



SCOTTISH NATIONAL OBSTETRIC BRACHIAL PLEXUS INJURY SERVICE

ANNUAL REPORT 2014-15

**Greater Glasgow & Clyde
Health Board**

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The completed Annual Report should be sent electronically by 31 May to:

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Section A: Service/Programme

A2 Aim / Purpose / Mission Statement / Date of Designation

The Paediatric Brachial Plexus Injury Service, based at the Royal Hospital for Sick Children, Glasgow and became a designated National Service in April 2006.

It provides an integrated multidisciplinary service for obstetric brachial plexus injury, traumatic brachial plexus injury and tumours involving the brachial plexus including:

- **Diagnosis:** Clinical, MRI, Ultrasound, Neurophysiology.
- **Surgery:** Early surgical exploration and nerve repair
Secondary reconstruction for shoulder and other deformities
- **Physiotherapy**
- **Occupational Therapy**

A3 Description of Patient Pathway

A3 a) Target Group for Service or Programme

Children with obstetric brachial plexus injury are the main group managed by the service. When necessary, children with traumatic brachial plexus injury or tumours involving the brachial plexus are seen.

A3 b) Abbreviated Care Pathway for Service or Programme

The service receives referrals from maternity units nationally, paediatricians and local orthopaedic services. Along with their parents, children with obstetric brachial plexus injury (OBPI) are assessed in the outpatient clinic by medical staff and therapists to confirm the diagnosis, exclude immediate complications (e.g. shoulder dislocation), and to establish a likely prognosis. Some children are seen prior to this first clinical review by the specialist therapists, and receive instruction on therapeutic exercises. A management plan is formulated that includes parental counselling, ongoing physiotherapy, occupational therapy input (regarding positioning & handling, and sensorimotor development), investigations when necessary, and monitoring of progress. Surgical decisions on nerve surgery and prophylactic shoulder interventions are made around 3 months of age, and on secondary surgery (shoulder procedures, hand reanimation, functional muscle transfers) as necessary during growth.

Surgery is carried out for:

- Exploration and surgical repair of the brachial plexus nerves, in a small number of children with more severe lesions who have inadequate motor recovery at 3 to 6 months of age.
- The prevention of more severe shoulder abnormalities by early conservative interventions (e.g. casting, botox injections).
- Joint releases, tendon transfers, bony procedures and free functional muscle transfers for upper limb deformities resulting from OBPI. These most commonly affect the shoulder.

Children with persisting deficit are followed up in outpatients at least until skeletal maturity.

