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JOURNAL OF THE ASSOCIATION OF PAEDIATRIC CHARTERED PHYSIOTHERAPISTS
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RESPIRATORY CARE

ARTICLES

Regular Features

EDITORIAL

LIN WAKLEY
Editor

As another year draws to a close I thought it would be appropriate to reflect on how the Journal had evolved over the past year.

We started 1998 with the March issue devoted entirely to Clinical Guidelines, and although I was sceptical about producing a journal with no articles directly related to clinical issues, it was well received. In June we were concentrated on Orthopaedic problems, September was the Conference issue and we are finishing the year with this Journal which is looking at Respiratory Care. I feel it has been a very varied and interesting year and I can only thank all the contributors who continue to send me articles, many of them unsolicited. Please keep them coming!

There have been two important changes in the Journal this year.

Firstly, we now have a regular "Report from the National Committee Meeting". I felt this was an important addition to the Journal so that all members have the opportunity to know what issues the Committee are asked to deal with and what they are undertaking on their behalf. I must thank Mary Goy our Honorary Secretary who has taken on the responsibility of producing the report as well as the full minutes after every National Committee Meeting.

The second change is the introduction of Central Mailing. The Journals are now sent from the printer directly to all members. This saves both time and money. The Regional Reps no longer have to pack and send the Journal to you, you receive them more quickly, and there is only one lot of postage to pay. So far it appears to be successful although it will be reviewed after it has been running a full year.

I hope we can continue to develop and improve the journal in 1999 so that you can all feel proud to be associated with it as we reach the new millennium.

It just remains for me to wish you all:

A MERRY CHRISTMAS AND HAPPY NEW YEAR.

Copy for the

MARCH 1999 JOURNAL

must be with the editor by

1st FEBRUARY 1999

The Editorial board reserves the right to edit all material submitted

LETTERS TO THE EDITOR

Dee Silk
37, Manchester Old Road
Bury
Lancs
BL9 0TR

Dear Colleague,

I am a 3rd year Physiotherapy student at Bradford University, & for my dissertation (to be submitted in early April 1999) I am currently researching 'Young People & Coronary Heart Disease (CHD) Risk Factors, with a particular emphasis on obesity & inactivity & Implications for Physiotherapy Practice'.

One of the key components of the study is to highlight the current & potential ways that physiotherapists are tackling this escalating problem. I will also be assessing the implications for physiotherapy practice with regard to the future planning of Services.

To this end, I would be extremely grateful to hear, for example, from colleagues who are involved in programmes that tackle the CHD risk factors in young people or who may be able to help in any other way, so that I can gauge the full extent of physiotherapists involvement in combating this worrying trend.

Please could you either write to the name & address supplied or telephone any time. I thank you very much, in anticipation, for your help with this matter.

Yours faithfully,
Dee Silk (B.Sc (Hons), M.A (Ed), RGN.)

Claire Andrews
The Royal National Orthopaedic Hospital Trust
Brockley Hill, Stanmore,
Middlesex HA7 4LP

Dear Colleagues

In June 1998 I wrote enquiring about other colleagues experience of Somatosation children.

Due to the excellent response I now wish to organise a meeting in order to discuss issues around this condition and current treatment ideas.

- Admission criteria
- Treatment protocol
- Disciplines included in the team
- Therapy as an in patient/out patient status
- Length of therapy as in patient/out patient
- Post discharge follow up
- Physiotherapist background
- Support and education of physiotherapists

If anybody is interested in attending I would be grateful if you could call/write to me by the end of December to:

Claire Andrews
Senior Paediatric Physiotherapist
Royal National Orthopaedic Hospital Trust
Brockley Hill
Stanmore, Middx.
HA7 4LP
0181 954 2300 Ext. 519/220

Yours sincerely,
Claire Andrews
Senior Paediatric Physiotherapist

LETTERS TO THE EDITOR

Margaret Mockford
Physiotherapy Department
Blackfriars School
Priory Road
Newcastle-under-Lyme
Staffordshire ST5 2TF

Dear Lin

I have recently taken over the treatment of two children about whose conditions I have very little information. The first is a young boy with Christian Syndrome; the other is a teenage girl with Congenital Insensitivity to Pain - she is unable to feel pain, heat or cold, unable to regulate her body temperature by sweating, and recurrently dislocates her large joints. I would be pleased to hear from other APCP Journal readers who have any experience in the management of children with either of these conditions. Any information regarding the progress and possible prognosis of either of these conditions would be gratefully received.

With thanks
Margaret Mockford
Senior I Paediatric Physiotherapist

Cyndy Bowles
Community (Paediatric)
Physiotherapy
Enfield Community Care NHS
Trust
Cedar House
Enfield Community Care Centre
St Michael's Site
Gater Drive
Chase Side Crescent
Enfield EN2 0JB

Dear Lin

Re: Chronic Fatigue Syndrome

I have recently taken on the treatment of children with Chronic Fatigue Syndrome. I would be grateful to hear from anyone who has had experience in treating this condition in children.

Yours sincerely
Mrs Cyndy Bowles
Superintendent Paediatric Physiotherapist
Child Development Centre

Jo Whittaker
Burnley Health Care NHS Trust
Physiotherapy Service
Reedley Hall
Colne Road
Burnley
BB10 2LW

Dear Editor

I would be interested to know what effects the introduction of the literacy and numeracy hours have had on the delivery of physiotherapy in schools around the country. What local arrangements have physiotherapists made a) to withdraw children from class for treatment and b) to treat children in class?

If this education initiative is causing other paediatric services significant problems in delivering statemented needs, would the APCP consider taking the matter further?

Yours sincerely
Jo Whittaker (Mrs)
Superintendent Physiotherapist

LETTERS TO THE EDITOR

Lesley M Gillon
Directorate of Children's Services
Community Paediatric
Physiotherapy Service
Central Health Clinic
Tower Hill
Bristol BS2 0JD

Dear Lin

We are currently trying to write a leaflet to give to parents on their first physiotherapy visit, primarily to give them information about our service and what we can offer. This is becoming increasingly important as parental expectations are growing. They need to know not only the potential of our service, but the possible limitations, examples such as finite resources, increasing urban congestion, increased workload and paperwork.

We would be very interested in learning from any other department who is also attempting to write a similar leaflet, as we would welcome any suggestions you may have to offer.

Yours sincerely
Lesley M Gillon
Senior Physiotherapist

PRACTICAL INTERPRETATION OF THE PAEDIATRIC CHEST X-RAY

A STEP-BY-STEP GUIDE

DR ANN WRIGHT
Consultant Radiologist
Countess of Chester Hospital
Liverpool Road
Chester
CH2 1UL

It is essential to develop a method of systematically scrutinising each CXR, otherwise clinically important abnormalities may be overlooked, by even the experienced eye. Use your detective powers and routinely interrogate every film. Once a pattern of interrogation becomes second nature, very few significant pathologies will escape detection. The following guide is, of necessity, limited in scope, but will hopefully provide a firm foundation on which you can build, through clinical experience.

A CHECK DOCUMENTATION

Begin by checking the child's name, date of birth (if applicable) and the date of the examination. Films may have been returned to the wrong film packet, or may be wrongly colour coded.

B CHECK TECHNICAL FACTORS

Step 1 Side Label

If you don't routinely check the side marker, you may miss a dextrocardia and allocate remedial therapy to the wrong hemi-thorax.

Step 2 Projection (A.P. Vs, P.A.)

