetings with the relevant bodies to review areas of service. The future of parking in the vicinity of the unit is of concern especially with the introduction of parking charges. This will have a significant impact for visitors and out-patients. It is of particular concern due to the length of stay and of some patients or carers travelling long distances.

4.2.3 Relatives & Patients Meetings

Regular contacts are maintained with relatives and carers throughout a patients stay. Significant input to the organisation and running of the unit has been obtained from the informal meetings arranged within the unit and by SIS. All staff are encouraged to attend patient social activities and events. The medical staff encourages an open dialogue with patients and relatives regarding treatment and progress. Consent issues remain in constant review and the implications of the Incapacity Act in the management of the acutely injured have been implemented.

4.2.4 Benchmarking

There have been continued attempts to develop benchmarking with other UK units. There is an increasing availability of figures from other units but comparisons are difficult due the varying remits of each unit. The Spinal Injury Association (SIA) is carrying out a snapshot of activity in the coming year in England and Wales. Discussions have been had with The Balgrist Service (Switzerland) regarding the unit participating in the EMSCI project. There remain staffing, consent and FOI issues before we can proceed. International comparisons are available from Nottweil (Switzerland) and Cleveland (USA). Continued efforts are being made to ensure a modern and efficient service by learning from all available models.

The Director and Clinical Services Manager have advised the management of Stoke Mandeville Hospital and the Welsh Office regarding spinal injury services. They attended the Inaugural meeting of the All Party Commons Advisory Group in the House of Commons and will continue to contribute to the Commissioning Service in England and its equivalent in Wales.

4.3 Education

The unit places great emphasis on education of all agencies and staff that come into contact with the spinal cord injured. This extends to prevention of the initial accident, management of the early stages and the avoidance of subsequent complications in the early or late stage of rehabilitation.

The Consultant Medical staff gave lectures at Edinburgh, Oswestry, Leeds, Glasgow and Fort William to paramedical and medical groups. Medical students attend for clinical practice in 2nd, 4th and 5th year. Third years also attended the spinal injury special study module. The Senior Nurse Manager and Education staff lectured at Ayr, Paisley and Caledonian Universities. Meetings were organised with GPs and District Nurses by the

Liaison Nursing staff. The Education Sister co-ordinated Study Days for nurses from Aberdeen, Dublin, Paisley and Caledonian Universities.

Out-reach study days for carers and patients were held in Aberdeen (2006), Inverness (2008). Further educational days will be organised for Dumfries and the Borders. The Out-Patient Sister provided training and education for University students and District Nurses at Paisley and Caledonian Universities.

Internal Education Modules

| | | |
|----------|--|----|
| 18/1/07 | SHO teaching - Goal-planning | 3 |
| 26/1/07 | Bowel Management for Division | 6 |
| 7/2/07 | Infection Control Refresher - multi-disciplinary | 18 |
| 9/2/07 | Infection Control Refresher - multi-disciplinary | 11 |
| 13/2/07 | Violence & Aggression for Division Orientation | 25 |
| 15/2/07 | Infection Control Refresher - multi - disciplinary | 18 |
| 17/4/07 | Violence & Aggression for Division Orientation | 25 |
| 27/4/07 | Bowel management for Division | 8 |
| 15/5/07 | Violence & Aggression for Division Orientation | 24 |
| 24/5/07 | SHO teaching – Goal-planning | 3 |
| 5/6/07 | Violence & Aggression for Division Orientation | 33 |
| 26/6/07 | Key worker Training | 3 |
| 3/7/07 | Violence & Aggression for Division Orientation | 26 |
| 27/7/07 | Key worker Training | 2 |
| 4/9/07 | Violence & Aggression for Division Orientation | 35 |
| 7/11/07 | Bowel management for Division | 10 |
| 11/12/07 | Violence and Aggression for Division Orientation | 65 |

| | | |
|----------|---|----|
| 12/02/08 | Management of Aggression – Division Orientation | 34 |
| 04/03/08 | Basic Life Support for Therapy Staff | 7 |
| 04/03/08 | Management of Aggression – Division Orientation | 24 |
| 14/03/08 | Bowel Management – Division Wide | 4 |
| 20/03/08 | Basic Life Support for Nursing Staff | 8 |
| 25/03/08 | Basic Life Support for Nursing Staff | 10 |
| 4/04/08 | Basic Life Support for nursing staff | 8 |