B1 Efficient
B1 a) Report of Actual v Planned activity

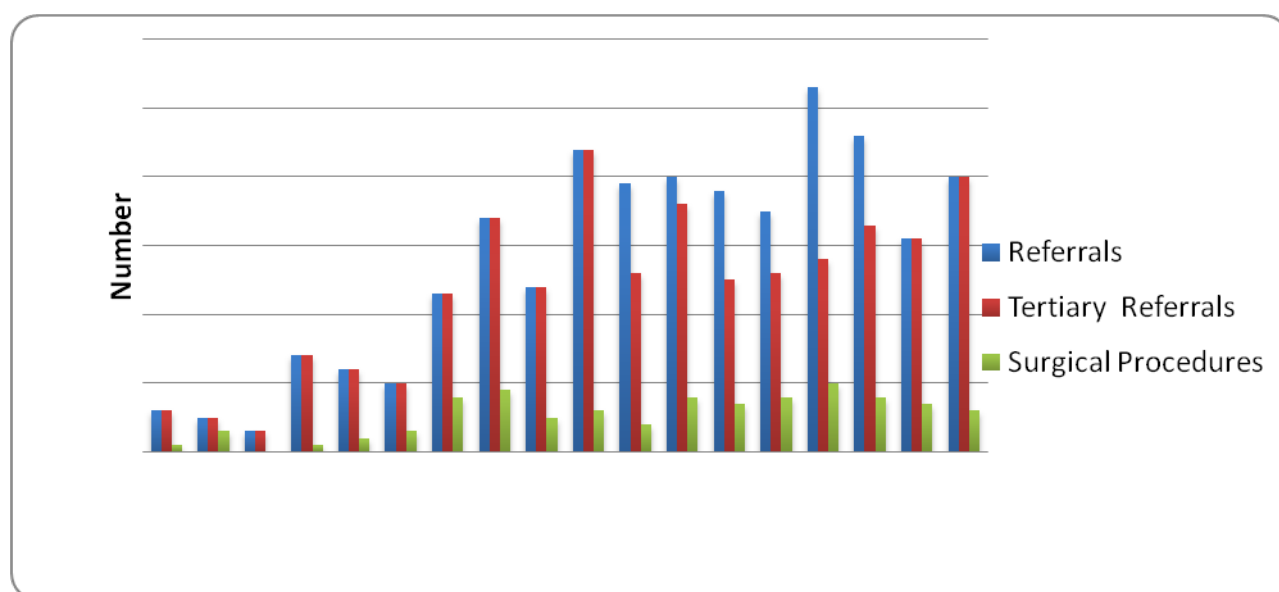
Statement of Activity 2014-15

			<u>Agreed</u>
Number of patients assessed:	Based on Dates First Seen	40	<u>40</u> 35
Admissions for surgery:	Nerve	█	
	Other (Shoulder, elbow)	█	<u>6</u> █
Ward Bed Days:	HDU/ITU	█	
	Nerve Surgery	█	
	Other Surgery	11	<u>17</u>
Outpatient follow-up appointments:		178	<u>178</u>
NHS Board for Admission:	Borders	█	
	GGHB&Clyde	█	
	Lothian	█	<u>6</u>
NHS Board for Referrals:	Ayrshire & Arran	█	
	Borders	█	
	Dumfries & Galloway	█	
	Forth Valley	█	
	GGHB&Clyde	30	
	Highland	█	
	Lanarkshire	█	
	Lothian	█	
	Northern Ireland	█	<u>40</u>

Referrals and Operation Numbers since 1997:

Year	Referrals	Tertiary Referrals	Surgical Procedures
1997	6	6	6
1998	6	6	6
1999	6	6	0
2000	14	14	6
2001	12	12	6
2002*	10	10	6
2003	23	23	8
2004	34	34	9
2005	24	24	6
2006 - 07	44	44	6
2007- 08	39	26	6
2008 - 09	40	36	8
2009 - 10	38	25	7
2010 - 11	35	26	8
11-12	53	28	10
12-13	46	33	8
13-14	31	31	7
14-15	40	40	6
Total	497	420	96

Activity Graph



B1 b) Resource use

Covered in other parts of the report.

B1 c) Finance and Workforce

[NHS Greater Glasgow & Clyde](#)
[Women & Children's Directorate](#)
[Obstetric Brachial Plexus](#)
[Twelve Month Report: 14/15](#)

	Full year funded value of agreement £	Twelve funded value of agreement £	Actual outturn as at 31st March 2015 £	Variance £	Projected full year outturn £
<u>FIXED</u>					
Nursing/PAM	67,633	67,633	67,633	0	67,633
Medical	10,175	10,175	10,175	0	10,175
Other direct	30,804	30,804	30,804	0	30,804
Indirect	15,348	15,348	15,566	-218	15,566
Capital charges	58	58	58	0	58
<u>Total Fixed</u>	<u>124,018</u>	<u>124,018</u>	<u>124,236</u>	<u>-218</u>	<u>124,236</u>
<u>VARIABLE</u>					
Pharmacy	5,169	5,169	3,168	2,001	3,168
Travel & Training	2,166	2,166	1,328	838	1,328
<u>Total Variable</u>	<u>7,335</u>	<u>7,335</u>	<u>4,496</u>	<u>2,839</u>	<u>4,496</u>
TOTAL	<u>131,353</u>	<u>131,353</u>	<u>128,732</u>	<u>2,621</u>	<u>128,732</u>

B1 d) Key Performance Indicators (KPIs) and HEAT targets
No KPIs agreed.

B2 Effective

B2 a) Clinical Audit Programme

OBPP Nerve Exploration / Repair Cases 2004 to 2014

A continuing audit is being carried out to monitor the operations for nerve exploration and repair carried out for obstetric brachial plexus injury in Glasgow. A medical student, Arthur Woo, on a special study module, assisted with initial collection of results in 2012.

Since the appointment of Professor Andy Hart in 2008, exploration of the brachial plexus has been included in the interventions offered by the obstetric brachial plexus injury service.

A few cases had been carried out before 2008 with the help of Professor Rolfe Birch, from the Royal National Orthopaedic Hospital and by Mr Tim Hems.

Nerve exploration is only considered in the most severe cases of OBPI. The main indication is failure of recovery of elbow flexion and shoulder movement by 4 to 6 months of age, which may be associated with complete or partial paralysis of the hand. Surgery is undertaken at this age, since there is no adequately predictive clinical test or investigation to select out at an earlier age, the children whose injuries will not recover adequately with conservative care. Equally, to wait until the child is much older, in order to be certain that adequate recovery will not occur spontaneously, would significantly compromise the outcome of nerve reconstruction (due to prolonged denervation periods).