In babies and toddlers most radiographs will have been taken A.P. whilst in co-operative older children they will probably have been taken P.A.
In an A.P. film the heart is magnified and assessment of cardiac size is therefore unreliable. This is relatively unimportant in infants where the presence of a bulky thymus gland often precludes accurate assessment of cardiac size. In the older child this magnification may lead to misdiagnosis of cardiac enlargement. Make sure you know the protocol for labelling projection in your department.
e.g. (Assume the film is P.A. unless labelled A.P.)

Step 3 Supine or Erect

It is essential to know the child's posture. A pleural effusion will look completely different in the erect and supine position, as free pleural fluid will always layer in the most dependent position. If erect, it will gather at the lung base to form the characteristic elliptical density at the costophrenic angle. If supine, the fluid will layer along the posterior chest wall to form a vague increase in density throughout the hemi-thorax. If the supine posture is not appreciated, the inexperienced may conclude that there is extensive consolidation in the denser hemi-thorax or an abnormal transradience, e.g. obstructive emphysema on the contralateral side. Once again make sure you know your departmental protocol: e.g. Assume the film is erect unless labelled supine.

Step 4 Degree of Inspiration

The radiographer is skilled in obtaining inspiratory films even in uncooperative children, but will not always succeed, particularly in a very sick child with a rapid respiratory rate. An expiratory phase film gives a spurious impression of mediastinal/cardiac enlargement and pulmonary vascular congestion. It may be misinterpreted as showing generalised patchy inflammatory change. Always check that inspiration is adequate by assessing the relationship of the diaphragm and the ribs. The mid point of the hemi-diaphragm should lie between the anterior ends of the 5th and 7th ribs although it may normally lie a little higher in the under 6 months.

Step 5 Patient Rotation

This is most easily assessed by examining the relationship of the medial ends of the clavicles (anterior) to the vertebral spinous process (posterior).

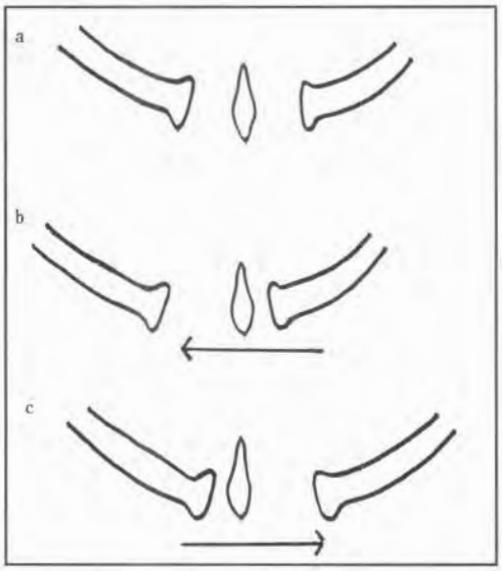

Fig 1
Patient Rotation
a) straight
b) rotated to the right
c) rotated to the left

If the child is rotated to the right, the heart, which lies anteriorly in the chest, will appear slightly displaced to the right. The **right** hilum will be **less** prominent than the **left** hilum **more** prominent than normal. The converse is true when the child is rotated to the left. It is therefore very important in assessing possible pathological mediastinal shift, and in evaluating the hilar structures, to recognise and make allowances for rotation. Rotation will also cause a difference in transradiancy between right and left hemi-thorax. (discussed later)

C CHECK THE LUNG EDGES / PLEURAL REFLECTIONS

This is best done by a continuous sweeping movement commencing at the trachea, tracing the mediastinal outline (right and left), tracing the hemidiaphragms (right and left) and then the costal margins (right and left) up to the apices.

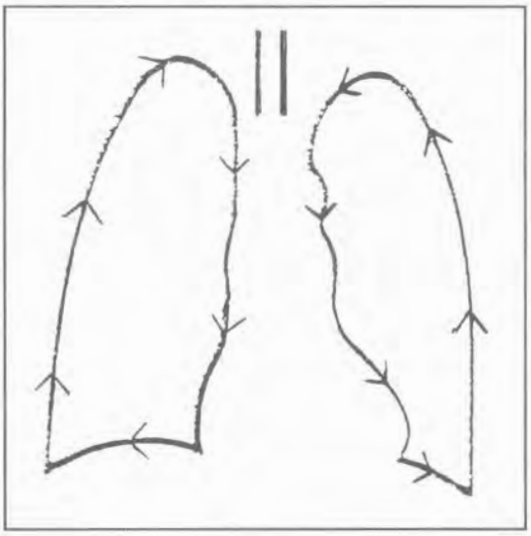

Fig 2 Pattern of checking the pleural reflections

Step 1 Assess the tracheal position

This should be central, but may deviate slightly to the right inferiorly, assuming that the aortic arch is in the normal left sided position. If the trachea is significantly shifted, it implies either:

a) volume loss in the hemi-thorax towards which it is shifted, e.g. lobar collapse, pulmonary hypoplasia, or

b) volume increase in the contralateral hemi-thorax, e.g. pleural effusion, lobar emphysema, tension pneumothorax.

Step 2 Assess the mediastinal outline

Is there a clear mediastinal outline bilaterally? These borders are normally visible on a CXR because of the density difference between aerated lung and adjacent soft tissue structures. If a border is indistinct or invisible, it implies that the adjacent lung is not aerated, e.g. because it is consolidated, is displaced by fluid or replaced by a soft tissue mass.

The mediastinal outline may normally be somewhat indistinct at the apices, medially, due to the great vessels, and at the cardiophrenic angles, due to the presence of a fat pad.

Loss of the right heart border is seen in middle lobe consolidation and may be the only sign of middle lobe collapse. Loss of the left heart border is seen in lingular collapse/consolidation.

Step 3 Assess the hemidiaphragms

Are these distinct throughout?

Right lower lobe consolidation will cause blurring/loss of the right hemidiaphragm and left lower lobe consolidation will cause blurring/loss of the left hemidiaphragm. In complete collapse of the lower lobe, the diaphragmmatic outline will be preserved laterally, as the upper lobe undergoes compensatory hyperinflation and occupies a new position against the diaphragm anterolaterally. There will still be diaphragmmatic effacement medially, but this serious abnormality is easily overlooked, especially on the left without systematic interrogation of the film.

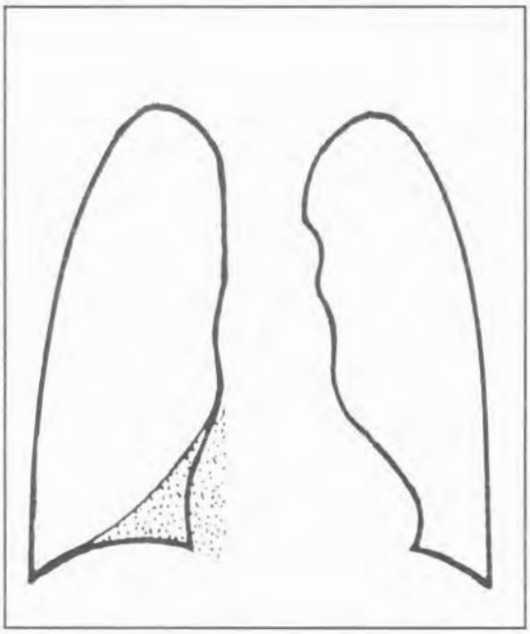

Fig 3 Collapse of the right lower lobe

Step 4 Assess the costophrenic angles

These should normally be sharp forming acute angles. The acute angle may be lost if the lungs are overinflated as in acute asthma, broncholitis and cystic fibrosis. In non-hyperinflated lungs, blunting of the costophrenic angle may indicate a small pleural effusion/haemothorax (if the film is taken erect) or pleural thickening as a response to previous pulmonary pathology. Comparison with previous films will help to differentiate.