External Education Modules

| | | | |
|----------|--|--------------------------|----|
| 11/01/08 | Bowel Management for District Nurse Course | Paisley University | 10 |
| 07/05/08 | Bowel Management for district nurses | Galashiels Health Centre | 12 |

| | | | |
|----------|--|-------------------------------|----|
| 29/1/07 | Acute Care | Glasgow University | 21 |
| 30/3/07 | Acute Care Moving & Handling | Borders General Hospital | 2 |
| 28/5/07 | Acute Care | Nurses from Ortho in Dumfries | 4 |
| 30/5/07 | Acute care refresher | Crosshouse Hospital | 2 |
| 26/7/07 | Acute Care overview | Glasgow Royal Infirmary | 5 |
| 30/7/07 | Acute Care overview | Western Infirmary Glasgow | 8 |
| 11/9/07 | Acute Care Overview for Physiotherapists | Western Infirmary Glasgow | 16 |
| 29/11/07 | Acute Spinal Care | Nursing course – Paisley | 14 |

The Unit received a number of UK and overseas Medical and Paramedical visitors.

4.4 Hospital Acquired Infection

Hospital acquired infection continues to be a problem within the Unit mirroring the experience throughout the hospital population.

The problem of MRSA continues to be monitored within the Unit and every effort is made to try and reduce the periods in isolation. Periods in isolation significantly affect the rehabilitation timetable and every attempt is made to reduce this to a minimum.

| | 2000/ 2001 | 2001/ 2002 | 2002/ 2003 | 2003/ 2004 | 2004/ 2005 | 2005/ 2006 | 2006/ 2007 | 2007/ 2008 |
|-------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Total patients req. isolation | 52 | 67 | 70 | N/A | 44 | N/A | 12 | N/A |
| Salmonella | | | | 6 | 1 | 0 | 0 | 0 |
| Clostridium Difficile | 1 | 1 | 6 | 0 | 4 | 0 | 2 | 2 |
| MRSA | 48 | 64 | 64 | 33 | 39 | 38 | 31 | 32 |
| Streptococcus pyogenes | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |
| Scabies | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TB | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Varicella Zoster | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Patient days in isolation | | | | N/A | 3480 | 3160 | 339 | N/A |
| Ave. days in isolation | 53.75 | 52.6 | 52.6 | N/A | 79 | 83 | 28 | N/A |

The patients are at high risk of MRSA and a policy of pre-admission checks and isolation are employed. The low rates of infection are a tribute to the standard of nursing care and policies within the unit especially as regards bowel care.

4.5 Pressure Sore Prevention

Spinal injured patients are the most susceptible population to the development of pressure sore due to the absence of sensation and movement. The Unit continues to be at the forefront of pressure sore management with the introduction of protocols and training programmes for patients, carers and nursing staff. A digitised record for monitoring the healing and assessing the effects of treatment of pressure sores has been introduced. The aetiology of pressure sores is multifactorial and some are out with our control eg age and co-morbidity of patients admitted. In other ways pressure sores can act as a surrogate measure of patient care and nursing procedures. Regular monitoring has identified a rise in pressure sore incidence this year. A investigation is underway to try and identify a cause.

No clearly defined reason has been defined yet but new beds, changing staff and bed linen issues are being investigated. Pressure sores, delay rehabilitation, prolong admission and can necessitate major surgery at best. At worst they are a cause of sepsis and death

4.6 Pressure Sore Prevalence

| | No. of patients | No. of acquired sores | No. of admitted sores | Total number of sores | Point prevalence |
|------------------|-----------------|-----------------------|-----------------------|-----------------------|------------------|
| 2000/2001 | 42 | 2 | 4 | 6 | 15% |
| 2001/2002 | 48 | 4 | 8 | 12 | 25% |
| 2002/2003 | 42 | 1 | 5 | 6 | 14% |
| 2003/2004 | 45 | 1 | 9 | 10 | 22% |
| 2004/2005 | 43 | 4 | 4 | 8 | 19% |
| 2005/2006 | 40 | 3 | 5 | 8 | 20% |
| 2006/2007 | 39 | 0 | 7 | 7 | 18% |
| 2007/2008 | 40 | 7 | 6 | 13 | 32.5% |

4.7 Therapy Beds

| | Number | Ave Units per period | Days |
|-------------------------|--------|----------------------|------|
| Mattress Units | 105 | 3.31 | 1208 |
| Core Frame Units | 48 | 2.74 | 1001 |

4.8 Ventilated Bed Days

During the year ten patients required ventilation during their acute care. There is a close working relationship with the neuro-anaesthetists to monitor progress and reduce ventilation times. This was a significant but fortuitous reduction due to the reduction in the number of acute beds. Normal variation in case-mix should result in an increased activity in the coming year.