Nerve surgery comprises of two phases, completed during the same procedure. First is the exploration to expose the plexus for detailed intra-operative assessment on the basis of visual and tactile cues, augmented by intra-operative neurophysiology testing. That provides the most sensitive and specific investigation of the severity of nerve injury that is available at present.

Once the injury has been defined, the second phase is to selectively neurolyse (release from dense scar entrapment) or reconstruct injured segments. Neurolysis seeks to optimise recovery in nerves that have sustained significant injury, but through which adequate regeneration is taking place.

Nerve reconstruction requires excision of injured segments of nerve through which there is inadequate regeneration, in order to prepare for better regeneration after the interposition of nerve grafts (bridging from “healthy” nerve proximal to the site of injury onto “healthy” nerve downstream of the injury), or by the use of nerve transfers (dividing an intact, less important nerve, and joining it onto a more important nerve beyond the zone of injury).

The aim of nerve surgery is to optimise nerve supply to the shoulder and upper limb in order to give the best chance of adequate development and later function.

Interpretation of results is affected by:

- The small number of cases.
- The variation in the extent and severity of the injuries.
- Follow up is too short to assess the final result in the cases carried out during the last 2 years.

15 cases (9 male, 6 female) have been carried out between 2004 and 2014.

Timing of Operation

The mean age at operation was 5.6 months (Median = 5 months, Range 4 to 14 months).
(The child who had operation at 14 months was born 3 months prematurely and was not fit for earlier intervention).

Classification

Cases were classified using the Narakas system:

		<u>Number</u>
Group 1	C5, 6. Biceps and deltoid paralysis.	■
Group 2	C5, 6, 7. Only the long finger flexors work.	7
Group 3	Whole plexus involved with slight finger flexion only.	0
Group 4	Whole plexus involved plus Horner's syndrome.	■

Indications:

In 12 cases the procedure sought to enhance elbow flexion and shoulder elevation. In ■ of these the lesion was found to be recovering and no repair was carried out.
Nerve reconstruction was directed at shoulder function in 9 patients and at elbow flexion in 10 cases.

In ■ cases the procedure sought to enhance shoulder elevation and external rotation only (elbow flexion being deemed to be recovering adequately). In ■ of these the lesion was found to be recovering and no repair was carried out. Nerve reconstruction was performed in ■ patients.

Method of Reconstruction

Elbow flexion: Nerve grafting of the upper trunk of the brachial plexus (anterior division).

Shoulder elevation:

- Re-innervation of the Suprascapular nerve by transfer of the Accessory nerve in 8 of 11 cases, transfer of the dorsal scapular nerve graft in ■ case, nerve graft in ■, and nerve suture in ■.
- Re-innervation of the upper trunk of the brachial plexus (posterior division)

■ children had release of shoulder contracture at the same time as nerve reconstruction which will also have affected the result for shoulder recovery.

Results

11 of the 12 cases who had nerve repair have sufficient follow-up.

Elbow flexion:

Mean active elbow flexion = 90° (0 - 120)

■ children have subsequently had free muscle transfers to strengthen elbow flexion.

Shoulder:

Mean active shoulder elevation (flexion or abduction) = 90° (Range 30 – 160°)

Mean active shoulder external rotation = 25° (Range -30 – 60°)

Mean Mallet score = 14 (Range 5 - 21)

Complications

Overall the interventions appear safe.

■ had phrenic nerve dysfunction after operation. However, the phrenic nerve may be injured in association with OBPI. It is therefore likely that the condition had been present before surgery. In subsequent cases phrenic nerve function has been assessed before operation.

Conclusions

Exploration has provided prognostic information for parents.

The early results appear satisfactory taking into account the severity of injuries being treated.

Shoulder function: Results are suggestive of an improved outcome in many of the cases treated.

Incidence of nerve surgery is within international norms.

The unit will continue to monitor new cases and longer term outcomes.

Physiotherapy

During the year 2014, 57 new patients and 139 return patients were seen by the specialist physiotherapist. These can be broken down into those seen during brachial plexus clinics and those seen in physiotherapy at other times as shown in the table below.

	Clinic	Physiotherapy
New Patients	43	14
Return Patients	84	55

B2 b) Clinical Outcomes/ complication rates / external benchmarking

Covered in other parts of the report.