Step 5 Assess the lateral costal margins

The lung parenchyma should tightly abut the costal margins throughout. Any displacement will flag up what may be a subtle abnormality, e.g. a trace of pleural fluid forming a lamellar effusion, or a shallow apical or basal pneumothorax. You will not overlook these important pathologies if you adopt a systematic approach each time you assess a CXR.

D CHECK THE PULMONARY PARENCHYMA

Commencing at the apices, assess the lungs. Compare right to left continuously. The degree of opacity should be symmetrical, assuming no patient rotation. If there is rotation to the right, the right hemithorax will be slightly more transradient (blacker), and vice versa.

Normally visible lung opacities are caused by bronchi, pulmonary arteries, pulmonary veins and interlobar fissures. On the PA film the minor fissure, on the right, is normally visible. Apart from this the lung pattern should be consistently symmetrical.

During this seeping survey, any abnormal opacities should become apparent, e.g. focal areas of consolidation, intrapulmonary masses, focal bronchial wall thickening, bullae, cavities and calcifications.

N.B. A very useful practical tip is to shield all but the apices from view using, for convenience, the film packet. Having assessed the apices, draw the film packet gradually downwards assessing the newly exposed lung and comparing side to side. Difficult to visualise abnormalities appear to leap out from the film using this method.

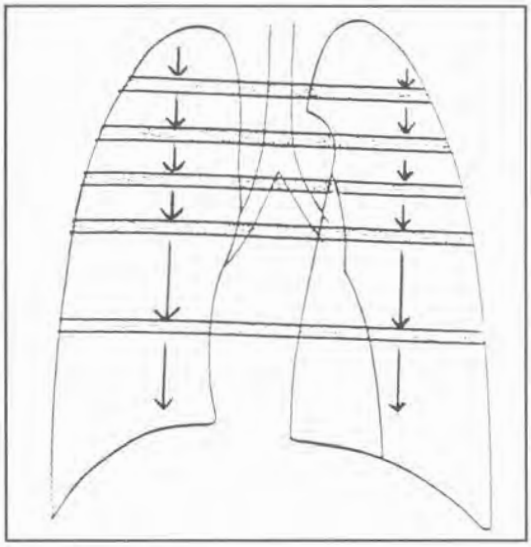

Fig 4
Assessing the pulmonary parenchyma, by drawing the film packet gradually downwards

E CHECK THE BONY SKELETON AND SOFT TISSUES

Examine each rib in turn. Even when there is no history of trauma it is important to look for rib fractures, especially in infants. Evidence of old and/or recent rib fractures may be the first indication of non accidental injury. Fractures of the necks of the ribs, posteriorly, must be assumed to be due to non accidental injury and brought to the immediate attention of the clinician responsible for the patient.

N.B. A useful tip when assessing the rib cage in any patient, is to turn the film through 90 degrees and assess the ribs in vertical orientation. They

immediately become more prominent. I suspect this occurs because we train ourselves to mentally ignore the ribs when we view a chest film in normal orientation.

Examine the spine for scoliosis, and the clavicle, scapula and proximal humerus for normal bony pattern.

Assess the soft tissues generally, not forgetting to observe breast development, and assess its appropriateness for the patient's age.

F CHECK THE REVIEW AREAS

Certain areas on a CXR are notoriously difficult and always merit specific scrutiny. Radiologists call these the **review areas** - where pathology frequently hides from view.

Step 1 Check the Apices - again

Anterior ribs, posterior ribs and clavicles all overlap here, creating a crowded image and diverting the eye from the lungs. Are the apices of equal opacity? Exclude pneumothoraces, cavities and pulmonary masses.

Step 2 Check the hila

Is one hilum denser than the other? Is there hilar enlargement, e.g. by lymphadenopathy? The hilar point is, by definition, where the upper lobe vein crosses the lower lobe artery. This should form an angle, concave outwards. Hilar lymphadenopathy will produce an enlarged hilum, convex outwards. Are the hila at their normal levels? The left hilum is normally slightly higher than the right. Upper lobe collapse or upper zone fibrosis will result in elevation of the ipsilateral hilum. Lower lobe collapse will cause depression and rotation of the ipsilateral hilum.

Check for perihilar consolidation due to, e.g. inflammatory change or pulmonary oedema.

Step 3 Check behind the heart

A considerable quantity of lung is partially obscured by the heart. It is essential to look through the cardiac shadow to assess the medial lung bases, especially the left. An opacity seen through the heart may be an area of basal consolidation, an intrapulmonary mass, or, if triangular and accompanied by other CXR signs, may denote a left lower lobe collapse.

Step 4 Check beneath the diaphragms

Is there free abdominal gas? Is the gastric air bubble normally situated in the left upper quadrant? Is there pathological calcification in the upper abdominal organs?

A considerable quantity of lung is also obscured from view beneath the diaphragms. A mass in the posterior costophrenic sulcus on the left may only be visible through the gastric air bubble. You won't see it if you don't look for it.

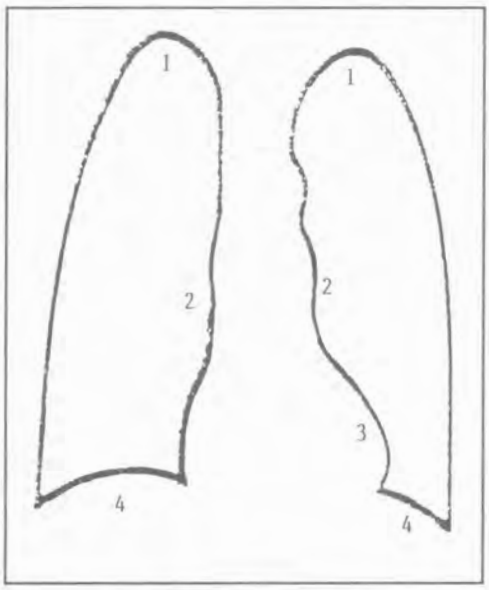

Fig 5
The review areas
1) The apices
2) The hila
3) Behind the heart
4) Below the diaphragms

G CHECK LUNG VOLUME

Step 1 Assess overall lung volume

Generalised hyperinflation will produce diaphragmmatic depression. In chronic conditions such as cystic fibrosis and bronchopulmonary dysplasia, there will also be diaphragmmatic flattening.

Step 2 Assess quality of lung volume

Make the following checks to assess that lung volume is equal in the right and left hemithoraces.

- The mediastinum should be undisplaced, with one third of the heart to the right and two thirds to the left of the mid-line.

- The diaphragms should be at approximately equal heights, the right normally being slightly higher after infancy.

- The ribs should be equally spaced on each side of the chest. If they are more crowded on one side it implies a comparative lower volume in that hemithorax.

- The trachea should bicentral.

- There should be equal transradiance of the lungs.

- The hemithoraces should objectively appear to be of equal volume.

If a discrepancy in lung volumes is noted, look for features of lobar collapse on the lower volume side. If these are absent and the smaller volume lung appears normal, the abnormality may be assumed to be on the side of increased volume. In the absence of an obvious pneumothorax or pleural effusion on the increased volume side, obstructive emphysema should be suspected. A history of possible foreign body aspiration should be sought

and an expiratory film or fluoroscopic screening of chest arranged, according to the child's age and level of co-operation.

It is crucial to detect an aspirated foreign body promptly in order to prevent serious long term morbidity.

A permanently small volume lung is a feature of pulmonary hypoplasia and Swyer-James (Macleod's) syndrome. Referral to previous films will reveal the chronic nature of the condition.

* N.B. Always make a habit of comparing the current CXR to previous films before arriving at the final diagnosis.

THE THYMUS

The prominence of the thymus on CXR in infants and young children adds to the difficulty to film interpretation by nature of its extreme variability.