Appendix DA20

| | | No. Patients | Ave. Ventilated Days | Total Ventilated Days |
|------------------|-----------------|--------------|----------------------|-----------------------|
| 2007/2008 | Edenhall | 20 | 25 | 508 |
| | RCU | 3 | 125 | 374 |

There have been further developments in protocols for the maintenance and weaning of low tetraplegic ventilator dependent patients. Changes have resulted in a reduction in the number of ventilated days.

5.0 Mechanism of Injury

The reduction in non-neurological cases had resulted in a decrease in the number of low velocity falls admitted. The figure is now stable and likely to remain at the current level. The number of high velocity RTA admissions has not changed significantly. The continued high proportion of motorcycle and bicyclist injuries, compared with usage continues. Sporting injuries have decreased slightly after causing some concern. They occur in young patients and tend to be associated with significant neurological injuries. The number of cases clearly identified as attempted suicide has increased, but probably under represents the problem.

5.1 Mechanism of Injury

| | 2000/ 2001 | 2001/ 2002 | 2002/ 2003 | 2003/ 2004 | 2004/ 2005 | 2005/ 2006 | 2006/ 2007 | 2007/ 2008 |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Fall | 83 | 81 | 87 | 90 | 63 | 70 | 68 | 101 |
| RTA | 59 | 45 | 33 | 57 | 46 | 49 | 55 | 45 |
| Motor vehicle | 44 | 24 | 26 | 40 | 35 | 40 | 35 | 36 |
| Motorcyclist | 11 | 18 | 4 | 12 | 6 | 5 | 8 | 4 |
| Bicyclist | 1 | 1 | 2 | 1 | 1 | 3 | 10 | 4 |
| Pedestrian | 3 | 2 | 1 | 4 | 4 | 1 | 2 | 1 |
| Secondary to Medical Diagnosis | 19 | 11 | 14 | 21 | 6 | 10 | 17 | 18 |
| Industrial Injury | 12 | 5 | 0 | 3 | 4 | 1 | 3 | 3 |
| Assault | 0 | 2 | 3 | 2 | 2 | 3 | 4 | 1 |
| Penetrating Injuries | 0 | 3 | 4 | 3 | 0 | 0 | 3 | 1 |
| Sporting Injury | 16 | 6 | 17 | 19 | 16 | 10 | 12 | 13 |
| Domestic Injury | 8 | 5 | 3 | 0 | 3 | 1 | 1 | 0 |
| Suicide | 1 | 5 | 3 | 2 | 2 | 6 | 4 | 1 |
| Other | 1 | 1 | 1 | 4 | 2 | 3 | 2 | 0 |
| Total | 199 | 164 | 165 | 201 | 144 | 153 | 169 | 183 |