B2 c) Service Improvement

Physiotherapy

The specialist physiotherapist for the OBPP service, Heather Farish, continues to be the first point of contact at Royal Hospital for Sick Children for babies born with OBPP within Glasgow. This usually involves:

- An explanation of OBPP as well as specialist assessment of the affected arm and neck.
- Advice on best treatment to the parents including sensory stimulation, passive stretches, positioning and encouraging normal development.
- Answering any questions the parents have and helping to alleviate parental anxieties.
- Provide closing links into the specialist OBPP clinic and liaising with the other team members as required to ensure a combined approach to patient care.
- Heather maintains regular contact with paediatric physiotherapists across Scotland via telephone and e-mail regarding patients who attend the clinic but live out with Glasgow and receive their physiotherapy locally. This can be to provide updates on their management after being at clinic, advice on best treatment, and to find out how the patients are getting on prior to their clinic appointment. She is also contacted to discuss the appropriateness of making a referral into the clinic.

Education / Continuing Professional Development

Heather continues to promote the role of paediatric physiotherapy in the management and early intervention in OBPP. As such she organised for OBPP to be a topic for presentation at the Association of Chartered Physiotherapists Annual Conference, where she was asked to present along with 2 other members of the OBPP team – Andrew Hart (consultant Plastic Surgeon) and Nicky Hart

(Specialist Occupational Therapist), (See appendix for program). This was successful in raising awareness of OBPP, the importance of early intervention for these babies and raising the profile of the team to community paediatric physiotherapists and occupational therapists across the UK.

She continues to raise awareness of early physiotherapy intervention and the problems associated with late intervention to medical staff at the Glasgow maternity sites to ensure early referral to paediatric physiotherapy as per the referral guidelines for OBPP. This included a teaching session with the maternity medical staff at the Southern General Hospital which linked via telemedicine to other maternity sites in the west of Scotland.

Rotational band 5 physiotherapists rotate into the musculoskeletal team at RHSC. As part of their competency assessment document Heather provides education on OBPP and they have the opportunity to attend brachial plexus clinics and assess new babies born with OBPP in the physiotherapy department.

Occupational Therapy

Total number of patients seen:

Under 5 yrs old – 29

Under 10 yrs old – 35

Teenagers – 12

Nursery visits in GG&C – █

School visits in GG&C – █

Home visits in GG&C – █

Joint OT/ Physio sessions – █

OT sessions – block of 4 sessions for █ patients.

Referral of patients to other services – 6 (to either CDC or local social work OT)

Provide advice and intervention for transition stages – nursery/ primary/ secondary school.

Five patients were referred on to local OT services outwith GG&C for school visits to aid transition from primary to secondary school and to local Social Work OT services for equipment needed at home.

Brachial plexus outcome measure (BOPM): This a functional score designed for OBPI. It has proved successful and quick to use in clinic. The self evaluation element of the assessment needs to be looked at more to provide stronger evidence for future Psychology involvement.

Liaising with Erb's palsy group to offer family day in Scotland. No date as yet, due to move to new hospital.

Liaising with Lydia Dean (Jobskin therapist) to attend clinic and provide advice re lycra garments for selected patients.

Put together developmental programmes through liaison with OT in USA working in brachial plexus.

Website

The service website was re-designed early in 2014 in order present clear referral guidelines and includes information on brachial plexus injury for parents. It is regularly updated.

www.brachialplexus.scot.nhs.uk

Administration

A new brachial plexus service administrator took over in May 2014. As well carrying out regular patient administration, he has maintained the website and made developments to adapt to the introduction of electronic patient records. He is currently preparing for the changes necessitated by the move to the new children's hospital.

Young Adult Clinic

Some patients who are still followed up in the children's brachial plexus clinic are now age 16 or over. In addition some referrals are received for adults who have ongoing problems resulting from OBPI. It was felt inappropriate to continue to see these patients in the children's clinic. Therefore a new clinic for young adults has been started, the first being held in April 2011. The clinic is at the New Victoria Hospital, Glasgow, the same location as the adult brachial plexus clinics. The clinical nurse specialist, occupational therapist, and physiotherapist who work with the adult service are contributing. The clinic is continuing on a twice yearly basis.

B2 d) Research

Andrew McKean

During summer 2013 a medical student, Andrew McKean, undertook an elective period working on a project to look at the long term functional outcome in children with obstetric brachial plexus injury in Scotland. He was supervised by Professor Andrew Hart and received an elective bursary from the Healing Foundation. The work analysed information collected on the service database, which was started in 2001 by David Sherlock and Tim Hems. His report was submitted to the Healing Foundation early in 2014 and received a very favourable review. He intends to continue the project to assess ,in greater detail, aspects such as shoulder outcomes, nerve repair, and potential prognostic markers to aid parental and patient counselling.

