

QUEEN ELIZABETH NATIONAL SPINAL INJURIES UNIT

ANNUAL REPORT

1999/2000

- 1 Introduction**
- 2 Activity**
- 3 Waiting Times**
- 4 Quality of Care Issues**
- 5 Mechanism of Injury**
- 6 Financial Report**
- 7 Service Developments and Future Plans**
- 8 Summary and Conclusions**
- 9 Appendices**

1.0 Introduction

The Queen Elizabeth National Spinal Injuries Unit has continued to develop and expand its services over the last year.

There has been significant developments to the core programme of care with the consolidation of the Respiratory Care Service for ventilator dependent or at risk patients. Education of Medical, Paramedical and Nursing staff continues to be developed for all of Scotland. The Outreach Service for Domiciliary and Out-Patient Care has improved.

The Annual Report contains a comprehensive analysis of the Spinal Injury Unit's activities.

2.0 Activity

The workload of the Unit continued to increase in 1999/2000 with the development of new services and clinical initiatives.

2.1.1. New In-Patient Activity

The number of acute new referrals has risen in 1999/2000 after being fairly constant in the previous three years.

	1992/3- 1996/7	1997/8	1998/9	1999/2000	TOTAL
New Admissions	638	167	163	180	1148

Appendix DA1

These figures do not include patients who are managed in the Neurosurgical or Orthopaedic wards nor those patients who are referred purely for telephone advice. The Internet is providing a useful tool for the transmission of information and images regarding patients.

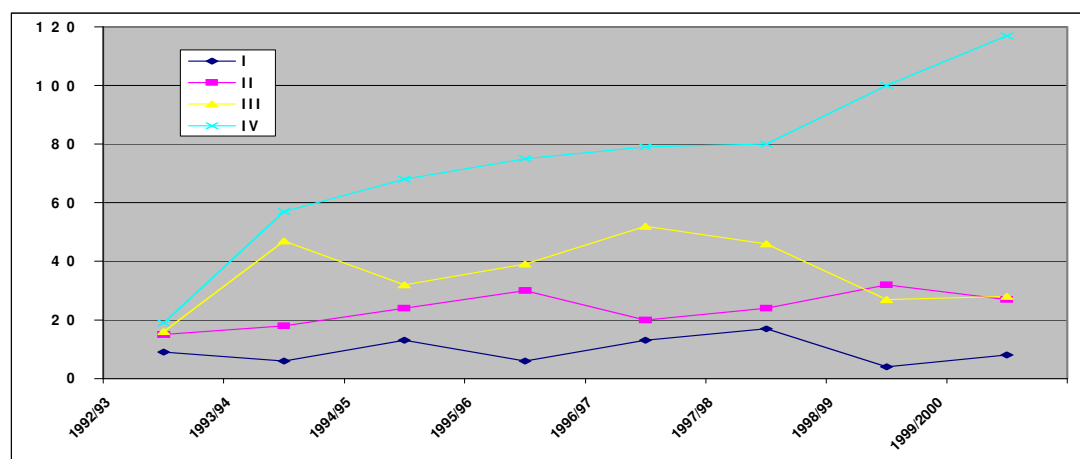
2.1.2. New Admissions : Casemix Complexity

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 cases have the most severe neurological injuries and the numbers are likely to continue to vary considerably each year. Groups II and III are the next most dependent and require significant periods of rehabilitation and follow-up. Group IV includes all patients with spinal fractures and incomplete or no paralysis. This group has increased consistently since the Unit has opened. In general this group can be managed either conservatively or by surgical stabilisation. Conservative management requires prolonged bed rest and an increased risk of deformity or chronic mechanical back pain. The increased demand for surgical stabilisation and the increased awareness of the Unit has resulted in an increased referral pattern. Quality of care issues regarding stabilisation surgery, early mobilisation and quality rehabilitation along with the continued development of a clinical network and the measurement of outcome indicators is likely to lead o an increased referral of Group IV patients.

2.1.2 New Admissions by Case-Mix Complexity

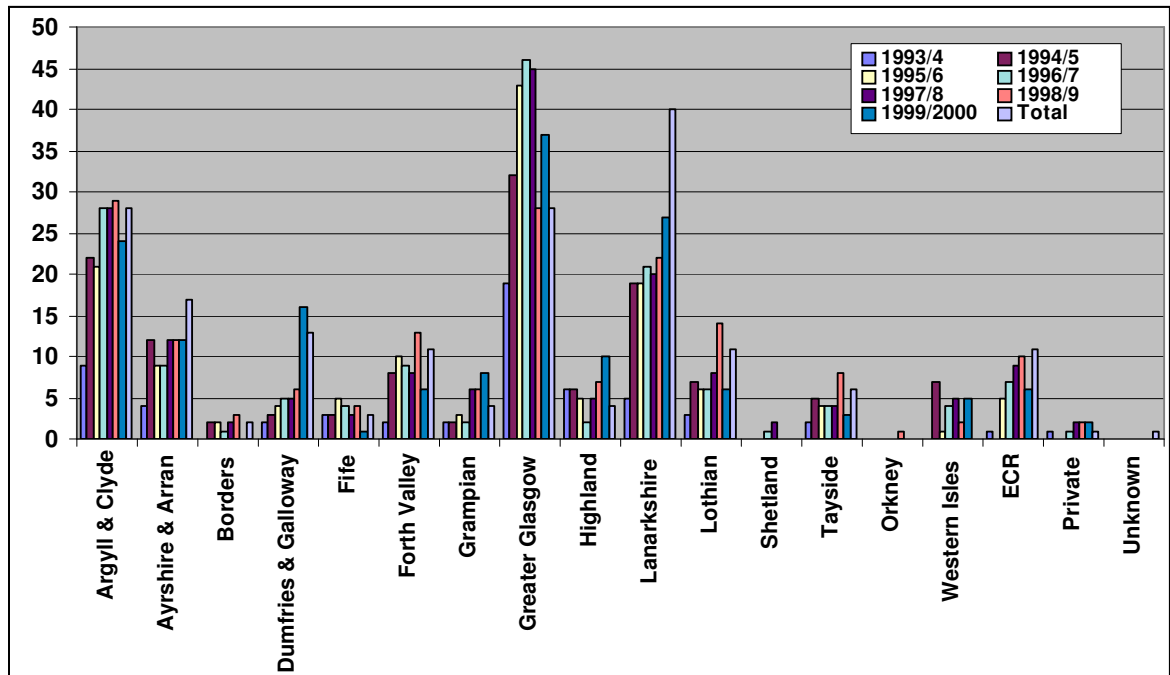


Admissions	1992/3- 1996/7	1997/8	1998/9	1999/2000	Total
I	47	17	4	8	76
II	107	24	32	27	190
III	186	46	27	28	287
IV	298	80	100	117	595
Total	638	167	163	180	1148

2.1.3. New Admissions by ASIA Impairment Level & Health Board

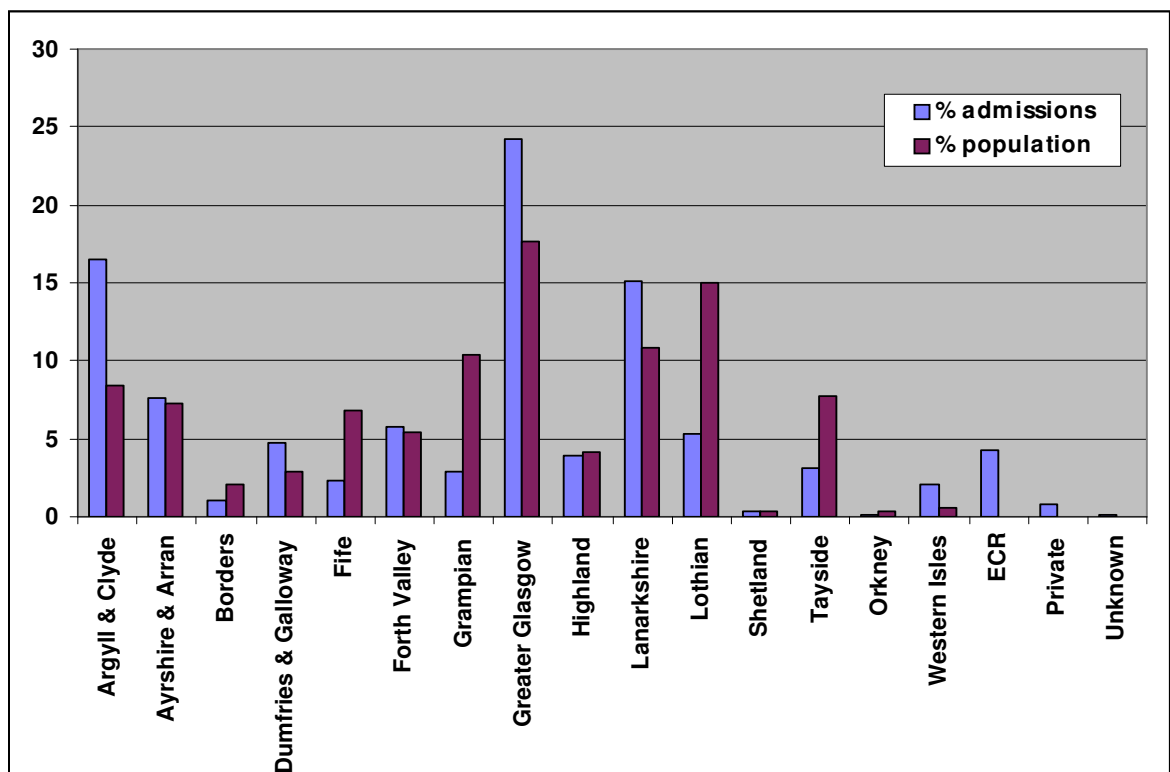
1999 – 2000	A	B	C	D	E	Total
Argyll & Clyde	1	1	2	7	17	28
Ayrshire & Arran	2		1	3	11	17
Borders					2	2
Dumfries & Galloway	2			1	10	13
Fife	1			2		3
Forth Valley	1		1	4	5	11
Grampian	2	1	1			4
Greater Glasgow	7	1	2	4	14	28
Highland			1	2	1	4
Lanarkshire	5	3	5	5	22	40
Lothian	6			3	2	11
Shetland						
Tayside	2	1			3	6
Orkney						
Western Isles						
ECR	2			1	8	11
Private		1				1
Unknown					1	1
TOTAL	31	8	13	32	96	180