6.0 Financial Report 12 Months ending 31.03.08

| | | Contract Value | Agenda for Change | Revised Contract Value | Budget | YTD Actual | Variance | Year End Forecast | 2008/09 developments | 2008/2009 Plan | |
|--|---------------|------------------|---------------------------------|--|---------------------------|------------------|------------------|-------------------|----------------------|----------------|------------------|
| | WTE | 2007/08 | Arrears: Oct 2004 to March 2007 | Ongoing annual difference (2007/08 prices) | (Includes AfC adjustment) | | | | | | |
| | | £ | £ | £ | £ | £ | £ | £ | £ | £ | |
| Dedicated Staff Costs | | | | | | | | | | | |
| Administrative | 7.67 | 148,636 | 15,949 | 6,555 | 155,191 | 155,191 | 178,045 | -22,854 | 178,045 | 11,494 | 170,953 |
| Medical | 9.19 | 910,358 | | | 910,358 | 910,358 | 888,411 | 21,947 | 888,411 | | 935,393 |
| Nursing | 92.34 | 2,731,045 | 489,727 | 201,278 | 2,932,323 | 2,932,323 | 3,092,716 | -160,393 | 3,167,716 | | 3,012,962 |
| Paramedical | 13.26 | 468,847 | 64,909 | 26,677 | 495,524 | 495,524 | 549,322 | -53,798 | 549,322 | | 509,151 |
| Total Staff | 122.46 | 4,258,886 | 570,585 | 234,510 | 4,493,396 | 4,493,396 | 4,708,494 | -215,098 | 4,783,494 | 11,494 | 4,628,459 |
| Supplies Costs | | | | | | | | | | | |
| Administrative | | 103,492 | | | 103,492 | 103,492 | 99,738 | 3,754 | 99,738 | | 106,338 |
| Medical | | 3,950 | | | 3,950 | 3,950 | 3,612 | 338 | 3,612 | | 4,059 |
| Nursing | | 11,232 | | | 11,232 | 11,232 | 10,837 | 395 | 10,837 | | 11,541 |
| Paramedical | | 17,939 | | | 17,939 | 17,939 | 30,838 | -12,899 | 30,838 | | 18,432 |
| Pharmacy | | 579,998 | | | 579,998 | 579,998 | 585,305 | -5,307 | 585,305 | | 595,948 |
| Surgical Appliances | | 99,749 | | | 99,749 | 99,749 | 83,631 | 16,118 | 83,631 | | 102,492 |
| Direct Supplies Allocated Costs | | 816,360 | 0 | 0 | 816,360 | 816,360 | 813,961 | 2,399 | 813,961 | 0 | 838,810 |
| Medical Records | | 96,852 | 9,386 | 3,858 | 100,710 | 100,710 | 110,096 | -9,386 | 110,096 | | 103,480 |
| Building Costs | | 189,142 | | | 189,142 | 189,142 | 189,142 | 0 | 189,142 | | 194,343 |
| Domestic Services | | 63,325 | 6,137 | 2,522 | 65,847 | 65,847 | 71,984 | -6,137 | 71,984 | | 67,658 |
| Catering | | 174,229 | 16,885 | 6,940 | 181,169 | 181,169 | 198,054 | -16,885 | 198,054 | | 186,151 |
| Laundry | | 62,280 | | | 62,280 | 62,280 | 62,280 | 0 | 62,280 | | 63,993 |
| Neuroradiology | | 72,549 | 7,031 | 2,890 | 75,439 | 75,439 | 82,470 | -7,031 | 82,470 | | 77,514 |
| Laboratories | | 83,661 | 8,108 | 3,332 | 86,993 | 86,993 | 95,101 | -8,108 | 95,101 | | 89,385 |
| Anaesthetics | | 34,635 | 3,356 | 1,380 | 36,015 | 36,015 | 39,371 | -3,356 | 39,371 | | 37,005 |
| Portering | | 67,446 | 6,536 | 2,686 | 70,132 | 70,132 | 76,668 | -6,536 | 76,668 | | 72,061 |
| Phones | | 45,721 | | | 45,721 | 45,721 | 45,721 | 0 | 45,721 | | 46,978 |
| Scottish Ambulance Service | | 8,490 | | | 8,490 | 8,490 | 8,490 | 0 | 8,490 | | 8,723 |
| General Services | | 26,184 | 2,537 | 1,043 | 27,227 | 27,227 | 29,764 | -2,537 | 29,764 | | 27,976 |
| Allocated Costs | | 924,514 | 59,976 | 24,651 | 949,165 | 949,165 | 1,009,141 | -59,976 | 1,009,141 | 0 | 975,267 |
| Total Supplies Overhead Costs | | 1,740,874 | 59,976 | 24,651 | 1,765,525 | 1,765,525 | 1,823,102 | -57,577 | 1,823,102 | 0 | 1,814,077 |
| Fixed costs | | | | | | | | | | | |
| Rates | | 55,576 | | | 55,576 | 55,576 | 55,576 | 0 | 55,576 | | 57,104 |
| Capital Charge | | 566,130 | | | 566,130 | 566,130 | 566,130 | 0 | 566,130 | | 566,130 |
| Overheads | | 141,716 | | | 141,716 | 141,716 | 141,716 | 0 | 141,716 | | 145,613 |
| Total Overheads | | 763,422 | 0 | 0 | 763,422 | 763,422 | 763,422 | 0 | 763,422 | 0 | 768,847 |
| Total Expenditure | | 6,763,182 | 630,561 | 259,161 | 7,022,343 | 7,022,343 | 7,295,019 | -272,676 | 7,370,019 | 11,494 | 7,211,383 |
| Postgraduate Dean Funding | | -113,680 | | | -113,680 | -113,680 | -113,680 | 0 | -113,680 | | -116,806 |
| Income from non-Scottish resident patients | | 0 | | | 0 | 0 | -171,591 | 171,591 | -171,591 | | 0 |
| Total Net Expenditure | | 6,649,502 | 630,561 | 259,161 | 6,908,663 | 6,908,663 | 7,009,748 | -101,085 | 7,084,748 | 11,494 | 7,094,577 |