He gave oral presentations at the European Society of Plastic Reconstructive & Aesthetic Surgeons (ESPRAS) meeting (Edinburgh, July 2014; published in JPRAS as one of the best 50 abstracts presented), and to the British Society for Surgery of the Hand / Irish Hand Society joint meeting (London, October 2014; best oral presentation prize). His abstract is included in the Appendix.

Further results are accepted for presentation at the EURAPS Research Council Meeting (Edinburgh, May 2015).

Of most direct research relevance to the Plexus Service is the preparation of a report on the natural history of OBPI in Scotland, and work to refine the database structure.

Tim Hems

Tim Hems with Terence Savaridas (Specialist registrar in Orthopaedics) have completed a project to quantify elbow flexion strength in children who have had obstetric brachial plexus injury (OBPI). Although it is known that elbow flexion usually recovers to a functionally useful level after OBPI this has not been formally quantified.

The study involved measuring elbow flexion strength in children over the age of 5 attending the outpatient clinic using a hand held dynamometer. Ethical approval was obtained.

Thirty-nine patients were recruited with a mean age of 12.6 years. Initial results show that the mean isometric force of elbow flexion was 63% of the unaffected side at the first measurement. A mean force of 8.7Kg suggests that patients have a sufficient strength of elbow flexion for most activities. It is intended to continue analysis of the results including correlation of elbow flexion strength with the severity of the OBPI.

Andy Hart

During the year 2014-15 Prof. Hart has continued to be actively engaged in laboratory based research work of direct relevance to brachial plexus injury:

Summary:

He maintains a Honorary Chair in the University of Glasgow, working closely with colleagues in the Centre for Cell Engineering. One post-doc, and five doctoral students (MD / PhD) work on peripheral nerve topics.

Research funding includes internal doctoral studentships (University of Glasgow), a competitively awarded research contract (CrackIt DRGNet, ~£1,000,000 total award), a MRC Clinical Training Fellowship, and small grant awards (BAPRAS, RCSEd).

The group has recently received approval for a SCRED post (post-doctoral academic surgical training post, funded by NES) in Plastic Surgery, the successful applicant will work in peripheral nerve research from August 2015 onwards.

1. University of Glasgow:

- a. **CrackIt Challenge 9: DRGnet** (Phase 1 Dec 2012 – June 2013, MRC / NC3Rs; Phase 1a Nov 2013-April 2014; Phase 2 August 2015 – 2018; total funding ~£1,000,000).

The research brings together clinical and academic groups to establish a first-in-world legal, ethical, and logistically viable system for the provision of human sensory neurons (from the dorsal root ganglia of transplant organ donors) that is scalable for Europe wide provision to researchers developing pain medications.

Of greatest relevance to brachial plexus injury is that the work will underpin research development of new classes of analgesics including those acting via Vanilloid receptors,

and sideground research activity relevant to the therapeutic use of transplanted neurons.

- b. **Medical Research Council (MRC):** a 3-year MRC Clinical Research Training Fellowship has been recruited by Miss Suzanne Thompson under Prof. Hart's supervision. Suzanne commenced in post August 2015 – 2018. She works between the Universities of Glasgow & Umea, undertaking a PhD to further investigate translationally important aspects of peripheral nerve repair using a patterned polymer construct, growth factors and adipose-derived stem cells (ADSC). Funding includes provision for clinical training within the Plexus Service.
 - c. **Special Study Modules:** students have been engaged in research and educational work on various projects. That includes work by Andrew McKean to investigate the obstetric brachial plexus service database that has been presented at national and international meetings, and received awards. The work has also underpinned a significant improvement in patient counselling.
2. **NHS Blood & Transplant:** Prof. Hart will lead a collaborative grouping hosted via the RCS(England) Clinical Trials Network lead for Plastic Surgery to develop & assess a nerve allograft product. Development work is agreed, based around a PhD student to commence by Aug 2015.
 3. **Collaborative research group:** as detailed in the last annual report he maintains links with colleagues in the Universities of Umea (Sweden) & Manchester that focus on peripheral nerve repair (tissue engineering, neuronal protection, adjuvant pharmacotherapy, timing of nerve repair). Protocols have been prepared for a multicentre clinical trial of neuroprotective pharmacotherapy in major nerve injury, and funding sources are being pursued. As part of this collaboration the Plexus Service hosted an academic plastic surgeon from the Manchester Unit on a Fellowship attachment to the Canniesburn Plastic Surgery Unit Aug 2014-April 2015. Section editing of the peripheral nerve injury chapters for the forthcoming Oxford textbook of Plastic Surgery is also underway.