2.1.4 New Admissions by Health Board Of Residence



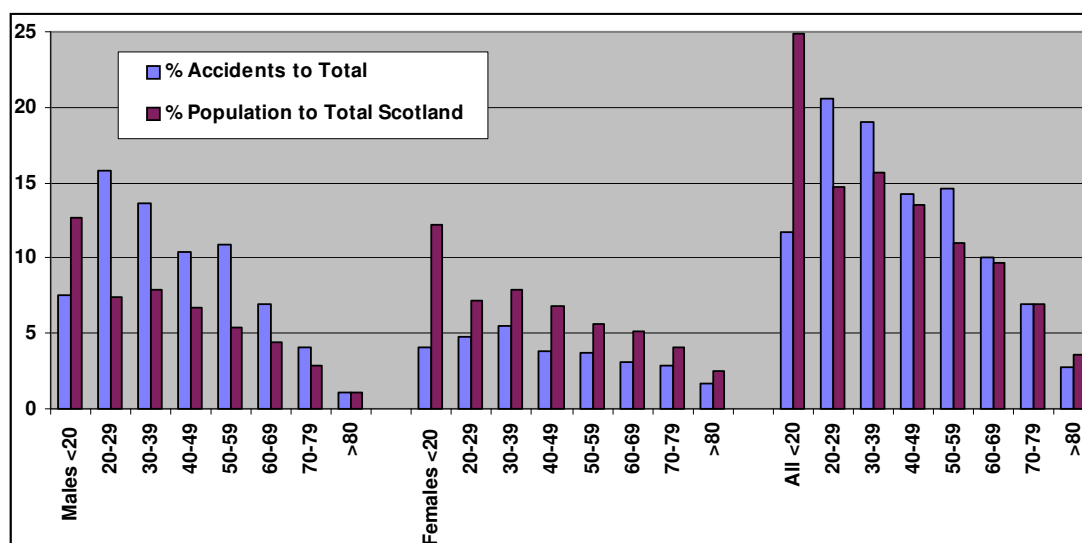
Appendix DA3

2.1.5 Admissions by Health Board compared with Population Size



Appendix DA4

2.1.6 New Admissions by Age Group



The wide variation of length of stay within each classification is indicative of the variation in the rehabilitation needs within each group. Benchmarking with other units in the United Kingdom continues to be developed but comprehensive figures as yet unavailable from other units.

The median length of stay of Group IV is indicative of the efficient management of such patients by appropriate surgical stabilisation or use of halo orthotic support.

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

Casemix	No. of patients	Mean L.O.S. (days)	Median L.O.S. (days)	Range of L.O.S.
I	5	305	-	28 – 581
II	27	190	49	22 – 454
III	22	120	-	4 – 512
IV	118	18	11	1 – 126
All	172	67	11	1 - 581

2.2 In-patient Procedures

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

2.2.1 Surgical Stabilisation

Surgical stabilisation of acute 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 pro-active approach to surgery with a higher rate of intervention compared with other U.K. units is followed to permit early rehabilitation, a reduced length of stay and better functional outcomes.

2.2.2 Spinal Injury Specific Surgery

A wide range of procedures encompassing plastic and general surgery are required for both acute and chronic patients. This service is provided by Mr. Matthew Fraser and the appropriate specialists from the Southern General Hospital. Over **XXX** lists were carried out over the course of the year involving over **XXX** individual procedures. Day Case procedures carried out within the Unit are recorded in a later section.

2.2.3 Implanted Pain Control

An increasingly sophisticated approach is taken to the management of chronic pain. There is the continued need for surgical implantation of reservoirs for supply of spasm and pain modifying pharmaceutical agents. **XXX** Baclofen pumps and **XXX** transmitter boxes were implanted over the year.

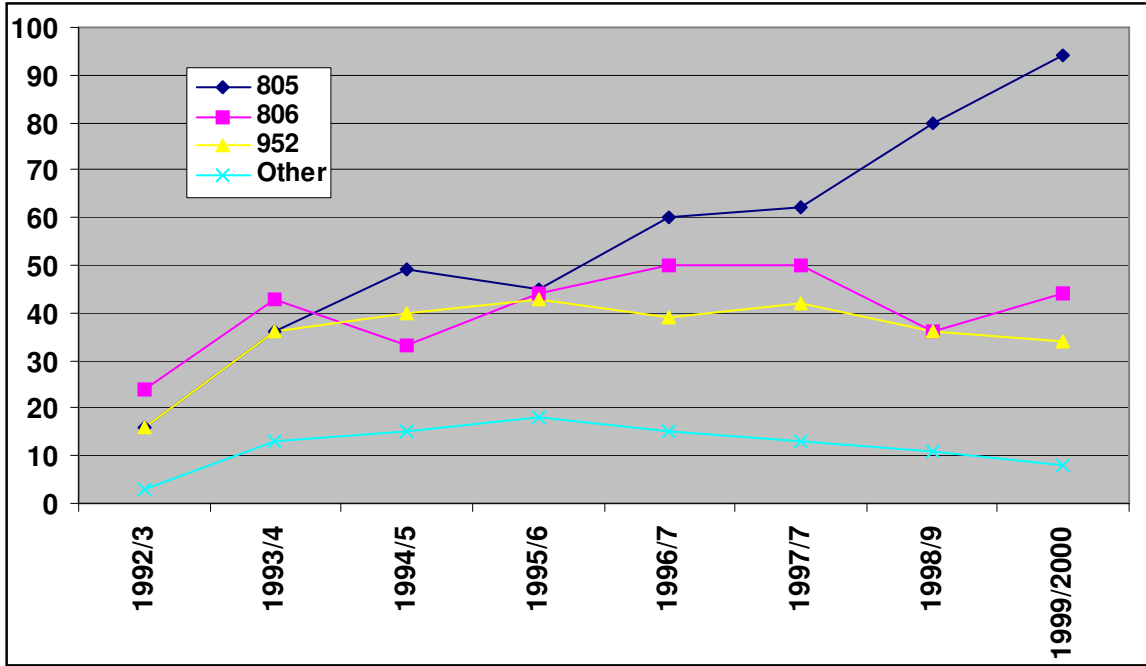
2.3 Admissions and Discharges by Degree of Injury

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 can be shown by using the appropriate ICD9 codes.

The ICD9 codes are as follows

805	Fracture of vertebral column without mention of spinal cord injury
806	Fracture of vertebral column with mention of spinal column injury
952	Spinal Cord Lesion without evidence of spinal bony injury
OTHER	Other Spinal Cord Related Conditions

2.3.1 Admissions by Degree of Injury



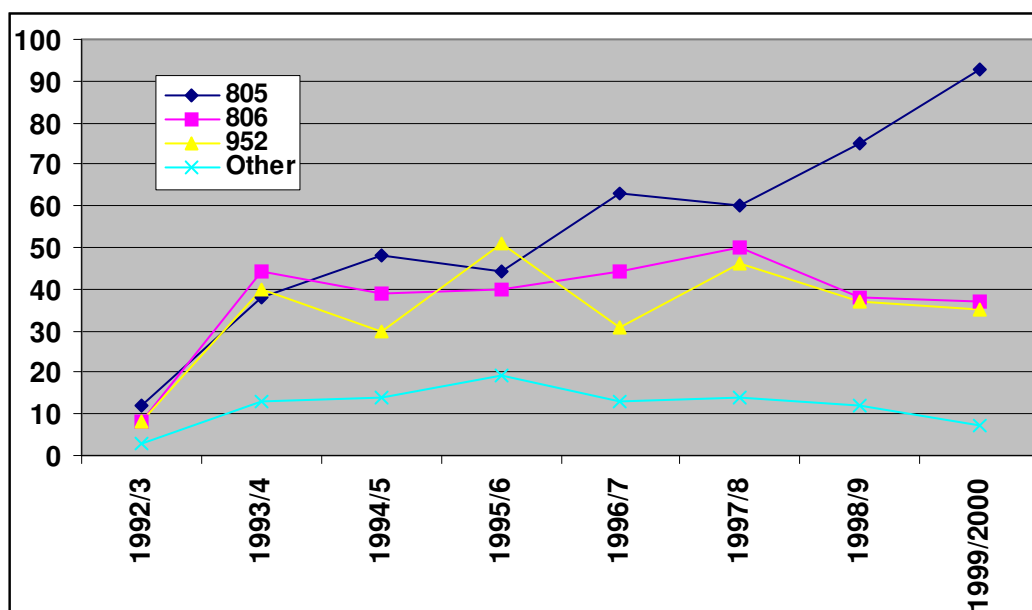
Appendix DA5

2.3.2 Discharges by Degree of Injury

The continued rise in the number of fractures without mention of spinal cord injury has been previously predicted. This is related to greater patient expectation, clinical governance and the development of specialised rehabilitation at the Unit.