7.0 Service Developments and Future Plans

7.1 Family Unit/Step-down Unit

The new £ 1.3 million rehabilitation complex with an integrated self-contained flat and facilities for self-rehabilitation and communal activities is now completed. This replaces the old "Halfway House" in preparation for the new SGH Hospital. The facilities are an excellent addition and will when commissioned significantly add to the quality and depth of rehabilitation available. It is anticipated that most families will have an opportunity to spend time in the facility prior to discharge home. This will be particularly beneficial for those who live some distance from the unit and cannot take advantage of weekend passes to do trial "at home" visits. In addition to the "Step-down" apartment there is a multi purpose communal area for family, patient and staff use. A relative's room for new admissions and a private room for long term patients accompany office accommodation for volunteer groups including SPIN and SIS. Storage and a Research Intervention Suite complete what will be a multi user space. Outside, a superb wheelchair skills course has been built for the use of staff, patients and Back-Up Training.

7.2 Research Mezzanine

The success of the unit's research programme has been acknowledged by the funding of a research mezzanine to house The Centre for Rehabilitation Engineering and the units associated research partners. This is accommodated in the air space in the old gymnasium and is nearing completion. The profile for The Scottish Center for Innovation in Spinal Cord Injury is given in Appendix One.

7.3 Physiotherapy Assistant

The appointment of a Physiotherapy Assistant has allowed a greater flexibility in the functioning of the Physiotherapy Department. This is dealt with in the Physiotherapy Report along with the potential areas of expansion. The key areas of respiratory support and exercise physiology are constantly under review and will be addressed once the impact of the Respiratory Support Nurse is understood.

7.4 Respiratory Care

Many acute patients experience respiratory difficulties during their initial treatment. A small number of high lesions have persisting or permanent difficulties. This is anticipated to increase with the improvements in life expectancy of the spinal injured population.

As predicted numbers of domiciliary ventilated patients are slowly rising. The Unit now looks after nineteen outpatients on long-term ventilatory support.

Secondment of a senior nurse has ensured adequate review of all outpatients' hardware and replacement where necessary. This has involved senior nursing and medical physics staff visiting patients from Ayrshire to the Isle of Lewis.

Medical and social care of ventilator dependent tetraplegic patients continues to make high demands on the Unit, Social Services and Health Boards. For instance one patient has

taken over 3 years to discharge owing to complex care package and housing issues. Such patients have inevitable impact on the overall length of stay figures.

The seconded nurse post facilitated introduction of a regular respiratory care clinic for those patients on ventilation and those with expected early respiratory problems.

Non-invasive mask ventilation is now well established in the acute and rehabilitation ward areas. Methods of electrical abdominal stimulation continue to be developed as part of research programme for the University of Glasgow.

In 2007 the Unit successfully introduced the Cough Assist device which is very successful in clearing secretions from the patients' airways and has been used successfully both in the ward and at home. Some patients have now obtained the device for their own use at home.

7.5 Implantable Electrical Devices

Patients with neurological injuries can benefit from implantable stimulators in a number of sites. These include the upper limb, diaphragm and bladder. The unit is involved in the development of surface and implantable electrodes to assist breathing and walking. No Phrenic Nerve stimulators have been required in the last year but some diaphragm and upper limb implantable systems remain functioning. The unit is involved in investigating alternatives to the currently available systems as part of the research programme.

8.0 General Clinical Services

8.1 Outreach Clinics

As a national service we feel that it is important to provide out patient and consultation services throughout Scotland. This has resulted in the development of out-reach clinics in areas identified on our database as having a concentration of patients. Medical, Nursing, and Occupational Therapy staff attend outreach clinics as required. Volunteers from SIS also attend to see and advise patients and carers. It is planned to develop a outreach clinic in Dundee as well as strengthening the support in Edinburgh. All clinics are now consultant led.