Presentations of Relevance to Brachial Plexus Service 2014-15:

1. **“Adult & Obstetric Brachial plexus Injury, Peripheral Nerve Injury & Reconstructive Surgery”** Summer Clinical Negligence Conference, Faculty of Advocates, Scotland, June 2014
2. **“Advances in tissue engineered control of peripheral nerve regeneration”** Umeå Universitet, March 2014
3. **“Incidence and shoulder outcome of unilateral obstetric brachial plexus injury in the Scottish population”** McKean A., Gorman M., Hems T. & Hart A. BSSH & ISSH Meeting 2014; Awarded best oral presentation prize (“Journal of Hand Surgery Prize”)
4. **“Combinational approaches to improve outcomes following peripheral nerve repair”** Thomson SE, Hart AM, Riehle M, Tsimbouri M, De Jardin T. ESPRAS 2014
5. **“Epidemiological factors & shoulder outcome of patients with unilateral obstetric brachial plexus injury in scottish population.”** McKean A, Gorman M, Hems T, Hart AM. ESPRAS 2014

B3 Safe

B3 a) Risk Register

All healthcare professionals funded within the structure of the Obstetric Brachial Plexus Palsy Service meet Greater Glasgow & Clyde Trust requirements for vetting by Disclosure Scotland, and registration with the Information Commissioner's Office. Miss Claire Murnaghan has certified level 3 Child Protection training.

B3 b) Clinical Governance

Patients reviewed, or treated at the RHSC Yorkhill site fall under the hospital's own governance system, reinforced by internal audit within the Orthopaedic, and the Plastic Surgery Services. No significant governance issues have been identified through these mechanisms during 2014-2015.

B3 c) Healthcare Associated Infection (HAI) and Scottish Patient Safety Programme (SPSP)

The outpatient clinic has fully adopted recommendations on hand hygiene, dress code, and cleaning of equipment as recommended nationally. These measures are also in full implementation within the inpatient ward, and theatre complex used. Regular monitoring of compliance within the hospital is performed by assessors independent to the Plexus Service. No peri-operative bacterial infections occurred during the period 2014-2015.

B 3 d) Adverse Events

The service uses existing Greater Glasgow & Clyde thresholds for instigation of adverse event reporting and investigation, plus online reporting systems. No adverse events have been reported to occur during the period 2014-2015.

B 3 e) Complaints / Compliments

Complaints are handled by the Complaints Liaison Officer, as per the NHS Complaints Procedure. Information leaflets regarding the complaints policy are available from any member of staff at RHSC.

Over the past 3 years there have been a few complaints which have been handled by the Children's Brachial Plexus Service:

1. Request by parents for an opinion and treatment at another unit. Treatment recommended was similar to that offered in Glasgow.
2. Complaint regarding perinatal care. Information only provided by the brachial plexus team.
3. Complaint regarding perinatal care. Information only provided by the brachial plexus team.
4. Letter regarding child with severe OBPI regarding perinatal care and alleged lack of information from the brachial plexus team. In response, it was noted that the parents had met with the team on at least 15 separate occasions, with regular reinforcement of the information regarding the baby's injury. The child remains under treatment.

5. Complaint regarding, a. Perinatal events surrounding the delivery and the subsequent birth injury. b. Mum felt that, at the second appointment in the brachial plexus clinic, her child's notes had not been read and the doctor seeing him was not familiar with the case. On investigation, it was noted that there had been difficulty with accessing records because of the transition to electronic patient records. This should not occur in the future. The child had made a full recovery from the OBPI.

We continue to investigate complaints thoroughly and try to make necessary changes to the service. There do not appear to be any consistent themes in the complaints.

B4 Timely (Access)

B4a) Waiting / Response Times

The mean time between referral and first clinic consultation offered was 4 weeks (Range 1 to 18* weeks).

Most referrals are sent centrally to Miss Murnaghan at RHSC by letter, fax or via the electronic vetting system for those who are not directly referred by the maternity units.

The urgency of the referral is graded when it is received. The response times have been appropriate to the condition of the patients.

B4b) Review of Clinical Pathway

(i) Review and Changes to Clinical Pathway

Insert text here

(ii) Improvements to Local Delivery of Care

Early in 2014 the referral guidelines were revised so that these are consistent for cases occurring throughout Scotland. Over recent years earlier referral to the service has been encouraged in the belief that earlier intervention with physiotherapy, provision of information to parents, and selection of cases requiring surgery is beneficial.

The new guidelines are on the service website and appear to have been functioning well. In the future it is hoped that an on-line referral system can be developed.