Thymic size is variable between infants and also between different films of the same infant over a relatively short time span. Thymic size diminishes in the acutely ill, stressed infant and shows rebound hypertrophy in the recently recovered infant.

Thymic shape varies greatly between infants and also varies to a lesser extent between films of the same infant taken in inspiration and expiration at the same examination. It may have a sharply triangular shape, particularly on the right, or a smooth lobulated contour. It typically has a slightly undulating lateral margin due to compression by adjacent ribs.

The normal thymus may reach almost to the diaphragm and can completely obscure the cardiac outline making mediastinal assessment difficult in the infant.

NEBULISATION THERAPY IN THE PHYSIOTHERAPY MANAGEMENT OF PAEDIATRIC RESPIRATORY DISEASE

DIANE ROGERS MCSP
DR IJM DOULL
Consultant Repiratory Peadiatrician
Cystic Fibrosis/Respiratory Unit, Department of Child Health, University Hospital of Wales, Cardiff CF4 4XW

Introduction

The inhalation of drugs for therapeutic purpose has been known since ancient times. Administering drugs which treat the lungs in the form of an aerosol for inhalation ensures that they are delivered to the target area. Alternative routes of drug therapy may not only lead to systemic side effects, but also often need to be given in large doses owing to dilution of the drug before it reaches the target organs. (BTS 1997)

Therefore inhalation therapy offers two major advantages;
(a) direct transmission of the drug to the target area
(b) the potential for reducing the dose of the drug and minimising any undesirable side effects. (BTS 1997)

However, any drug to be administered has to be delivered in minute droplets small enough to be deposited in the target airways but not so small that they are immediately exhaled.

The three most common methods of delivering a chosen drug are:
1. Propellant driven meter dose inhalers (MDI).
2. Dry powder inhalers (DPI).
3. Nebulisers.

Considering available devices, nebulisers are not the most commonly used but are invaluable for the following reasons:
(a) For patients with an ineffective technique using an MDI with a spacing device or a DPI.
(b) To give large doses of drug which would be inappropriate by any other method.
(c) To deliver drugs which cannot be put into MDIs or DPIs.
(d) For infants and small children. (ACPCF 1996)

Thus nebulisers are widely used in adult and paediatric medical practice, for emergency and acute treatment, and for Domiciliary long-term treatment of a variety of respiratory diseases, most commonly airflow obstruction. (BTS 1997)

In 1994 the Standards of Care Committee of the British Thoracic Society (BTS) initiated a review of nebuliser treatment in all its aspects. A nebuliser project group was formed, comprising physicians, scientists, respiratory nurses, respiratory function technicians and physiotherapists. Guidelines were published as a supplement, in the April edition of Thorax 1997, with a review planned in 2-3 years time.

It is intended that these recommendations should form the basis of local guidelines, and thereby improve nebuliser therapy undertaken in hospital and in primary care. (BTS 1997) This article is intended to be a brief overview of these and other recommendations for nebulisation therapy in childhood.

NEBULISATION THERAPY IN THE PHYSIOTHERAPY MANAGEMENT OF PAEDIATRIC RESPIRATORY DISEASE

Aim of Nebuliser Therapy

The aim of nebuliser therapy is to deliver a therapeutic dose of the desired drug as an aerosol containing respirable particles within a fairly short period of time, usually 5-10 minutes. (BTS 1997)

This is achieved using a nebuliser chamber, a device which converts a liquid into respirable aerosol, in conjunction with a compressed gas source. The compressed gas draws the liquid via the feed tube within the nebuliser and fragments it into particles. Small particles leave the nebuliser while larger particles remain within and are re-circulated.

Compressed air is the most common source for driving a nebuliser and, wherever possible, its use is recommended unless a higher (>21%) inspired oxygen is indicated and prescribed. When oxygen is used as the driving gas, the solution will nebulise more quickly than with air due to the higher molecular weight and increased density of oxygen. Compressed oxygen is also dry, whereas an air compressor provides ambient humidity. (ACPCF 1996)

Successful aerosol therapy depends upon the delivery of an adequate amount of respirable aerosol to the patient's lungs within an acceptable treatment period.

This can only be achieved by the correct selection of apparatus. Inappropriate choice of apparatus may result in nebulisation times which are too long for patient convenience, droplet size too large for adequate penetration to the bronchial tree and drug output inefficient for effective therapy. Failure to choose correct drug or system may therefore result in ineffective treatment. (ACPCF 1996)

Clinical Use of Nebulisers in Childhood

Nebulisation therapy is used for a wide variety of clinical respiratory conditions in childhood. (BTS 1997)

• **Asthma** - Nebulisers are used most commonly in acute severe asthma and in children too young to use other devices.

• **Paediatric Intensive Care** - Most non elective admissions to intensive care are related to respiratory disease or failure. The inhaled route is particularly logical for any drug therapy required, both before, or after physiotherapy airway clearance techniques for respiratory problems. Compared with instillation into the trachea, nebulisation results in a homogenous distribution of drug within the lungs. However, there is a paucity of information concerning nebuliser use in paediatric intensive care and in particular in the physiotherapy management of such patients. (BTS 1997)

• **Neonatology** - Several lung disorders in the new-born may be amenable to inhaled therapy. Beta 2 agonists and anti colinergic agents may be effective in mechanically ventilated and spontaneously breathing infants.

Inhaled steroids may be used in bronchopulmonary dysplasia and there has been interest into delivery of pulmonary antioxidants by nebulisation to prevent neonatal lung injury. Delivery of surfactant and pulmonary vasodilators directly to the lung raises exciting possibilities for the treatment of neonatal lung disease. However, animal studies have shown that nebulised surfactant is not particularly effective. Also little is known of the effect of inhaled medication on the immature lung, and concern has been expressed about the possible effects of high dose steroids and of propellants and surfactants in metered dose inhalers. (BTS 1997)

• **Bronchiolitis** - Bronchiolitis is the commonest lower respiratory tract infection of infancy occurring in winter epidemics each year. Ribavirin may be used in the treatment of acute bronchiolitis and is administered by a small particle aerosol generator (SPAG) which produces particles of a drug approximately 1.3um in diameter. Due to the generally benign course of the illness and the costs and difficulties of Ribavirin administration, it is not usually used for infants who were previously well. However, infants with chronic cardiorespiratory disease such as bronchopulmonary dysplasia are at risk of more severe disease and may have increased mortality. There have been few satisfactory controlled studies of Ribavirin therapy in this group. (BTS 1997)

• **Cystic fibrosis** - Nebuliser therapy has made a significant contribution to the management of children with cystic fibrosis, delivering antibiotics, anti inflammatory agents, and bronchodilators to the lungs. Many of these therapies are given as an important component of their physiotherapy management and in relation to their airway clearance techniques. Newer treatments such as DNase, Gene therapy, and alpha-l-antitrypsin therapy are also being developed, all of which may be delivered by nebulisation therapy. The Association of Chartered Physiotherapists in Cystic Fibrosis (ACPCF) have developed comprehensive guidelines for the use of nebulisation therapy in Cystic Fibrosis which are due to be updated, but are still currently available. The Cystic Fibrosis Trust have also recently published a booklet on nebulisation therapy in Cystic Fibrosis (Cystic Fibrosis Trust 1997).