The number of patients with a neurological deficit continues to fluctuate. The numbers in each group of neurological injury are small and no consistent trends have been noted since the Unit opened.

Other admissions include incomplete paraplegia, incomplete quadriplegia and incomplete Cauda equina lesions.



Appendix DA6

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

	Admissions	Discharges
Central Cord Lesion	15	16
Infection	2	2
Vascular	8	6
Tumour	2	2
Intra medullary Cyst	0	1
Non-specific Lumbar Lesions	0	3
Stab Wounds	0	3
Other	7	2
Total	34	35

Appendix DA7

Non traumatic spinal cord injury is a misnomer which includes Central Cord Syndrome that is traumatic in origin but does not involve bony damage. It often results in major paralysis. It occurs in the elderly population with osteoarthritic changes in the cervical spine and often results in a severe disability with a predominantly upper limb paralysis with high dependency. It is anticipated that this type of injury will increase in line with demographic changes.

2.3.4 In-patient Bed Days

<u>1999/2000</u>	Edenhall (HDU)	RCU	Philipshill (Rehab)	Total
Beds	12	4	32	48
Actual	3140	850	10395	14385
Available	4392	976	12200	17568
Bed Occupancy %	71.5	87.1	85.2	81.9
Range of L.O.S.	1 - 408	-	3 - 480	1 - 480
Mode	13	-	55	17
Median	11	-	28	11

The introduction of the Respiratory Care Unit has significantly increased the flexibility of bed usage. The ability to nurse ventilator dependent patients outwith Edenhall ward has greatly facilitated the admission of acutely ill ventilator dependent patients. The continued development of the Respiratory care Unit with increased staffing will facilitate this approach and improve standards of care. Some improvements have been seen in the overall length of stay through the unit during the course of the year. This is secondary to a reduction in the number of patients whose length of stay has been increased by delays in discharge back to the community. This delay has been reduced by persistent efforts by the Medical, Nursing and Social Work staff.

2.3.5 Delay Between Actual and Intended Date of Discharge

	No. of patients discharged	No. of Patients Delayed	Mean delay (days)	Median delay (days)	Range of Delay (days)
1999/2000	172	21	122	47	22 - 410

The vast majority of patients are discharged on the intended date. These patients have been excluded from the above calculation this year.

Twenty One patients had an identifiable delay between the actual and intended date of discharge. The commonest cause for delay and the cause for the most severe delays continues to be housing adaptation or placement. Further effort will be needed in the forthcoming year to reduce this delay further.

2.3.6 Re-admissions to the unit

-24% on contract

last year 138; -31% on contract

The number of re-admissions to the Unit remains low at 152 over the year. This is a shortfall of 24% on the contract agreement of 200.

Case-mix complexity and individual patient circumstances are outwith the control of the Unit but a continued emphasis on discharge at the appropriate level of rehabilitation and education should ensure that the number of re-admissions remains small.

2.4 Out patient Activity

The out patient activity of the unit is geared to the post discharge management of acute injuries and their long term follow up including the management of complications. Dedicated clinics in Orthopaedics, Neurosurgery, Urology, Rehabilitation and Pain Management supplement the nurse led annual review clinics for those patients with a substantial neurological deficit. Early discharge of fully treated patients with no expectation of future disability to the General Practitioner is encouraged.

New patients are referred to the out patient clinic for consultant opinions regarding chronic neurological dysfunction secondary to spinal cord injury. Outreach clinics are held in Raigmore Hospital (Inverness) and Edenhall Hospital (Edinburgh) and Foresterhill Hospital (Aberdeen). An Outreach clinic in Dumfries Royal infirmary is planned for May 2000.

2.4.1 Summary of Out-Patient Activity

	1996/7	1997/8	1998/9	1999/2000
Return	1998	2407	2401	2017
New	31	36	73	104

The number of return out-patients has continued to fall in line with expectation. The Liaison Nursing Service and continued development of long term follow-up protocols have all contributed to this trend.

The number of new out-patients has risen substantially over the last three years. The increasing awareness of the Unit and the specialised range of services it provides have all contributed to this trend.

The number of new referrals will require to be closely monitored as it significantly impacts on the workload of the Unit.

2.4.2 New Out-Patient Activity by Health Board

	1999/2000
Argyll & Clyde	32
Ayrshire & Arran	6
Borders	0
Dumfries & Galloway	2
Fife	4
Forth Valley	10
Grampian	0
Greater Glasgow	31
Highland	0
Lanarkshire	13
Lothian	2
Shetland	0
Tayside	3
Orkney	0
Western Isles	1
Total	104

2.4.3 Out -Patient Activity by Centre

	1996 /97	1997 /98	1998 /99	1999 /2000	TOTAL
New QENSIU	31	36	73	103	243
Return QENSIU	1773	2124	2083	1740	7720
Edinburgh Edenhall	177	248	279	224	928
Raigmore Inverness	48	35	39	41	163
Aberdeen	0	0	0	13	13
	2029	2443	2474	2121	9067

Outreach clinics are planned to be held in Dumfries Royal Infirmary in May 2000. Consideration is being given to arrange Outreach clinics in Dundee and Borders District General Hospital.

2.4.4 Outpatient Activity by Specialty

	1998/99	1999/2000
DBA Orthopaedics	98	150
RAJ Neurosurgery	82	109
GC Urology	159	277
Urodynamics	16	-
Halofixation	8	-
Hand	-	5
Skin Care	224	199
Pain / Acupuncture	120	92
Sexual Dysfunction	53	22
Spinal Injury Annual Review	1007	989
Total	1767	1843

?2156

There has been a significant increase in the number of patients seen at the Consultant Specialist Clinics. In addition to Orthopaedics, Neurosurgery and Urology, a Hand Out-Patient service has been instituted. Nurse led Clinics continue to be developed with an increasing proportion attending for Day Case procedures.

2.5 Day Case Activity

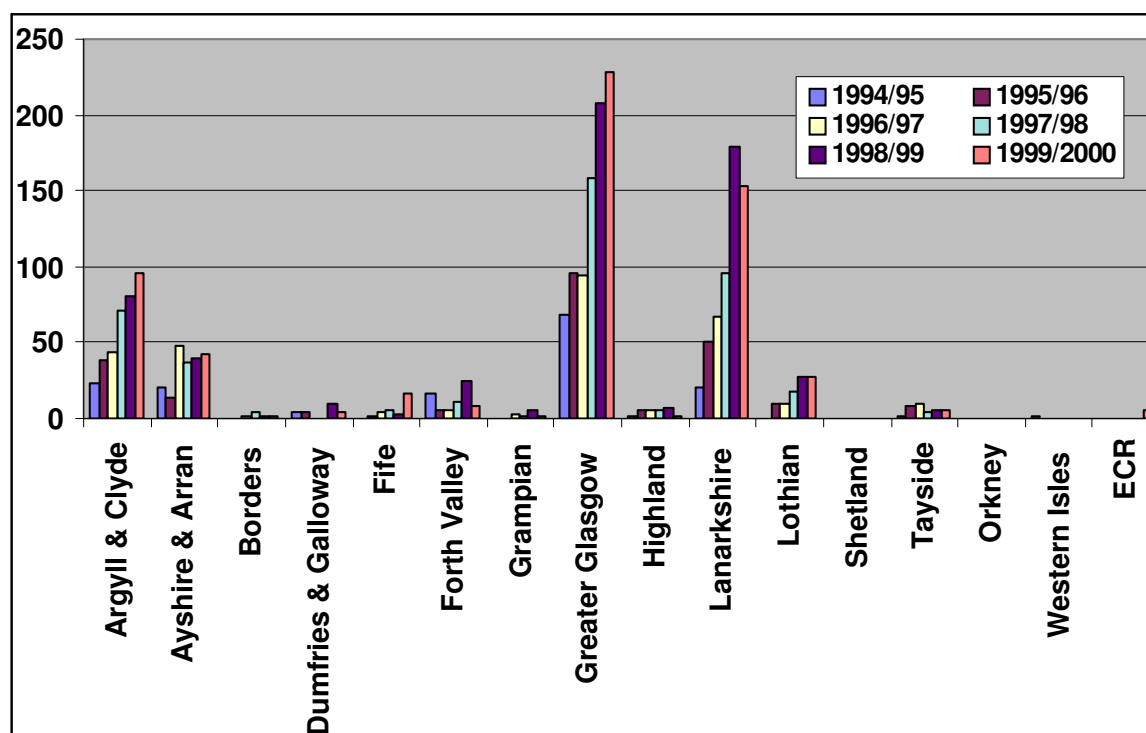
Day case activity continues to offer an important service for minor surgical procedures, medical interventions and nursing care. The new developments in spinal fracture management, pain control and sexual dysfunction are expected to maintain this activity. The level of Day Case activity exceeds the contracted 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

	1998/9	1999/2000
Urology	44	42
Halo Fixation	133	169
Skin	6	8
Orthopaedic/Neurosurgery	60	7
Pain/Acupuncture	294	350
Sexual Dysfunction	21	14
Total	558	590

2.5.2 Day Case Attendances by Health Board

As a National service Day Case activity is limited by geographical constraints. Many patients require in-patient stay due to the length of difficulties in travelling.