B5 Person Centred

B5 a) Patient Carer/Public Involvement

Insert text here

B5 b) Better Together Programme Involvement

Patients and their families benefit from early review by a multidisciplinary team at the Paediatric brachial plexus clinic and are given contact details for our named therapists in order to maintain a close relationship during their treatment. They are given the opportunity to ask questions and find out more information about their diagnosis and are actively involved in the care of the child, particularly through sharing of information and responsibility for exercises and therapy.

B5 c) User Surveys

B6 Equitable

B6 a) Fair for all: Equality & Diversity

The Plexus service complies with NHS rules on equality & diversity in the appointment of staff. Similar care is taken in providing equal care standards to patients and relatives. Appropriate use of interpreters and awareness of cultural, ethnic and religious practices in regard to examination and interaction with parents is facilitated.

B6 b) Geographical access

Outreach Clinics: In order to assess and follow-up patients from the North East of Scotland a clinics was held at Woodend Hospital, Aberdeen in April 2014 and October 2014. Clinics are held approximately every 6 months, depending on demand, and seem well received by the patients. Adult brachial plexus patients and children are seen in the same clinic. The need for clinics in other locations is kept under review.

Section C : Looking Ahead/Expected Change/Developments

Psychological Support

Meetings have been held with the Clinical Psychology Service to develop outline remits for how a Psychologist could be incorporated into the service, without compromising equity of service provision across Scotland. Increased referrals within GG&C have made clear the need for service provision, and the enthusiastic engagement of the psychology service is clearly evident. Over the last year work was carried out to quantify need, and what service support would be required for an equitable access national service provision, following the model of the successful physiotherapy and occupational therapy developments. A needs analysis and service proposal was presented and submitted to NSD in October 2014. A response is awaited.

Patient Information

Information on OBPI for parents has been included in the new website.

Claire Murnaghan has continued to work on a revised printed booklet to be given to parents at the clinic. The draft Parent Information document has been target and peer-reviewed on many occasions. This has taken much longer to finalise than anticipated as it has been very difficult to get the correct balance of information/education with simplicity in such a technically difficult subject. The final draft is currently with the FILES committee at Yorkhill waiting for approval.

Electronic Patient Record (EPR)

Introduction of an electronic patient record in NHS Greater Glasgow & Clyde has presented a challenge to the service. The EPR currently doesn't provide an equivalent method of recording information, including consecutive measurements, on brachial plexus patients to replace the paper records. The methods of documenting patient information, monitoring activity, assessing function, and recording outcomes for the brachial plexus service are under review.

We have met with the EPR development team and requested that specific E-forms for the service can be developed for inclusion in the EPR.

New Children's Hospital

The service will move with the opening of the new children's hospital at the South Glasgow University Hospital site in June 2015. Expansion of the multidisciplinary team has currently lead to pressure on space during out-patient clinics. It is hoped that the new hospital will provide improved facilities.

Section D : Summary of Highlights (Celebration and Risk)

The move to the new children's hospital represents a major challenge for the year ahead, but it is hoped that it will be an opportunity to improve the service and integrate more effectively with the adult brachial plexus injury service, clinical neurophysiology, and laboratory services. During the last year important developments have been made in respect of occupational therapy, physiotherapy, patient information, assessment, and audit.

The multidisciplinary team remains the basis of the success and ongoing development of the service. As well as the work in the clinics, there has been out-patient physiotherapy and occupational therapy activity. In addition to those already mentioned in the report operating theatre staff have given skilled assistance in surgical cases, as well as support from management at Yorkhill.

Appendix

Teaching and Training Activity

Claire Murnaghan

16th May 2014 Attended British Brachial Plexus Meeting, London

Tim Hems

18th March 2014 Edinburgh Hand Surgery Course.
“Management of Brachial Plexus Injuries” (Including OBPI).

16th May 2014 Attended British Brachial Plexus Meeting, London

Andy Hart

16th May 2014 Attended British Brachial Plexus Meeting, London

21st Nov 2014. **Obstetric Brachial Plexus Injury**” Association of Paediatric Physiotherapists
& Occupational Therapists Joint Annual Meeting (APCP/FYSF) “In Cahoots”

In Cahoots

Working Together in Early Intervention

The impact of occupational therapy and physiotherapy working together for better outcomes for children and young people

Friday, 21st November 2014

08.15-09.00 Registration

09.00-09.10 **Opening of joint APCP / CYPF Annual Conference 2014**

Liz Grey – Chair of APCP Scottish Committee and National Vice-Chair

09.10-09.30 **Keynote Address: Children & Young People's AHPs - taking our next steps!**

Jane Reid - AHP National Lead for Children & Young People at The Scottish Government

09.30-10.15 **Working together to get it right for every child – how health policy has been implemented in Scotland**