• **Laryngotracheo bronchitis (croup)** - Croup is common in infants and young children due to acute obstruction of the laryngeal area, usually secondary to a para influenza virus infection. The clinical syndrome consists of inspiratory stridor, a barking cough, hoarseness and signs of respiratory distress. Nebulised racemic adrenaline has been shown to improve respiratory distress transiently. The effect is noticeable within 30 minutes and usually lasts less than 2 hours. There is no evidence that the use of adrenaline alters the natural history of the illness but its use may lead to a decreased need for intubation. Its major value is in children in whom temporary relief is required while facilities are arranged to secure the airway. (BTS 1997). Nebulised budesonide results in decreased symptoms and decreased risk of hospitalisation (Klassen TP 1994) and a

risk-benefit assessment of corticosteroids in the management of croup has shown nebulised budesonide to be effective in patients with mild to moderate disease. (Yates RW 1997)

• **Palliative Care.** In adults nebulised morphine with lignocaine can relieve breathlessness, and the cannabinoids can be used for their bronchodilator and tranquillising effect. Nebulised lignocaine has also been shown to be useful for terminal cough caused by pooling of saliva. (Webber BA 1993, Hough A 1996). However, many of the studies so far published have concentrated on single doses of drug and evidence for benefit is predominantly anecdotal.

Choosing a Nebuliser for paediatric patients

A number of problems arise in evaluating nebulised therapy in children including anatomical and physiological variations due to age, compliance, and most especially problems with drug delivery and drug delivery devices resulting in difficulty in knowing the dose received by a patient.

A variety of jet nebulisers are now available but not all models have the same performance characteristics of volume output, nebulisation time and percentage of particles in the respirable range (Dodd ME 1996). The choice of nebuliser should be influenced by consideration of these factors.

Types of nebulisers currently available are:

1. **Conventional jet nebuliser.** The output flow from conventional nebuliser is equal to the input flow from the compressor or driving gas source; i.e. a flow of 6 litres per minute from the compressor will give an output from the nebuliser of 6 litres per minute.

2. **Venturi nebuliser.** The output flow to the patient can be increased by incorporating a venturi (e.g., sidestream) into the nebuliser to match more closely the patient's tidal volume. This increased flow reduces the particle size and increases the amount of aerosol delivered at each breath and decreases the nebulisation time. Nebulisation is therefore more efficient and permits the use of low flow compressors.

3. **Active Venturi Nebulisers** - The output flow from an active venturi nebuliser (e.g., venstream, Pari LC star, Pari LC+) is increased by the inspiratory flow of the patient and may be defined as a breath assisted nebuliser. Because the total outflow is dependent on the individual patient's inspiratory flow, the nebulisation time will vary with each patient, i.e. high inspiratory flow rates are associated with decreased nebulisation times and vice versa. During expiration a valve system within the nebuliser only allows aerosol generated by the compressor source to be exhaled. Less drug is therefore wasted and the system has shown to be as effective as manual interrupted nebuliser. The valve system also enables the exhaled drug to be easily filtered or vented to prevent contamination of the atmosphere. The system is therefore ideal for the delivery of nebulised antibiotics (Dodd ME 1996).

4. Ultrasonic Nebulisers. Ultrasonic nebulisers can produce a higher output than jet nebulisers, but most of the particles are larger being in the range 3.7-10.5um. However, an advantage of ultrasonic nebulisers is that they operate quietly, and a large volume of drug can be nebulised by the insertion of a drug chamber. (Webber BA 1993).

Factors to be considered when choosing a nebuliser for paediatric patients : (BTS 1997)

Patient Factors

(a) Age - It is useful to consider if an alternative more suitable device can be used such as a meter dose inhaler (MDI) and spacer. Consideration should be given to whether a mouthpiece or face mask is to be used, as a mouthpiece is preferred when used properly.

(b) Lifestyle and social circumstance of the patient and his family - is the size, weight and portability of equipment supplied important to the patient and their family.

Drug Factors:

(a) Is the drug to be nebulised a suspension or a solution - some nebulisers may be inappropriate for a drug suspension, for instance, ultrasonic nebulisers and jet nebulisers producing very small particles.

(b) What is the viscosity of the drug to be nebulised - viscous solutions such as some antibiotics may not be nebulised effectively by some nebulisers.

(c) What is to be the expected site of deposition - smaller particles are preferable for alveolar deposition, but are these needed for the delivery of steroids or Beta 2 agonists.

Technical Factors:

(a) Drug output - choose the nebuliser with the highest respirable output in the shortest time, however "breath assisted" open vent nebulisers have not been fully evaluated in children.

(b) Patient compliance - for good patient compliance, consideration should be given to what is the optimum nebulisation time with a proposed drug and nebuliser system combination.

(c) Bio availability - In supplying a more efficient delivery system, it may be that by increasing the dose of drug to the lungs you may also increase the systemic drug affects.

(d) Optimum choice of compressor - the choice of compressor may vary the output of the nebuliser considerably and it should be chosen with a particular drug nebuliser in mind.

(e) Cost of the nebuliser - cost effectiveness of the chosen system is obviously important.

(f) Durability of the nebuliser - Breakdown and servicing costs are important in adequately funding a nebulisation service.

Choosing a Compressor for nebulisation therapy

In order for a drug to be nebulised efficiently a well maintained compressor with an adequate output is required. There are many compressors available on the market which are able to provide the necessary output, but it is often difficult to know which compressor is appropriate for which nebuliser and which drug. The output of a compressor (driving gas flow) is generally measured in litres/minute of air and a rate of output will influence the resultant particle size.

Prescription of nebulisation therapy should provide access to a nebuliser compressor service (NHSME 1992) and this should include:

- Provision of nebulisers and compressors.
- A loan service.
- Emergency provision.
- Repair maintenance.
- Assessment.
- Education with written instructions of use, cleaning service and replacement and what to do if there are any problems with the equipment.

A named contact person with telephone number and clear instructions for out of hours provision are essential. There is increasing concern that patients are unaware of the management of worsening symptoms and its importance (Gregson RK 1995). It is recommended that patients are provided with a crisis plan indicating the important issues to be discussed with their doctor and health professional (Dodd ME 1995)

Organisation of a domiciliary compressor/nebuliser service.

The organisation of a nebuliser compressor service should be supervised by a prescribing physician, but the day to day management of the service is usually devolved to a named individual, for example a physiotherapist, a respiratory nurse, physiological measurement technician or practice nurse running an asthma clinic.

In any domiciliary compressor loan scheme the following points are important to consider.

(a) Compressors should conform to BS5724 (or European Standard equivalent).
(b) Annual service should be performed to include an electrical and performance check (including the electrical leads and plugs).
(c) Electrical and performance checks should be undertaken before being issued to a patient.
(f) Each patient should have their own equipment, the compressor should not be shared between siblings nor between patients colonised with different organisms.
(g) It is important that protocols for all aspects of the service are in place to cover the local needs of the service.

Such protocols should include:

- How to use the nebuliser and compressor system.
- How much drug to use.

- How often to use.
- How to inhale the drug.
- How to clean the nebuliser system and when to replace it.
- How to look after the compressor including when it is serviced and check safety and when to change filters.
- Where to obtain supplies.
- What to do if things go wrong with the compressor nebuliser system.
- Who to contact and emergency telephone numbers.
- An asthma emergency action plan.

Conclusion

Nebulised drug therapy has a very important role in paediatric practice. With the development of new drugs such as DNase and gene therapies, indications for using nebulisers in some paediatric respiratory conditions will increase. Much more work is needed on the basics of drug delivery by inhalation to this age group to ensure reproducible delivery of adequate drug quantities to the desired site.

In the treatment of asthma it is likely that delivery of bronchodilators and prophylactic medications by meter dose inhaler and spacer will become more popular than nebulised therapy, thereby decreasing treatment and cost. However, in children with chronic respiratory disease such as Cystic Fibrosis, PCD, and bronchiectasis, nebulisation therapy will remain a mainstay of physiotherapy management.