Appendix DA8

3. Waiting Times

3.1 Waiting Times Outpatient Clinics

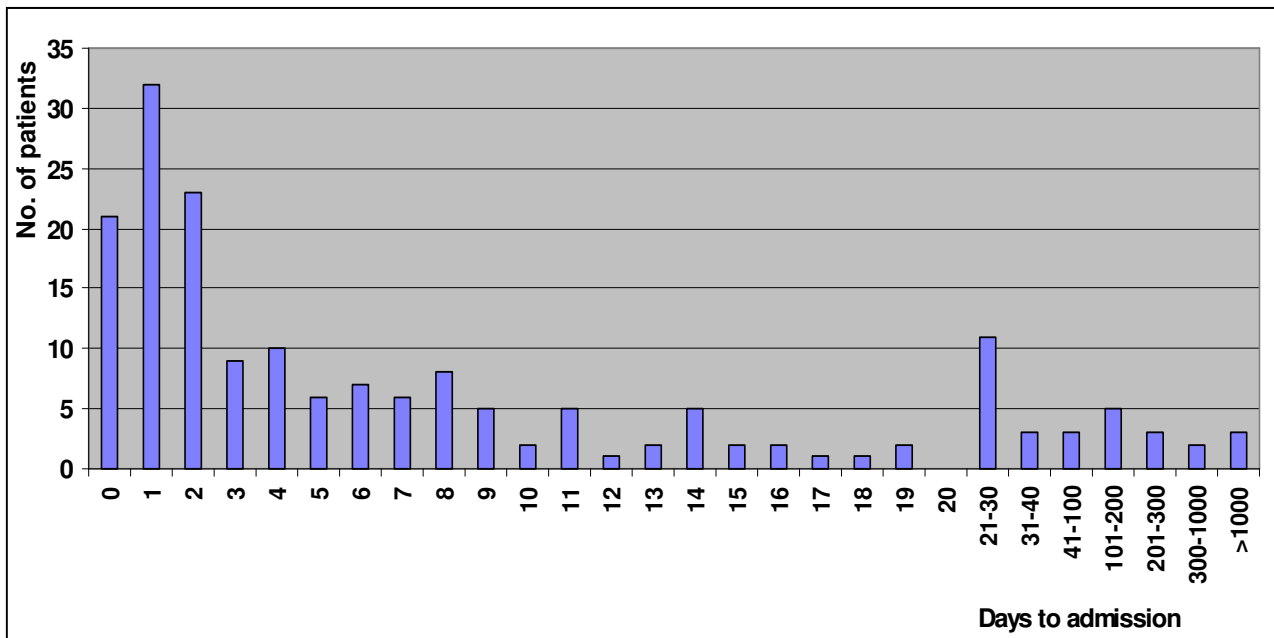
An Open Door policy to the Nurse Led Spinal Injury Clinics continues. Medical advice is always available to patients at these clinics if appropriate. Maximal waiting times for elective out-patient appointments is four weeks.

Patient satisfaction with Nurse Led Review Clinics continues. Approximately 20% of patients attending these clinics require medical input.

3.2 Waiting Times Acute Admissions

Acute referrals continue to be admitted as soon as appropriate on clinical grounds. Some patients require medical management prior to transfer or are admitted electively to the Unit for rehabilitation following initial management in the referral hospital.

3.3 Time from Injury to Admission



29% within 24 hours

42% within 48 hours

53% within 4 days

The introduction of the Respiratory Care Unit with increased flexibility in Edenhall resulted in almost 29% of patients being admitted within twenty four hours of their injury. 42% were admitted within forty eight hours and 53% within four days.

Co-operation between the staff in the Unit and the referral hospital continues to ensure immediate admission if clinically indicated. Telephone advice is always available for assistance in the immediate care of patients who are not admitted immediately. Admissions to the Orthopaedic or Neurosurgical wards for surgical stabilisation may increase the time to admission but is appropriate to minimise transfers of potentially unstable patients.

Most patients admitted after four days have conditions which do not require immediate transfer or have additional co-morbidities which require medical intervention prior to transfer.

	No. of patients	Mean Delay	Median Delay	Range of Delay
1999/2000	180	158.3	1	0 – 18770

This table is limited as it does not include the case-mix complexity or co-morbidity

4. Quality of Care Issues to include information on:-

4.1 Charter Mark

The Unit received the Chartermark award in 1997 and has continued to maintain the high level of service recognised at that time. The Unit was re-inspected in March 2000 and the result is awaited..

4.1.2 National Service Division Visit

The Unit has been regularly visited by staff from NSD throughout the year. Continued close co-operation has ensured that standards are maintained and there is an early response to increased clinical needs.

4.1.3 Formal Complaints

One formal complaint was received during the year. This complaint concerned the cancellation of transport on two separate occasions for an out-patient appointment. The complaint was partly upheld. Transport was unavailable for an out-patient appointment due to additional discharged on one occasion and due to involvement of an inter-hospital transfer to Dundee on the second.

Following recommendation from the Charter Office, the Unit has this year taken on an informal complaints procedure which involves staff throughout the Unit documenting informal complaints. These will be monitored by the Senior Nurse Manager to see if there are any specific trends relating to complaints within the Unit.

4.1.4 Relatives & Patients Meetings

The Senior Nurse Manager continues to meet regularly with relatives and patients.

4.2 Benchmarking

Discussions continue between the Spinal Injury Units in the United Kingdom regarding benchmarking. It is probable that the QENSIU will have to look to Europe or further afield on appropriate benchmarking models.

4.3 Nurse Education

Nurse Education continues to have a high profile within the Unit. Lectures provided include Senior Nurse Manager Lectures at both Paisley University and Caledonian University. Liaison Sisters lecture, G.P.s and District Nurses. The Education Sister provides Study Days for Aberdeen Hospital trained staff, student nurses from Paisley and Caledonian University, external carers and nurses within the Unit. The Out-Patient Sister provides training and education for Paisley and Caledonian students and District Nurses.

4.4 Hospital Acquired Infection

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

	1998/99	1999/2000
Total patients req. isolation	31	45
Clostridium Difficile	1	1
MRSA	25	42
Streptococcus pyogenes	5	1
Scabies	0	1
Patient days in isolation	1 – 82 days	-
Ave. days in isolation	-	55.8

Total

The problem of MRSA continues to be monitored. A review of the hospital policy regarding nursing requirements has been carried out. Periods in isolation significantly affect the rehabilitation programme and every attempt is made to reduce this period to a minimum.

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.

4.6 Pressure Sore Prevalence

The number of pressure sores on admission or acquired is static. Continued education and constant vigilance is required to reduce this number further.

No. of patients	No. of acquired sores	No. of admitted sores	Total number of sores	Point prevalence
38	3	3	6	16%

4.7 Bed & Mattress Hire

There has been a consistent need to hire low pressure beds and mattresses throughout the year. This matter will be monitored over the forthcoming year. The current management and hiring protocol is felt to be cost effective.

On average 2 therapeutic beds and 2 mattresses were hired per day at a cost of £13,000 and £.... respectively.

MMcK ...

4.8 Ventilated Bed Days (including ventilator hire budget)

		No. Patients	Ave. Ventilated Days	Total Ventilated Days	Cost
1998/99		12	121	1452	£3,000
1999/2000	Edenhall	12	63.4	761	
	RCU	4	187	748	