8.2 Out-Patient Department

The out-patient department has a key role in the management of the acute injuries and in preventing long term complications. The provision of ready access and the varieties of specialist clinics are fundamental to the service.

The move towards a greater emphasis on cardiovascular fitness and general health has been investigated. A clinic specialising in the nutritional aspects of paralysis has been discussed and research is proposed. A new Respiratory Care Clinic now had operates weekly from mid 2007 and has a significant impact on patient care.

8.3 Spinal Nurse Specialists Liaison Sisters

There is a continued demand for nurse specialist visits for patients in their home or care placement. This prevents unnecessary visits to the unit and supports patients and carers. During the year staff travelled over 16,615 thousand miles by car and carried out two hundred home visits.

8.4 Assistive Technology

There is an increasing demand for technology in the management of the paralysed patient. The ultimate aim is to promote independence, assist in activities of daily living and to improve work opportunities. The additional occupational therapist has been able to plan for developments in this area. Environmental control, communication and computer skills are all being investigated. This development is fully integrated with the work done in the unit by Momentum (formerly Rehab Scotland) and SPIN.

This work is seen as fundamental to the rehabilitation process and the service developed principally by Geoff Orry has been replicated in many other units. The service is currently being reviewed by both QENSIU and Momentum to ensure that the service continues to develop when Geoff Orry reduces his hours on retirement. Fortunately he will remain in a part-time role to ensure support to high level injuries.

8.5 Training & Development Post

The Nurse Training and Development post continues to be extremely successful. It has enabled the entry of new staff and the development of in-house course for patients and staff.

8.6 Further Developments within Multi-Disciplinary Team

A multidisciplinary approach to education for patients, family and carers is followed in the unit. It is recognised that there is a need for continued education and an outreach service for patients discharged before the introduction of modern practice. There is a continued dialogue with other units to explore new methods of providing care.

8.7 Nursing Recruitment

Nurse recruitment remains a national problem. The unit has been fortunate in attracting excellent staff to fill last year's vacancies. A pro-active approach is taken by all staff to make a placement in the unit an important part of career development.

The quality and nature of the training available makes it inevitable that there will be a steady turnover of certain grades of staff.

8.8 Medical Recruitment

The changes caused by the European Working Time Directive, Modernising Medical Careers and the New Consultant Contract have placed additional burdens on the current medical staff. The unit will be recognised for Foundation Training but this will further limit the amount of time each trainee will spend in the unit.

MMC changes have resulted in a conversion of one of the core junior staff to the training in the speciality of general rehabilitation this will have significant impact on patient care within the national service. Ways are being investigated to resolve this issue.

The unit has appointed a locum to cover consultant maternity leave. A number of consultant sessions in pain management(4) and neurophysiology(4) remain vacant creating a significant under spend in spinal injuries.

8.9 Pain Management

The introduction of two consultant anaesthetists (four clinical sessions) in 2005 had an initial impact on the demand for specialist help in managing refractory pain in a small sub group of patients. A number of novel interventions and drug regimes were introduced. The model was less satisfactory in managing in-patients and providing continuity of care for all patients. The reassignment of sessions following the new consultant contract resulted in these sessions being withdrawn. A new model was proposed with one consultant having two sessions assisted by a senior nurse providing in and out-patient support. No progress has been made in replacing these sessions at the time of writing this report.

8.10 Paramedical staffing

The clinical scientist appointed from endowment funds and research monies was very successful in raising the awareness and quality of studies performed in the unit. They have now been appointed to a research post within the Centre for Rehabilitation Engineering and will play a pivotal role in developing the Research Mezzanine

Some consideration has been given as to how the unit can support recreational and sporting activities for in and out patients. A senior physiotherapist or Sports Medicine graduate with a remit to develop sporting excellence is favoured.

9.0 Capital Development and Equipment Replacement

The unit was commissioned in 1992 and despite regular maintenance it has now reached the stage of requiring significant refurbishment. With the support of the hospital management a programme has been developed following the major painting programme. This commenced in February 2006 with the replacement of lighting, flooring and the bed heads in Edenhall Ward. Further work was carried out in Philipshill Ward in the toilet and shower area last year. It is hoped that this will be completed in the coming year. The major concerns regarding ventilators are being addressed as monies become available.

| | | |
|--------------------|-----|---------|
| Ventilators x2 | GGC | £13,000 |
| Transport Monitor | GGC | £9,020 |
| Wheelchair Samples | NSD | £61,065 |
| Electronic Pumps | NSD | £12,949 |