Whatever the future role for nebulisation therapy, its efficacy will also depend on good communication between the therapist and the patient and his family being an essential prerequisite for good compliance with the treatment. With the physiotherapist giving sufficient time to answer questions and discuss concerns and fears (Partridge MR 1995), partnership in communication and care should develop between the clinician and the patient. It is also essential that good communication exists between any multi-disciplinary team is also and delivery of the same message regarding provision of nebulisation therapy, by all health professional is vital to avoid confusion.

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The following two short articles are transcripts from lectures delivered at the APCP Conference in Birmingham March 1998.

DR. PETER WELLER

Incidence: 1 in 2,415 live births
U.K. data 1992 6,500 pts.

(Recent survival figures indicate a mean age of 32 yrs.)
10% die by 15yrs.
20% die by 20yrs.
50% die by 30yrs.

There are 600 known genetic mutations of which approx 30 can be tested for.

Most screening programmes look for the 6 most common mutations.

Neonatal screening looks at immno - reactive trypsin (IRT) which is raised in CF - but there are false +ves so it is not yet a robust test. (It is done as part of the Guthrie test)

+ve IRT and mutational analysis is more efficient and also identifies carriers.

Neonatal screening is currently done in Wales, Trent and Norwich. It cost £1.50 per screening.

N.B. THERE IS NO FIRM EVIDENCE THAT EARLY IDENTIFICATION AFFECTS LONG-TERM OUTCOME.

Management of CF.

SARAH SAMUELS
MCSP
City General Hospital
Stoke-on-Trent

Evidence of the improved outcome of Cystic Fibrosis patients is based on research by: Nielson & Schiotz 1982.

The Clinical Standards Advice Group (CSAG) have described 4 levels of care.

Level I	National Resource
Level II	Major Specialist Centre
Level III	Local Specialist Centre
Level IV	Local Hospital

The level I/II centre has functions of:

- Assesment
- Training
- Expertise
- Research
- Liaison
- Transition (from Peadiatric to Adult care)

The service provision for such a centre should allow for a physiotherapist/patient ratio of 1:25 with protected time for out patients. Within this level of provision there must be acknowledgement that in addition to treatment the service can provide: home visits, school visits, equipment.

The CSAG advise that all CF patients have access to a level III centre as a minimum. The level 111/IV centres should provide:

- individual patient treatment plan
- provision of 24hr. physiotherapy cover
- liason with shared care centre

Clinics
Clinics provide opportunities to reassess patients on a regular basis and give a base-line of clinical status for admission

Home visits
Home visits should always be provided for the newly diagnosed, and again at times of exacerbation of repiratory symptoms, also for revision of techniques, problem solving, provision of exercise programmes and importantly for terminal care.

School visits
School visits can usefully educate staff, classroom assistants and pupils about the disease, instruct about day to day management of the condition, provide an opportunity for problem solving, and provide support for the staff involved and the child.

Equipment
All those involved with the care of a child with Cystic Fibrosis should have knowledge of the equipment available e.g. tipping frames and portable postural drainage beds. Provision should be made for funding and ordering this equipment at the appropriate time.

Ward admission
This allows assessment of treatment during an exacerbation.

Liasion
Liasion between all agencies involved in cystic fibrosis care (including patient and carers) is imperative for seamless care.

Education
Education is on-going for the CF patient and their families as well as to up-date the multi-disaplinary team.

Service Development
It is important for physiotherapists and other members of the multi-disciplinary team to move care forwards for patients and their carers.

Treatment technique:
Percussion and postural drainage remain the most popular form of airway clearance techniques(ACT) for young children.

Advice:
- daily if asymptomatic (to encourage good habits and prophylactic care- there is evidence that inflammatory changes are present in the airways of the asymptomatic child)
- 2-4 daily if symptomatic

Treatment should last 10 minutes for infants.

For older children several forms of ACT are available:

- 90% centres use Active Cycle of Breathing Techniques (ACBT)
  i.e. 3-4 expansion exercises
  breathing control
  FET
  cough/huff
  repeat until clear

Huffs can be done at either high or low volume-according to indicators of need.

- PEP
  treatment can be done in sitting
  10-12 tidal volume breaths to reach a steady pressure of 10-20cm H_2O
  remove mask and perform 1-2 forced expirations
- Flutter
  hand held (no associated postural drainage)
  produces oscillatory positive expiratory pressure - the PEP and oscillations are transmitted directly to the airways.
- Autogenic Drainage
  generally not used until the child is at least 12 years
  the use of controlled tidal volume breathing aiming to attain the highest possible airflow in all airways without creating any narrowing.
  It is unforced throughout and has 3 stages:
  Mobilize - low lung volume
  Collect - mid lung volume
  Evacuate - high lung volume
  Patients use an inspiratory pause to improve collateral ventilation.

Summary
In order to provide the best care, physiotherapists must work closely with the multi-disciplinary team. Treatments must be individually designed and physiotherapists should empower patients to know when and how to use the treatments they have been taught. Thay should know how to alter them at times of change and when to ask professionals for help.

MATTHEW'S MUM

Matthew was diagnosed with cystic fibrosis four years ago when he was14 months old. This was obviously a traumatic time for us all but life goes on and we decided we were going to do the best we could for Matthew whilst keeping his life as normal as possible. Having two other young children then aged 4 and 3 also had to be taken into account especially as the younger one was often jealous of the extra time spent with Matthew - this sometimes meant having to do physio on a perfectly healthy child!

We were first shown how to do physio by the children's community physiotherapist in our own home but once left to your own devices it can be quite daunting and at the beginning we often wondered if we were doing it right. However, looking back, physio was easier when Matthew was younger, although he would protest, he was small enough for us to hold him without too much effort and, especially in the evening, he would often fall asleep.

The "terrible twos" and threes proved more difficult. Refusing to co-operate with physio was just one more way for a toddler to try to exert his independence and needed a lot of ingenuity, patience and occasionally brute force to get any physio done at all. Sometimes it was easier to wait until he was very tired and then he would fall asleep, but again only useful for an evening session and you had to remember to give all medication first or he would miss that as well. The community physiotherapist continued to visit us occasionally and we saw the physiotherapist at the CF clinic both of whom gave us support and provided ideas to make physio more interesting, a favourite video proved the most successful ploy although it didn't always work and watching Postman Pat's Big Video for the 40th time can be mind numbingly boring for the parent.

What I think some professionals don't always take into account is that patients with CF have several aspects to their treatment and at the same time as having a toddler who fights over physio, he is also spitting out his numerous medicines several times a day and quite often refusing to eat. It would be easy to let it become one big battle and parents have to try and remain relaxed, sometimes let a toddler think he has won one small battle so we can get the majority of his treatment right. It was quite an achievement to reach the end of the day having done all of Matthew's treatment correctly, but CF doesn't go away and it is all to face again the next day. I think it would be ideal if the community physiotherapist had enough time to do a proper session of physio on a toddler occasionally instead of just asking how you are getting on.

By the age of four things had begun to improve. Although Matthew still protested a lot, it was possible to distract him more, he had a more varied taste in videos, which was good for us, and he could be offered rewards, but on the other hand he was bigger and stronger, so on the occasions when he completely refused to co-operate it was impossible. He was also too big for me to do on my knee, although my husband still can, so this

meant using the wedge. All three of our children regard the wedge as a piece of soft play and it has stood up to some rough treatment. I once caught them using it as a sledge on the stairs! Matthew finds physio on the wedge more comfortable but we can no longer use the television as a distraction as it is too backbreaking to do physio on the floor so I have to do it on the double bed. Fortunately Matthew likes stories so I have to read aloud and do physio at the same time.