4.9 Respiratory Care : Ventilatory Needs of Low Tetraplegic Patients

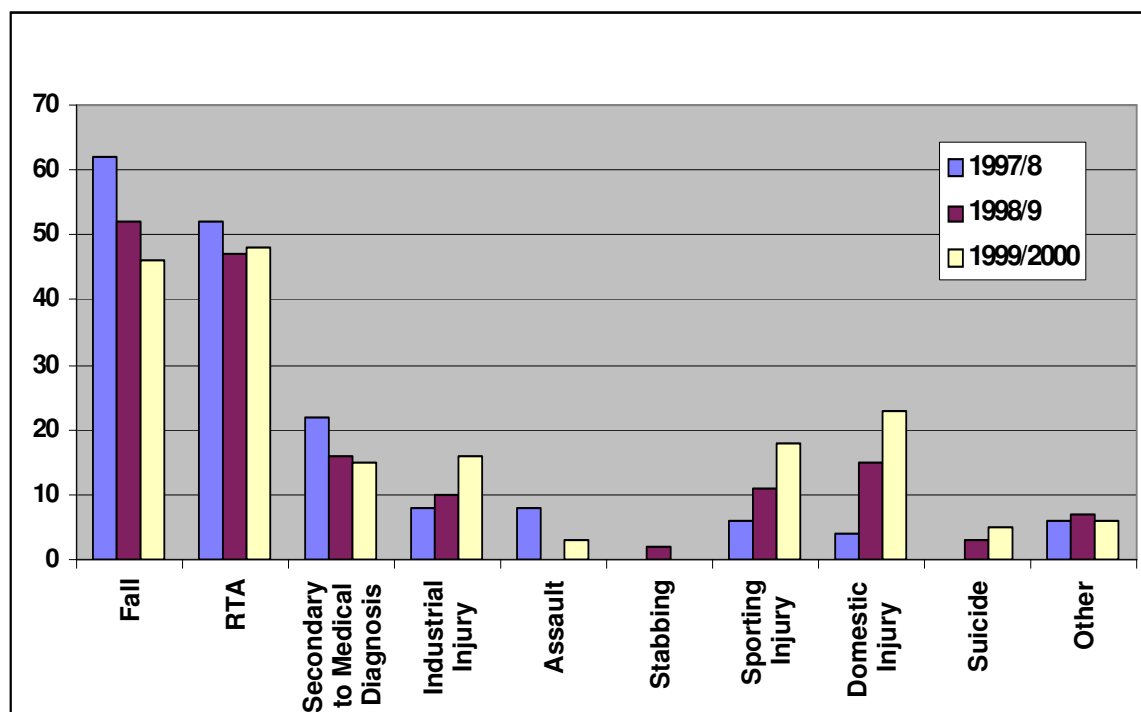
Protocols have continued to be developed for the maintenance and weaning of low tetraplegic ventilator dependent patients. Changes in protocols have resulted in a reduction in the number of ventilated days

5 Mechanism of Injury

	1997/8	1998/9	1999/2000
Fall	62	52	46
RTA	52	47	48
RTA - Motor vehicle	42	38	30
RTA - Motorcyclist	3	2	12
RTA - Bicyclist	4	4	4
RTA - Pedestrian	3	3	2
Secondary to Medical Diagnosis	22	16	15
Industrial Injury	8	10	16
Assault	8	0	3
Stabbing		2	0
Sporting Injury	6	11	18
Domestic Injury	4	15	23
Suicide		3	5
Other	6	7	6
Total	168	163	180

There has been a gratifying fall in the number of injuries occurring as a result of motor vehicle accidents. This is almost certainly secondary to improvements in car safety design. The increase in the number of injuries sustained while riding a motor cycle is disappointing but probably indicates the increased usage. There has been a disappointing increase in domestic, sporting and industrial injuries.

Alcohol continues to be implicated in aetiology of many spinal injuries. The causes of injury are important as a guide to the development and promotion of prevention programmes.



6. Financial Report

	Budget £	Actual £	Variance £
Dedicated Staff Costs			
Medical	515,363	480,188	35,175
Nursing	1,820,574	1,735,756	84,818
Paramedical	299,712	300,689	(977)
Administrative	98,746	101,980	(3,234)
Total Staff	2,734,395	2,618,613	115,782
Total Supplies	1,128,494	1,148,194	(19,700)
Overhead Costs			
Fixed Costs :-			
Rates	204,389	204,389	0
Capital Charge	602,764	602,764	0
Trust Overheads	82,682	82,682	0
Total Overheads	889,836	889,836	0
Total Expenditure	4,752,724	4,656,642	96,082
Post Graduate Dean Funding	109,008	109,008	0
Total less Post-Graduate Dean	4,643,716	4,547,634	96,082

7. Service Developments and Future Plans

7.1 Respiratory Care Unit

The Respiratory Care Service has been highly successful in its first year of operation. A flexible working approach has been established to allow integration with Edenhall ward for nursing and medical care. Respiratory care and Ventilation protocols are being developed as part of an initiative to improve the care of patients who are suffering or at risk of respiratory complications. It is anticipated that as more patients are recruited into the Respiratory Care Service improved protocols will be developed.

7.2 Outreach Clinics

The Outreach clinic at Inverness (Highlands) and Edinburgh (Fife, Lothian and Borders) have been augmented by a clinic in Aberdeen. A further clinic at Dumfries Royal Infirmary will be initiated in May 2000. There are continued discussions to develop Outreach clinics at Dundee and Borders District General Hospital. It is anticipated that the Outreach clinics will be available as follows in 2000

Edinburgh - monthly (presently weekly)
Inverness - quarterly
Aberdeen - quarterly
Dumfries - six monthly
Dundee - six monthly
Borders - six monthly

7.3 Training & Development Post

Continue with G Grade. Over the next year work will concentrate on A Grade nurses undertaking competency training package

7.4 New Developments within Nurse Led Clinics

7.5 Flexible Outpatient Department Development – Liason Nurses

Work is ongoing to develop a role with the Out-Patient Department and Liaison Sisters that will meet the needs of the Unit in relation to Domiciliary Ventilation, Discharge planning and support.

7.6 Nursing Recruitment

Continue to lecture at Paisley and Caledonian University Propose an Open Day in 2000/2001

7.7 Senior Nurse Group UK & Dublin

Presentation at this year's Guttman Study Day in Belfast will raise awareness of group activity.

7.8 Non Invasive Ventilation

7.9 Implanted Electrodes for Upper Limb Function

7.10 Phrenic Nerve Stimulators

7.11 Integrated Care Pathways

Work has been ongoing over the past year in the development of a model that will be used within the Spinal Injuries Unit. This work has almost been completed for the first phase of gathering together research based information and documentation. The work will continue over the next year on the implementation.

7.12 Clinical Networking

7.13 Telemedicine

7.14 Clinical Governance

8. Summary and Conclusions

Appendix A	Physiotherapy Report
Appendix B	Occupational Therapy Report
Appendix C	Rehab Scotland Report
Appendix D	Spinal Injuries Scotland Report
Appendix E	Raw Data

DA1	New Admissions
DA2	New Admissions by Casemix Complexity
DA3	New Admissions by Health Board of Residence
DA4	New Admissions by Health Board compared with Population Size
DA5	New Admissions by Degree of Injury
DA6	Discharges by Degree of Injury
DA7	Admissions and Discharges for Non Traumatic Spinal Cord Injury (ICD 9 Code 952) by aetiology
DA8	Daycase Attendances by Health Board
DA9	New Admissions by Age Group
DA10	Age & Sex of New Patients by Category of Injury Female Patients 1999/2000
DA11	Age & Sex of New Patients by Category of Injury Male Patients 1999/2000
DA12	Age & Sex of New Patients by Category of Injury All Patients 1999/2000
DA13	Length of Stay for Traumatic Injury by level of Spinal Cord Lesion
DA14	All Discharges
DA15	Discharges by Casemix Complexity
DA16	Discharges by ASIA Impairment Level & Health Board

Appendix A: Phsyiotherapy Report

Introduction.

The physiotherapy service to the Q.E.N.S.I.U. has as usual been provided by the Therapy Services Department of the Southern General Hospital.

The level of staffing has, met its usual high level of consistency and stability.

To date it remains fully staffed as follows :

- 1 Superintendent Lead Clinical Specialist.
- 2 Permanent Senior One posts.
- 1 Permanent Senior Two post.
- 1 Nine month rotating Senior Two post.
- 2 Four month rotating Junior posts.

Also between April and December of this year we continued to have one full time Physiotherapist, on a fixed term contract, to enable the Physiotherapy input to the Crest Research project to be provided.

Our excellent base of experience, and expertise, in the physiotherapy department within Q.E.N.S.I.U. continues with a total of 56 years of spinal cord injury rehabilitation between us .

Finally it is appropriate to mention that there is not only stability of staffing but also reliability and dedication, with only 6 days of sick leave being taken in total this year.

Breakdown of patient groups treated.

New admissions: April 99 to March 2000

<u>Neurological Deficit</u>	<u>Total</u>
Incomplete Tetraplegia	26
Incomplete Paraplegia	9
Cauda Equina lesions	12
Complete Tetraplegia	17
Complete Paraplegia	16
No deficit/ Intact.	100
	Total: 180

Every one of these patients was seen by the physiotherapy department, the incomplete tetraplegic patients taking the most time, through to the Intact patients who, although seen daily, are usually only on the unit for approximately two weeks.

Re-admitted patients.

All patients who are readmitted are seen, and if appropriate, receive physiotherapy input. This would be a number of times per day, in the case of a chest infection, to twice per week to maintain range of movement in paralysed joints while the patient is on bed rest to heal a pressure sore.

Inpatient attendance's and direct patient contact treatment units.(15 minute units) 1999/2000.

Attendance's 11538. Units. 29559 New patients 180.

Combined indirect patient contact and non patient contact units.(15 minute units).

10938.

Hydrotherapy

All acute rehabilitation patients are offered hydrotherapy as part of their rehabilitation programme. During this year attendance's have averaged 25 per month, requiring 75 units (19 hours) of physiotherapy input per month.

Weekend cover.

To ensure the highest level of care, the spinal injury trained physiotherapists cover all the weekend work on the spinal unit. This year the work load has been as follows : 1126 attendance's, requiring 2093 direct patient contact units, and 774 indirect/ non-patient units, in the year. This is an average of 14 hours, physiotherapy input per weekend.