9.1 Charitable Funding - Endowment Funds

The unit is very fortunate in attracting significant donations from patients, relatives, friends, individuals and corporate bodies. These are used to provide facilities and services, which cannot be reasonable expected from central funding. Specialised physiotherapy stations, occupational therapy equipment, medical record storage, televisions, computer equipment, shower chairs and travel costs have been sourced from endowment monies. Individual

patient donations have paid for specialised equipment and the employment of a massage therapist.-

Research grants have provided equipment and partial staff costs. There have been significant donations in time and equipment from Celtic FC, The Murrayfield Trust, the Clydesdale Bank, Momentum, SPIN and SIS.

This has occurred without any concerted fund raising activity but has been dependant on individuals. The contribution made by these individuals is gratefully acknowledged.

Endowment Purchases

| | | | |
|------------------------|---------|---------------|---------|
| Pressure Xsensor 05/07 | £12,500 | Computer 7/08 | £500 |
| Ergometer Bike 2/07 | £4,500 | FES Cycle | £3,500 |
| Erigo Tilit Table 4/08 | £37,448 | Armeo 08/08 | £36,200 |

A Lokomat has been placed in the Unit courtesy of CRE (£150,000). Sky Television is paid for by endowment funds as are supplies of drinking water. All sporting activities are supported by an independent Charity – Options

10.0 Clinical Networking and National Guidelines

Admission guidelines were issued to all hospitals in Scotland during 2002. This was of great benefit standardising the immediate management of patients and their subsequent referral. Standard referral proformas, transfer guidelines and admission proformas are now in place.

The guidelines were reissued during 2006 and continue to be available to hospitals on request.

11.0 Clinical Governance

Multi-disciplinary clinical governance meetings are held within the unit monthly. Separate medical audit meetings are held with the Department of Rehabilitation. Each department has separate governance meetings. The Director and Clinical Services Manager meet weekly. Consultant clinical meetings are held twice a week. Regular meetings will be held with the new Health Board management structure.

Consultant portfolios have been introduced and appraisal started. SHO teaching and training is closely scrutinised with introductory interviews, educational contracts and regular reviews culminating in the RITA process. The SHO will be incorporated into the Foundation Training Programme.

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. Staff are encouraged to report incidents which are then investigated by senior medical and nursing staff.

In the past year staff reported seven formal clinical incidents. All were fully investigated. The most serious of these were two lift malfunctions during patient transfer for X-Ray investigation.

12.0 Medical Research

Morbidity and mortality following spinal cord injury was reduced dramatically following the introduction of specialised spinal cord injury units. Life expectancy has been increased from a few years to approaching normal and the complications of injury are routinely monitored for, treated or prevented. Three areas remain of concern. Mortality secondary to cardiovascular disease and suicide is unchanged and there has been no progress in developing primary treatments for spinal cord injury. The unit is involved in key research projects in all these areas

In 2007-08 the unit team published twelve research papers and gave four scientific presentations.

A detailed research profile for the inauguration of the Scottish Centre for Innovation In Spinal Cord Injury (**SCI²**) is given in Appendix One

13.0 Summary

The year has seen significant change and more importantly much preparation for the changes to come in service provision and research. The core activities of acute care and comprehensive early rehabilitation continue with a dedicated staff responding flexible to the needs of the service. This has been done despite significant disruption to the infrastructure with the continued upgrading of Philipshill Ward and the construction of the new Step Down Unit and the Research area in the mezzanine. Acknowledgement must be made to the dedication of the staff during this difficult time and the way that the service has continued to be of the highest order.

The unit hosted the Annual Guttman Meeting for all the spinal injuries units in the UK, Ireland and Wales in June 2008. The meeting was judged a great success by all and much information and ideas were exchanged.

The success of the unit is entirely dependant on the excellence of the team and the multidisciplinary approach to the rehabilitation of the patient. It was with great sadness that patients and staff had heard of our senior physiotherapist Sandra Forrest's illness and subsequent untimely death. Our thoughts go to her family at this difficult time.

Appropriate thanks must be given to the National Services Division, The Regional Services Directorate, and NHS Greater Glasgow and Clyde for their help and support in delivering the service.

**Mr. D.B. Allan FRCS
Consultant Orthopaedic Surgeon
Director,
Queen Elizabeth National Spinal Injuries Unit for Scotland**