Matthew has spent several weeks in hospital during the last year, and the intensive physiotherapy he received during his stay, although he protested often, was very useful for both Matthew himself, as he learned that it was an important part of his treatment, although he might not like it and saw other children doing it too, and for my husband and myself knowing that we have the technique right and learning with Matthew new breathing techniques.

I think it would have been useful to have had a day in hospital when he was first diagnosed to have a more intensive training in physio rather than be shown once and then expected to get on with it.

We find now that the best method of doing physio is to have a strict routine. The morning session is now the easiest, on school days, as I lift Matthew out of his bed on to the wedge on our bed, we do his physio followed by his nebuliser whilst my husband chivvies the other children along. We are lucky to live near enough to school that our older children can go alone and the school is very understanding if Matthew is late. Matthew is getting better at his breathing techniques and even occasionally manages a good huff since we read a story about a dragon who breathed fire.

Evening sessions of physio are a lot more trying, with Matthew using every excuse to delay, but on the occasions when it has been very late and we have decided to let him off he always comes up with the ultimate reason for not going to bed, "I haven't had my physio yet!"

THE MANAGEMENT OF THE WHEELCHAIR CHILD

This article is being reproduced by the kind permission of Owen McGhee from the 1996-97 Annual Report of the Association of Wheelchair Children - *Keeping the ''Wheels of Fire' rolling*

OWEN MCGHEE
Director
Association of
Wheelchair Children

The Problem

The management of the child who regularly uses a wheelchair is principally that of Compensation. Lesions which cause a child to regularly use a wheelchair usually produce permanent, relatively untreatable effects.

One of the main problems these children face is the transition from being cared for as a child to independently coping as an adult, from being managed by parents, teachers and care staff to managing themselves as adults.

The problems are such that many parents fail to produce this transition in their own children. This is because of the habit parents develop, over the years, of looking after the child, or because the parent does not know what the child can reasonably expect to achieve and because of the "technical" problems of living in a wheelchair.

The task of the association of Wheelchair Children is to help solve the problems faced by the child in a wheelchair. Below are outlined some of the problems and solutions applicable to this child.

The Vehicle

It is essential to understand, from the outset that the wheelchair is a vehicle, and like all vehicles it is an item designed to produce mobility. It should perhaps be considered as being more like a bicycle than a chair and that some wheelchairs fall into the same class as racing bikes! Whilst the wheelchair should be comfortable, its function as a seat is secondary to its function as a vehicle.

The User

There are three groups of children who use wheelchairs:

The first is the general user. The child may stand or even walk with callipers for exercise, transferring or access, but for mobility they will use a wheelchair. Obviously, such children must have the right vehicle and therefore be properly trained in the use of that vehicle.

The second group are those children who, although they walk indoors, find that it is too difficult, painful or slow to walk outdoors where the environment is much more difficult. These children may walk indoors but will benefit from the use of a wheelchair outdoors.

The third group of children who may use a wheelchair are those who cannot run. These children sometimes use a wheelchair for sports.

There are two other specific groups of children who might be offered the use of a wheelchair. The first is the child with Muscular Dystrophy. At an early age, this child will start to fall over in the playground and at this point, he or she should be offered a High Performance Wheelchair for use

during play and games. The child and its family will then become accustomed to its use of a wheelchair so that when he or she needs to use an Electric Wheelchair, this use will be easier to accept.

The other specific group of children who may beneficially use a wheelchair are those who suffer from diplegia. This child may walk indoors but may find that walking outdoors is impracticable. Providing that the child's hands are not too badly affected, he or she may be able to use a chair outdoors. They will need a high performance chair and must be able to manage the 4" inch kerb. If he or she has enough control of his hands or arms to backwheel balance a chair "on the run", they may cope in the streets using a chair. Unfortunately, many diplegics cannot use a chair well enough to use it for this purpose.

The Skill

The basic skill that the wheelchair child requires is the Back Wheel Balance. He will use this skill to ascend and descend the 4" kerb, to manage the slope and to negotiate flights of stairs. Every effort must be made to teach the child to backwheel balance. There are other solutions to these problems but these solutions are more restricted in their application.

The Ability

The physical ability which the wheelchair child must have to become proficient in the use of the wheelchair is reasonable control of his hands. Strength is not the issue, control is. If the hands are weak the chair can be altered to enable the child to accomplish the required skills. If, however, the child has control problems with his hands, such as ataxia or spasticity, other, more complex solutions, may be required.

The Chair

There are various designs of wheelchair, each of which has different handling characteristics. The most important feature of a wheelchair which affects its handling characteristics is the position of the back wheel in relation to the backrest. If the back wheel is behind the backrest the chair will be very stable and therefore very difficult to tip onto its back wheels. This will make its use outdoors difficult, dangerous, and often impossible. Unfortunately for many active wheelchair children, the commonly issued child's wheelchair from the NHS, the 8LC, is super stable because of its design. This makes it an excellent climbing frame but a poor outdoor kerb climbing vehicle. When we bear in mind that we start to train the wheelchair child to cross the road at the age of six or seven it is little wonder that we have to reapply for a different chair from the Health Service or obtain funds to buy this child a "private" chair. The really horrifying possibility is that this child may fit into an 8LC until he is 13 or 14! To make matters worse, if that is possible, children are frequently "fitted" into a wheelchair by having a thick cushion placed behind their backs so the seat, in effect, is shortened. This entirely obliterates any chance of them backwheel balancing.

Accessories and Adaptations

Whenever one introduces accessories or adaptations to a wheelchair, one must consider the effect these may have on the handling characteristics of the chair.

Back Cushions profoundly alter a chair's handling characteristics, sometimes rendering it entirely useless as a mobility item. If a back cushion is required for medical reasons, one may either have to move the pushing wheels forward so that the chair can still be tipped by the user, or alter the back canvas to avoid the use of the back cushion completely.

Seat Belts are an item which all children are often compelled to use at all times by those staff looking after them. Clearly, the seat belt should be used when the child is carried in the chair on a motor vehicle such as a school bus. Often, however, the seat belt is superfluous. There is however one occasion when seat belts should never be used by the active wheelchair child and that is if the child is likely to be near water, such as a boating lake or a dockside. He or she must not wear a seat belt then. If a child has to be strapped into a chair because he is likely to fall out, then he must not be allowed near water unaccompanied.

Armrests can adversely affect a child's use of a chair by obstructing access to the pushing wheels. Many children are better off without armrests when pushing themselves around.

Seat cushions will lift the child up, bringing him further away from the pushing wheel. In some chairs with small pushing wheels, the use of a thick cushion may cause the child to lose contact with the pushing wheels. This often occurs with the 8LC because it has small 20" pushing wheels, which are additionally offset backwards, taking the top of the wheel away from the child.

The Training

Mobility training for the wheelchair child begins at the age of four or five, or by eight at the latest. At this age the child is encouraged to backwheel balance as often as possible after sufficient training has been given and competence has been achieved. A suitable wheelchair will, of course, be required (see below). Parents and care staff should particularly avoid pushing the child across the road even if they have to push him up steep hills etc. The quicker he or she learns kerb drill the better. If he lives close enough to school, they should push themselves there as soon as possible, that is to say, at the same age as their class mates. A most important part of therapy for any child who is likely to use a wheelchair for outdoor mobility is the instruction of this skill. Again every attempt must be made to teach this child backwheel balancing for the management of kerbs.

Management of the Urban Environment

The urban environment is considerably more difficult than that of the special school. It is in this environment unfortunately that the wheelchair child is least able to cope due to the lack of suitable chair and suitable

training. Whereas the average child learns to cope in the street at the age of nine or ten by "natural exposure" and instruction, the tendency parents have of excessively "looking after" their wheelchair child actually prevents the child from naturally learning these important skills.