On call after 5pm.

This service is provided by the on call physiotherapists for the whole of the Southern General Hospital, and is provided as pre arranged treatments for patients with chest complaints that will deteriorate if not treated at night, and emergency call outs from a Registrar or Consultant.

During the year 99/ 2000 the total figures were : Attendance's 229, Direct patient contact units 440 requiring a total of 110 hours physiotherapy input.

The monthly breakdown of these figure's is as follows :

	<u>Pre- arranged</u>		<u>Emergency call out.</u>	
	<u>Attendance</u>	<u>Units</u>	<u>Attendance</u>	<u>Units.</u>
April	3	6	6	18
May	10	18	11	29
June	6	7	6	7
July	13	27	3	6
Aug	28	50	11	20
Sept	17	28	21	38
Oct	3	4	3	4
Nov	4	7	3	5
Dec	7	15	8	19
Jan	30	57	15	33
Feb	10	21	11	19
Mar	0	0	1	2

Out Patients.

There are four types of out patient seen by the physiotherapy department. Firstly those patients continuing their rehabilitation having had an early discharge, secondly those patients returning for further rehabilitation having made some form of recovery, or deterioration. Thirdly patients requiring pain management, predominantly with acupuncture, and finally, those patients requiring a one off assessment.

Outpatients seen from April 99 to March 2000.

The figure's for the year were : Attendance's 377

Direct patient contact units	1064.
Indirect/ non-patient contact units	302.
New patients	65.

Education./ Training.

As in years past we have been very active in the education of Physiotherapy students. The management of the patient with a spinal cord lesions is a post graduate area and so all the Scottish training establishments send their students to us to cover this specialist area.

During the year we ran 4 courses here in the unit for the physiotherapy students of the following universities : Caledonian. Glasgow, Robert Gordon. Aberdeen, Queen Margaret. Edinburgh.

We also gave clinical supervision placements to 18 students from these universities. These placements vary in length from 3 weeks to 6 weeks. In all a total of 64 weeks of student supervision was given in 1999/ 2000.

The physiotherapy department represented the spinal injuries unit at all of the CREST partners meetings throughout the year, giving presentations to our fellow partners on progress as required.

Presentations were also given to the Seating and Wheelchair course at the University of Strathclyde.

This year we were asked to write, and mark, a question for the final exams of the Sports Medicine MSc held at Glasgow University.

All new keyworkers within the unit, and all new SHO's were trained in the use of the Functional Independence Measure (FIM), enabling them to participate on the units recording of our patients FIM scores.

A lecture on the Moving and Handling of spinal cord injured individuals to help prevent the development of pressure sores was presented at the launch of the Glasgow Standards of Pressure Sore Prevention The University of Caledonian, on the spring of 2000.

Lectures were presented to the visiting Bioengineers and Prosthetics students from The University Of Strathclyde.

An over view of the CREST research project was presented to rehabilitation consultants attending the Scottish Rehabilitation forum.

The Superintendent attended both of the Inter Spinal Injury Unit Heads and Superintendents meetings this year where he was able to keep abreast of, and share, the latest developments within spinal cord injury physiotherapy, standards of care, and related topics of interest.

Finally our commitment to training our own staff continued with regular in service training both for physiotherapy staff, the multidisciplinary team, and staff from other hospitals within Scotland.

Developments in 99/2000.

Treatments.

The assessment powered wheelchair with a multitude of control systems, purchased last year, has been of growing use within the department. This has been especially true as the number of domiciliary ventilator dependent

patients has increased through the year. This makes us one of the few centres in Scotland that can assess the mobility needs and solutions for ultra high, ventilated tetraplegics patients.

The use of acupuncture in the pain management of our patients has continued to be found a very useful tool.

The Crest research project.

The successful completion of the Clinical Rehabilitation using Electrical Stimulation and Telematics (CREST) was seen in December '99.

Our target of assessing and treating 10 incomplete spinal cord injured patients, with Functional Electrical Stimulation to enhance their gait, was achieved. It should be said that of the 5 partners we were the ONLY centre to achieve this.

Not only was invaluable experience in the assessment for and use of FES gained, but also experience in the use of Teleconsultation and Inter-Net meetings was gained during regular such events between ourselves and our European partners.

The out come of the study can be seen in the final deliverable D09.2 "The production of FES assisted gait at expert sites via the CREST telematics system".

A number of papers have already been published from this work, Appendix 1. Included in this number is one written by our Superintendent Physiotherapist, Jon Hasler. It will be presented at the International FES Society 2000 meeting in Denmark this June 2000.

Future Developments.

If the spinal injuries unit is serious about research into improving the rehabilitation possibilities of the spinal cord injured individual, it has to put the resources into the physiotherapy department for this. This has, through the Crest project, been done this year but it needs to be repeated.

A variety of proposed research projects have been put forward for funding including a project looking into the effect of Augmenting traditional physiotherapy with Treadmill gait training combined with Functional Electrical

Stimulation during the acute stage of rehabilitation, as opposed to purely traditional physiotherapy.

To enable this to happen there have been regular meetings between the Superintendent Physiotherapist, Dr M. Granet and Douglas Maxwell research Fellow, both from the Bioengineering Department of the Strathclyde University.

One successful research bid was made by Professor K. Hunt of the Engineering Department Glasgow University. In collaboration with the physiotherapy department we are going to investigate the use of FES leg cycling in complete paraplegic patients. This will include the employment of a physiotherapist for 1 day per week over a 9 month period, and Glasgow University are providing the money for this from a grant that they have secured.

Secondly as the role of Dr A McLean our new Consultant, and his interest in the respiratory management of high tetraplegia patient develops, and the Domiciliary Ventilation Service continues to develop, we strongly believe that a specialist Physiotherapist should oversee the breadth of physiotherapy input these patients could benefit from. This would also be true of the increasing number of short term ventilated patients, and tracheostomy patients that the unit is now treating.

Most spinal injuries units within the UK that treat ventilated patients now have a physiotherapist leading the work with this group of patients.

Thirdly, the physiotherapy and occupational therapy departments of the spinal injuries unit have long believed that a community re entry programme is a vital part of the rehabilitation process. Assisting spinal cord injured patients to learn to deal with social and environmental barriers through excursions into the community, including sporting, recreational and social activities, should be fully incorporated into our programme of rehabilitation. This should be a part of our role as rehabilitation therapists.

In the past it has been difficult to undertake this kind of activity as no transport has been available to access the wider community. This has also been problematic because of the increased staffing implications it necessitates.

The first of these issues has been addressed with the purchase of the new minibus, through Options fund raising, and many trips for patients have been organised out with the spinal injuries unit, but these are still very limited due to the limitation of staff availability.

These staffing issues still need to be addressed.

For any of these developments to occur the appropriate resources need to be put in place as soon as possible.

	1998/99		1999/2000	
	IN	OUT	IN	OUT
PATIENT CONTACT	3279	644	3719	707
PATIENT UNITS	9136	1504	9224	1755
HOME VISITS	100	78	69	66
H.V. UNITS	971	500	713	508
TOTAL PATIENT CONTACTS	3519	722	3788	773
TOTAL PATIENT UNITS	10,107	2004	9937	2263
INDIRECT CONTACTS	2644	1022	2704	1101
INDIRECT UNITS	3809	1471	3650	1566
<u>TOTAL UNITS</u>	13,916	3475	13,587	3829
COMBINED TOTAL UNITS	17,391		17,416	

KEY: IN = In-patients, OUT = Out-patients, UNIT = 15 minutes.

1. Patient Contact.

There were no staff vacancies in the year 1999/2000. There was an increase in sickness absence to 4.5%, an increase of 0.5%. There was an 11.5% increase in the number of patient contacts and a 3% increase in patient units. This contrasts with a decrease in home assessments carried out. This may be due in part to the increase in the neurologically intact and incomplete patients.

2. Service Improvements.

1. Upper limb service: This last year saw the first three tetraplegic patients in Scotland have neuro-implant surgery. This will increase upper limb function, decrease dependency on others and enhance quality of life.
2. Satellite clinics: The Senior OT for the Outpatient service has been involved in several of the newly established satellite clinics on a pilot basis. This was to identify the service needs/impact. Information is currently being collated.
3. Intact patients: In collaboration with physiotherapy, a protocol and documentation proforma has been devised for patients with no

neurological deficit. This aims to improve efficiency, documentation and communication with medical and nursing staff. This is now to be piloted.

4. Orientation folder: An information folder detailing aspects of spinal cord injury with particular reference to Occupational Therapy has been devised. This is being used by rotational staff and students.
5. Power wheelchair controls. A fully adjustable assessment battery has been designed and devised to allow ventilated patients with the slightest head and shoulder movements to control their power wheelchair. This is used as an assessment and training tool.
6. Following consultation with the hand surgeon and literature review the position in which patients hands are splinted have been altered. This is being done with a view to maximizing the potential for tendon transfer surgery.
7. Tele-conferencing was used successfully in carrying out a patient case conference with health board and social work representatives from Turriff, near Aberdeen. The medical, therapy and social work departments from this unit were all involved in discussing this complex case, the potential service needs and impacts related to the patient returning to her home environment. A video of the patient was also transmitted allowing the patient to introduce herself to the local team.
8. Video has been used on several occasions this year when the OT has carried out a home assessment on a property being offered to a patient. This has proven beneficial in allowing the patient to make a decision about a house they are not able to view personally as they are on bedrest and removes some of the decision-making burden from the family.