Dr Kate McKay – Senior Medical Officer, Scottish Government

10.15-10.45 Break and exhibition

10.45-11.30 **Researching together – inter-professional perspectives on research into postural care training for parents and teachers**

Eve Hutton - Head Occupational Therapist in Child Health, Buckland Hospital, Dover & Sarah

Crombie – Professional Lead Physiotherapist, Chailey Heritage Clinical Services, East Sussex

11.30-12.00 **The practical psychology of families and diagnosis**

Dr Chris Wiles – Consultant Clinical Psychologist and Head of Service, Rowan Centre for Child and Adolescent Mental Health Services, NHS Grampian

12.00-12.30 **Free Paper Presentations**

12.30-13.30 Lunch and exhibition

13.30-14.15 **Multi-disciplinary team working within the neonatal setting and the importance of anticipatory care and early intervention**

Betty Hutchon - Head Occupational Therapist, Royal Free Hospital, Consultant Neurodevelopmental Therapist North Central London Perinatal Network and Honorary Lecturer Institute of Child Health University College London

14.15-15.00 Obstetric Brachial Plexus Palsy

i) Neurobiology of Obstetric Brachial Plexus Injury, and rationale for early nerve surgery

Professor Andrew Hart – Consultant Plastic and Hand Surgeon, Scottish Brachial Plexus Service

ii) The importance of early physiotherapy intervention for Obstetric Brachial Plexus Palsy

Heather Farish – Team Lead Paediatric Physiotherapist, Royal Hospital for Sick Children, Glasgow

iii) The role of the occupational therapist for Obstetric Brachial Plexus Palsy

Nikki Hart

15.00-15.30 Break and exhibition

15.30-16.15 **The CHAS model of palliative care – working in partnership with you to ensure palliative care is introduced at the right time**

Sue Hogg - Director of Care, Children's Hospice Association Scotland

16.15-16.45 **Supporting parents of disabled children to acknowledge, adjust and adapt**

Shirley Young – Parent, Trainer and Consultant

Abstract Preview - Step 3/4

- print version -

Topic: 18 Paediatric Surgery

Title: EPIDEMIOLOGICAL FACTORS & SHOULDER OUTCOME OF PATIENTS WITH UNILATERAL OBSTETRIC BRACHIAL PLEXUS INJURY IN SCOTTISH POPULATIONAuthor(s): McKean, Andrew R.¹, Gorman, Mark², Hems, Timothy E.J.³, Hart, Andrew M.^{2,3,4}Institute(s): ¹University of Glasgow, United Kingdom, ²Canniesburn Plastic Surgery Unit, United Kingdom, ³Scottish National Obstetric Brachial Plexus Injury Service, United Kingdom, ⁴Stephen Forrester Professor of Plastic Surgery at University of Glasgow, United KingdomText: INTRODUCTION AND AIMS

Reported incidence figures are lacking for obstetric brachial plexus injury (OBPI) in the UK, and the exact outcome for these patients remains inadequately defined at the population level. That impacts adversely upon patient & parental counselling and support, and creates difficulty in obtaining adequate, equitable service-level funding within the NHS.

MATERIAL AND METHODS

The Scottish National Obstetric Brachial Plexus Injury Service prospectively records musculoskeletal and plexus injury-specific outcomes. Records of patients presenting between March 2002 and June 2013 were retrospectively assessed (n=373; 127 excluded due to inadequate data, or incorrect diagnosis). Birth incidence was estimated, and outcomes related to Narakas grade and age at biceps function recovery were interrogated using SPSS.

RESULTS

OBPI incidence was >0.4 per 1000 live births. Discharge from the service within the first year of life, indicating spontaneous recovery, was achieved in >30% of all patients. Primary surgical intervention was performed in 26% of cases. Approximately 5% (n=13) of the total study population had nerve surgery, at mean age of 5.8 months (SD=2.4). Further procedures were required in 38% (n=5) of those who initially underwent nerve surgery. Narakas Grade, and age at recovery of biceps were confirmed as prognostic indices for future Mallet scores. The time-course of shoulder recovery is described.

CONCLUSION(S)

Few units have managed to capture longitudinal data for such large numbers of patients in to adolescence. The long-term shoulder outcomes in patients undergoing nerve surgery were encouraging. Nerve surgery was of benefit in severe cases.

Preferred Presentation Type: No preference * (oral or e-poster)

Meeting: 12th Congress of the European Society of Plastic Reconstructive and Aesthetic Surgery · Abstract: A-606-0025-00606 · **Status:****Submitted**[Print](#)[Back](#)