Resource Improvements.

3.1 Following a donation of #10,500 from an ex-patient and his employer a dynamic pressure monitor and colour laptop computer was purchased. This allows pressure-seating readings to be taken which assist in-patient seating assessments and education in pressure sore prevention. As the unit is portable it is also being used to assess patients in their own home. This is particularly useful for those unable to travel because of chronic skin problems.

3.2 The father of a patient kindly donated a laptop computer and printer to be used primarily by patients. This has also been used by several disciplines in the unit for presentation purposes.

3.3 Grasp Release Test
FES Stimulators

Neurocontrol upper-limb implant work station

4. Projects

- Collaborative study with nursing staff into pressure sore occurrence continues for the year 1999/2000. Completion anticipated
- Pilot study into the surfaces used in transporting patients from accident site to A&E and to this unit was delayed due to the original pressure monitor breaking down. With the donation of the dynamic monitor, as detailed in 3.1, this is now to be resumed.

5. Education and Training

The department continues to be actively involved in education and training of students, ether therapists and health care staff. Staff have been invited to speak on various aspects of spinal injury and occupational therapy.

In September 1999 the OT staff of the Spinal Unit organized and ran a course in collaboration with Glasgow Caledonia University. Entitled Essential Skills in Environmental Housing Design, it was attended by OTs from Social work and Health Boards. Funds raised were donated to the OT study Fund.

Lectures/presentations

Visiting Swedish Occupational & physiotherapy students.
 Visiting Cheque Republic Occupational Therapy lecturers
 Edinburgh students
 Prosthetic students
 Pressure seating – OT Staff
 Posture and seating – OT Staff
 SHO – FIM training & posture and seating
 IMSOP 1999 (Copenhagen) – International Medical Society of Paraplegia - poster presentation
 Poland Trip presentation – OT Staff
 Patient education
 Relatives Education
 Scottish wheelchair and seating group – “ Accessing the environment-a success story” Case study presentation, Dundee.
 Royal visit contribution – Neuro implant surgery
 Pressure seating
 Switch adaptation for computer access.

Poland Summer Camp.

In October 1998 an invitation was extended to the unit to submit a team of 10 recently injured people to Poland to take part in Rehabilitation/Recreational Camp in Wagroweic. A report is attached.

Appendix C: Rehab Scotland

- **A total of 74 patients were seen during that period, including 18 carried over from March 1999. This is equal to the number of patients seen during the same period last year.**

- Positive outcomes related to the use of computers and technology for social use, therapy, communication and training in the use of assistive technology was 32.
- Positive outcomes related to the use of computers and technology for employment, education and vocational purposes was 8.
- For the same period the previous year 36 patients achieved a positive outcome. This represents an increase in outcome achievement of 10%.
- 27 home visits were made as follow up to the assistive technology activities performed in the unit.
- Approx 54% of patients require some form of assistive technology to aid keyboard input and mouse operation. Predominant among this technology was the use of speech recognition.

Highlights of the Year

- October 1999 - Conference held at the unit with representatives of most UK Spinal Injury Units. Conclusion was that this Unit is one of the leading UK Spinal Injury Units in the creative use of technology for patient rehabilitation.
- Strong links are maintained with the computer industry, this has shown benefits to the Unit in the availability of the latest version of continuous speech recognition technology.
- A mail survey was conducted of ex-patients during the 3rd quarter of 1999 to ascertain the effectiveness and patient satisfaction of the Rehab Scotland service.
 - 106 ex-patients selected at random from 258
 - 39 patients returned questionnaire
 - Sex and age distribution matched the profile of admissions
 - Since using the Rehab Scotland service 58% now use computers for employment, education or vocational uses.
 - 68% consider that their level of knowledge and understanding about computers has increased due to the intervention of the Rehab Scotland service.
- 63% of respondents believed that computers have played a part in improving their lifestyle.
- 81% were satisfied with the level of service provided by Rehab Scotland at the Queen Elizabeth National Spinal Injuries Unit.

Development during 2000

- Rehab Scotland developing plans and funding proposals to formally extend the service to place of discharge for continuity of computer training.
- Re-assessment of Positive Outcome measurements to more accurately reflect the progression and the acquirement of skills during their time with Rehab Scotland. Emphasis to be on the “distance travelled”.
- To complete the trails using inexpensive video cameras over the Internet to communicate both audio and visually with ex patients in their own homes. Reasons outside the control of Rehab Scotland and the Unit

Appendix D : Spinal Injuries Scotland Report

Report on the work of SIS (Spinal Injuries Scotland) at QENSIU from 1st April 1999 to 31st March 2000

Introduction

A steady consistent year of work was achieved in the QENSIU which is noted below. In February 2000 a joint working programme with the other volunteer groups SPIN, OPTIONS & REHAB was explored with agreement in principle

to work together in a consistent way in order to achieve the best possible support for the patients.

The Spinal Injuries Scotland website www.sisonline.org started off our millenium year and raises our profile with both our membership and professionals involved in the field of spinal cord injury medicine. In particular it allows access to us by those of our membership who are severely mobility impaired.

1. **Visiting Scheme –**

- 1.1 The twelve monthly visits by our representatives on the first Wednesday of every month was extended in August to include a further visit on the third Wednesday of the month. Our group of ten representatives consists of spinal cord injured paired with an able-bodied volunteer. All representatives take part in an annual training programme. The visits provide peer group support and advice. The most asked questions remain benefits and housing, though patients seek reassurance about lifestyle possibilities. In response to patient request we arrange for a person with a similar level of injury to visit them.
- 1.2 59 new members to SIS were recruited. Their first year of membership is free and includes a £7.50 associate membership of SIA (Spinal Injuries Association).
- 1.3 We assisted with the travel costs for friends and relatives of a young spinal unit patient to ensure continuity with their homelife.

2. **General**

- 2.1 There is a regular programme of discussion between the QENSIU Consultant Director and the Executive Officer of SIS and we were also pleased to be able to discuss mutual issues of concern with all the QENSIU Consultants.
- 2.2 We circulated a letter to our membership on behalf of the QENSIU Consultant Director inviting them to get in touch with QENSIU should they wish an outpatient review. This enabled former patients who had lost contact with the Spinal Outpatient Service for a variety of reasons, like moving house, or their Spinal unit closing down, to get back in touch.
- 2.3 In addition to our work with the patients we were delighted to attend the opening of the Respiratory Unit.
- 2.4 We experienced parking difficulties from August onwards and SIS addressed this in conjunction with the QENSIU Consultant Director with the management of the Southern General Hospital. This is still an

on going problem, in particular for our tetraplegic members who cannot wheel the distance from the alternative parking areas.

2.5 We discussed the role of the Hospital Chaplaincy service and agreed to promote this greatly undervalued resource to patients.

2.6 We contributed two spinal cord injured speakers to the Leisure & Lifestyle part of the Patients' Education Programme.

3. **Social/Sport Activities –**

3.1 We awarded the inaugural Manson Forwell Bursary (£500 + £150 SIS donation) to a recently discharged QENSIU high level tetraplegic to assist his participation in the Options trip to Poland.

3.2 In conjunction with SPIN we supported the October SPIN fete and a Carol singing concert in December.

In Conclusion

Our role in the QENSIU has been wide and varied and provides support to patients and staff alike. We look forward to continuing this activity. Without doubt the highlight of the year was the visit by HRH The Princess Royal which served to remind us all that working together for the patients of QENSIU is relevant and meaningful. At Spinal Injuries Scotland we think paralysis is just a word not a sentence.

S Sandeman
Executive Officer SIS
April 1999 to March 2000

Appendix E : Raw Data

DA1 : New Admissions

	Admissions
1992/3	59
1993/4	128
1994/5	137
1995/6	150
1996/7	164
1997/8	167
1998/9	163
1999/2000	180
Total	1148

DA2 : New Admissions by Case-mix Complexity

Admissions	I	II	III	IV	Total
1992/3	9	15	16	19	59
1993/4	6	18	47	57	128
1994/5	13	24	32	68	137
1995/6	6	30	39	75	150
1996/7	13	20	52	79	164
1997/8	17	24	46	80	167
1998/9	4	32	27	100	163
1999/2000	8	27	28	117	180
Total	76	190	287	595	1148

DA3 : New Admissions by Health Board of Residence

	1992/ 3	1993 /4	1994 /5	1995 /6	1996 /7	1997 /8	1998 /9	1999 /2000	Total
Argyll & Clyde	9	22	21	28	28	29	24	28	189
Ayrshire & Arran	4	12	9	9	12	12	12	17	87
Borders	0	2	2	1	2	3	0	2	12
Dumfries & Galloway	2	3	4	5	5	6	16	13	54
Fife	3	3	5	4	3	4	1	3	26
Forth Valley	2	8	10	9	8	13	6	11	67
Grampian	2	2	3	2	6	6	8	4	33
GGHB	19	32	43	46	45	28	37	28	278
Highland	6	6	5	2	5	7	10	4	45
Lanarkshire	5	19	19	21	20	22	27	40	173
Lothian	3	7	6	6	8	14	6	11	61
Shetland	0	0	0	1	2	0	0	-	3
Tayside	2	5	4	4	4	8	3	6	36
Orkney	0	0	0	0	0	1	0	-	1
Western Isles	0	7	1	4	5	2	5	-	24
ECR	1	0	5	7	9	10	6	11	49
Private	1	0	0	1	2	2	2	1	9
Unknown								1	1
TOTAL	59	128	137	150	164	167	163	180	1148

DA4 : Admissions by Health Board compared with population size

	1992/3 – 1998/9	1999/2000	Total	% to Total	Population Size	% to Total
Argyll & Clyde	161	28	189	16.5	430500	8.4
Ayrshire & Arran	70	17	87	7.6	376500	7.3
Borders	10	2	12	1.0	106100	2.1
Dumfries & Galloway	41	13	54	4.7	147600	2.9
Fife	23	3	26	2.3	349300	6.8
Forth Valley	56	11	67	5.8	274600	5.4
Grampian	29	4	33	2.9	531200	10.4
GGHB	250	28	278	24.2	909600	17.7
Highland	41	4	45	3.9	208700	4.1
Lanark	133	40	173	15.1	560800	10.9
Lothian	50	11	61	5.3	767800	15.0
Shetland	3	-	3	0.3	23020	0.4
Tayside	30	6	36	3.1	393600	7.7
Orkney	1	-	1	0.1	19800	0.4
Western Isles	24	-	24	2.1	28880	0.6
ECR	38	11	49	4.3		
Private	8	1	9	0.8		
Unknown		1	1	0.1		
TOTAL	968	180	1148		5128000	

DA5 : Admissions by Degree of Injury

	805	806	952	Other	Total
1992/93	16	24	16	3	59
1993/94	36	43	36	13	128
1994/95	49	33	40	15	137
1995/96	45	44	43	18	150
1996/97	60	50	39	15	164
1997/98	62	50	42	13	167
1998/99	80	36	36	11	163
1999/2000	94	44	34	8	180
Total	442	324	286	96	1148

DA6 : Discharges by Degree of Injury

Discharges	805	806	952	Other	Total
1992/93	12	8	8	3	31
1993/94	38	44	40	13	135
1994/95	48	39	30	14	131
1995/96	44	40	51	19	154
1996/97	63	44	31	13	151
1997/98	60	50	46	14	170
1998/99	75	38	37	12	162
1999/2000	93	37	35	7	172
Total	433	300	278	95	1106

DA7 : Admissions and Discharges for Non Traumatic Spinal Cord Injury (ICD 9 Code 952) by aetiology

<u>Admissions</u>	1998/99	1999/2000
Central Cord Lesion	22	15
Infection	2	2
Vascular	7	8
Tumour	3	2
Intra medullary Cyst	0	0
Non-specific Lumbar Lesions	0	0
Stab Wounds	0	0
Other	2	7
Total	36	34

<u>Discharges</u>	1998/99	1999/2000
Central Cord Lesion	18	16
Infection	3	2
Vascular	9	6
Tumour	2	2
Intra medullary Cyst	0	1
Non-specific Lumbar Lesions	0	3
Stab Wounds	0	3
Other	5	2
Total	37	35

DA8 : Daycase attendances by Health Board

	1994 /95	1995 /96	1996 /97	1997 /98	1998 /99	1999 /2000	Total
Argyll & Clyde	23	38	44	71	80	95	256
Ayrshire & Arran	21	14	48	37	39	42	159
Borders	0	0	1	4	1	2	6
Dumfries & Galloway	4	4	0	0	9	4	17
Fife	0	2	4	6	3	16	15
Forth Valley	16	5	5	11	24	8	61
Grampian	0	0	3	2	5	1	10
Greater Glasgow	68	95	94	158	207	228	622
Highland	1	5	5	5	7	2	23
Lanarkshire	21	50	67	95	179	153	412
Lothian	0	9	9	18	27	28	63
Shetland	0	0	0	0	0		0
Tayside	1	8	9	4	5	5	27
Orkney	0	0	0	0	0		0
Western Isles	1	0	0	0	0		1
ECR						6	
Total	156	230	289	411	586	590	1672

DA9 : Admissions by age group

Males

	<20	20-29	30-39	40-49	50-59	60-69	70-79	80-89	>90	Total
1992/93	9	15	9	6	3	3	4	1	0	50
1993/94	11	24	16	9	11	10	4	4	0	89
1994/95	8	26	17	14	17	12	4	1	0	99
1995/96	11	19	20	19	15	6	4	0	0	94
1996/97	12	19	19	17	20	11	9	1	0	108
1997/98	12	22	26	23	19	11	13	3	0	129
1998/99	9	30	21	16	18	16	4	2	0	116
1999/2000	15	26	28	16	22	11	5	0	0	123
Total	87	181	156	120	125	80	47	12	0	808

Females

	<20	20-29	30-39	40-49	50-59	60-69	70-79	80-89	>90	Total
1992/93	1	1	1	2	2	2	0	0	0	9
1993/94	11	7	6	7	1	4	2	1	0	39
1994/95	2	6	11	3	5	4	5	2	0	38
1995/96	6	9	11	12	6	4	3	5	0	56
1996/97	6	7	10	7	9	8	6	3	0	56
1997/98	5	7	9	2	5	5	3	0	2	38
1998/99	8	8	6	4	6	3	9	3	0	47
1999/2000	8	10	9	7	8	6	5	2	2	57
Total	47	55	63	44	42	36	33	16	4	340

All Admissions

	<20	20-29	30-39	40-49	50-59	60-69	70-79	80-89	>90	Total
1992/93	10	16	10	8	5	5	4	1	0	59
1993/94	22	31	22	16	12	14	6	5	0	128
1994/95	10	32	28	17	22	16	9	3	0	137
1995/96	17	28	31	31	21	10	7	5	0	150
1996/97	18	26	29	24	29	19	15	4	0	164
1997/98	17	29	35	25	24	16	16	3	2	167
1998/99	17	38	27	20	24	19	13	5	0	163
1999/2000	23	36	37	23	30	17	10	2	2	180
Total	134	236	219	164	167	116	80	28	4	1148

DA 10 : Age & Sex of New Patients by Category of Injury
Female Patients 1999/2000

Casemix	No. of patients	Mean Age	Median Age	Range of Ages
I	2	31.3	-	29.1 – 33.6
II	9	55.5	68	22.9 – 76.0
III	7	34.2	-	17.7 – 62.9
IV	39	45.2	32	13.0 – 95.6
Females	57	45.0	50	13.0 – 95.6

DA 11 : Age & Sex of New Patients by Category of Injury
Male Patients 1999/2000

Casemix	No. of patients	Mean Age	Median Age	Range of Ages
I	6	40.3	-	18.4 – 63.6
II	18	48.2	33	18.7 – 76.0
III	21	36.7	26	17.1 – 72.0
IV	78	38.3	35	15.2 – 77.1
Males	123	39.6	35	15.2 – 77.1

DA 12 : Age & Sex of New Patients by Category of Injury
All Patients 1999/2000

Casemix	No. of patients	Mean Age	Median Age	Range of Ages
I	8	38.1	18	18.4 – 63.6
II	27	50.6	68	18.7 – 76.0
III	28	36.1	19	17.1 – 72.0
IV	117	40.6	35	13.0 – 95.6
All Patients	180	41.3	35	13.0 – 95.6

**DA 13 : Length of Stay for Traumatic Injury by level of Spinal Cord Lesion
1999/2000**

Casemix	No. of patients	Mean L.O.S. (days)	Median L.O.S. (days)	Range of L.O.S.
I	5	305	-	28 – 581
II	27	190	49	22 – 454
III	22	120	-	4 – 512
IV	118	18	11	1 – 126
All	172	67	11	1 - 581

DA 14 : All Discharges

1992/93	31
1993/94	135
1994/95	131
1995/96	154
1996/97	151
1997/98	170
1998/99	162
1999/2000	172
Total	1106

DA15 : Discharges by Casemix Complexity

Discharges	I	II	III	IV	Total
1992/93	2	7	8	14	31
1993/94	9	19	47	60	135
1994/95	10	20	33	68	131
1995/96	11	34	38	71	154
1996/97	7	16	49	79	151
1997/98	19	22	46	83	170
1998/99	7	26	33	96	162
1999/2000	5	27	22	118	172
Total	70	171	276	589	1106

DA16 : Discharges by ASIA Impairment Level & Health Board

1999/2000	A	B	C	D	E	Total
Argyll & Clyde	1		2	5	20	28
Ayrshire & Arran	1		1	1	14	17
Borders					2	2
Dumfries & Galloway	1			1	10	12
Fife	1			1	1	3
Forth Valley	2		2		8	12
Grampian	2	1	2	1		6
Greater Glasgow	7		4	6	14	31
Highland				1	3	4
Lanarkshire	3		1	8	22	34
Lothian	2		1		2	5
Shetland						
Tayside	2				2	4
Orkney						
Western Isles						
ECR	2			1	9	12
Private	1					1
Unknown					1	1
TOTAL	25	1	12	25	108	172