It is therefore an important part of the child's management to be taught these Activities of Daily Living. The easiest way to do this is for the child to push himself to and from school each day. If the distance is too great, it may be possible to arrange that the child or a group of children push themselves home once a week under the supervision of therapists, parents, teachers or adult volunteer helpers. In addition, advantage may be taken of the school holidays to take wheelchair children out into the local shopping centres in order to gain the following skills:

The Management of Chairs on Pavements

The management of chairs on pavements is quite a different problem from that of managing them in the home, school or institution. Indeed, one of the most fundamental divisions between the various types of chairs is the division between the Indoor Chair and the Outdoor Chair. The only way that a child may learn such management is to use the chair on a wide variety of actual pavements.

The Management of Kerbs

Some preparation and skill learning can be done by the child in the gym or at school, but the variety of kerb presentation found in many towns may defeat the child unless experience in the street is offered as part of a training programme.

Kerb Drill

As mentioned earlier, the average child learns, by natural exposure to cross the road safely. Because of the technical problems of chair management and the "looking after" suffered even by adults who use chairs, this natural development of kerb drill and road sense does not occur in the majority of wheelchair children. It has to be taught and respectively practised in real situations.

Going the Distance

Walking endurance is another naturally developing ability which the average child enjoys simply by going to and from school, club, sports facility etc. Pushing endurance almost never develops naturally in the wheelchair child because people always push them and they travel to and from facilities by motor vehicle. These two factors produce incompetence when the child attempts to push himself even one mile. The simplest way to train this ability into the child is by providing regular long distance pushing. We therefore encourage children to push themselves home and to move about the local area during the holidays. We also strongly promote Road Racing as a sport, going from one mile races at the age of eight to 5 kilometre races at the age of ten, then to 10 kilometre races at the age of twelve to half marathons at fifteen.

Orientation and Local Geography Mainly as a result of the continuous use of motor vehicles, the wheelchair child often gains only a very poor concept of his or her wider surroundings and of their local area. However, plenty of street work will offset these effects.

Identification of Local Facilities and their Access When moving about in the local town as they push home from school or move around during the school holidays, children should be encouraged to explore areas and to enter shops, libraries etc., and to remember where various types of shops and facilities are. They also have to remember which shops and facilities offer reasonable access. A spin-off from this activity is that the child's ability and confidence to approach and address staff in such places and to conduct transactions with them is much increased. In the average child this is a skill which develops over a period of time from parental demand. The opposite tends to occur with the wheelchair child as the parent is careful not to let the child out on their own.

Integration In the past, it has been uncommon to see wheelchair children moving about the local town by themselves. Unless members of the public are exposed to wheelchair users moving about in general, they will continue to consider such users as abnormal. By generally moving about the local town by themselves, wheelchair children come into contact and learn to communicate with the general public and in turn become accepted as part of the community.

Public transport As mentioned above, the wheelchair child usually travels further afield by private transport or by special bus. It is important, however, that experience is gained in the use of public transport as much as possible. We frequently take children into the centre of London and elsewhere by public transport so that they may gain this experience.

Apart from work in the gym, the urban environment and sports to produce competence in the wheelchair child, Training Camps may also be used. Attendance at these camps produces the following skills.

Stress The conditions found in the Training Camps are by no means ideal for the wheelchair child in terms of facilities and "care". The child has to rapidly adjust to a hostile environment and cope with the stress which this brings.

Initiative and Decision Making As a result of years of excessive care, the handicapped child often fails to develop initiative and a capacity to make decisions. The training camp gives the child the freedom on one hand and the pressure on the other to develop these interrelated skills.

Very Difficult Terrain All of the remarks made about the management of the urban environment are applicable here. Just as the urban environment is frequently difficult to manage, so is the environment surrounding the training camps. In fact,

the countryside around the camps is entirely unsuitable for wheelchairs. But the successful management of this "obstacle course" greatly increases the child's ability to manage less demanding situations more commonly found.

Activities of Daily Living

Because the usual "care" and facilities enjoyed by the wheelchair child are not available at the training camps the child has to do a greater variety of activities, such as his own cooking and washing up, and has to work harder at the activities he usually does. This type of "overload" means that, on return from the camp, the child is much better able to cope with everyday life.

Independent Medical Management

At the camps, the children are encouraged to manage their own medical problems, be it the management of their own drugs, dressings or of their special toiletting needs.

THE PORTAGE TROLLEY WALKER

PAM EVANS, MCSP
SW Regional Representative.

The National Portage Association has developed a walking aid from an ASDA shopping trolley. This has been widely reported in local and national television programmes and newspapers including The Times and The Daily Mail. The original one was converted from a trolley and a windsurfing harness for a child in North Kent and since then several more have been issued to children.

ASDA have sponsored production and a Trolley Walker has now been sent to every Portage area in the country. The NPA have repeatedly stressed that they will not be issued to a child without the full approval of the child's physiotherapist. It is acknowledged that they are not suitable for all children and that individual assessment is important in every case. They are not to be issued on demand to parents who have seen the publicity if the child is not thought to be suitable.

Following discussion with Jerry Green, who developed the Trolley Walker, one was sent to me in September. Since then several others have appeared locally, having been shown to paediatric physiotherapists by Portage visitors.

There have been some concerns expressed by physiotherapists. The main ones being:

1. Lateral stability, especially if on uneven or sloping ground. The front wheels taper inwards and pressure on the side of the handle causes the Walker to tip.

2. Size, especially height which is not adjustable. They are very large for the average two year old.

3. Safety issues if used as a standing frame. There are no brakes.

4. Danger of being used as a "baby walker" about which there has been so much controversy. It is recommended that the harness is set low to discourage the child from sitting in it but the device remains reminiscent of the traditional baby walker.

Mr Green has recently developed a version which is height adjustable and says that existing Walkers can be adapted, including widening the front wheel base. He has given permission for his letter to APCP to be reprinted in full (see below) and would welcome feedback, comments and queries from paediatric physiotherapists.

The APCP would also like comments please, especially from anyone who has had experience of these Walkers. Please write to me or to the APCP Journal.

NATIONAL PORTAGE ASSOCIATION

c/o 7 Radleigh Gardens, Rochester, Kent ME1 2QR
Tel/Fax 01634 815829

Association of Paediatric Chartered
Physiotherapists
York House, New Road
Swanmore
Hants SO32 2PF
Attention: Mrs Pam Evans

2nd August 1998

Dear Mrs Evans,

Re: The Portage Trolley Walker

Further to your letter dated 3rd July and our subsequent telephone conversation, I am writing to confirm the points which we discussed regarding the Portage Walker.

Firstly, I would like to reaffirm that the NPA are extremely keen to work as closely as possible with the APCP to ensure that the Walkers are only used with children who are suitable for them, and certainly not in any circumstance where the child might be at any risk of injury or medical setback.

The Walkers currently in use (about 15) in Kent have all been issued only with the specific approval of each child's Physiotherapist, and indeed the child's parents have to sign a form which states that loan of the Walker is conditional on its use being "with the full approval and under the on-going guidance of a qualified State-registered Physiotherapist."

Referring to the specific points which were raised in your letter:

1. In terms of CE marking, our understanding having liaised with the MDA is that it does not actually need to carry this; firstly because we are not passing legal title to the Walkers to their users (they remain the NPA's property), and secondly because the Walker is not technically a medical device.

   Having said this, we are keen not to infringe any regulations, and are endeavouring to get the Walkers marked as Class 1 devices anyway; the CE marking is self-regulatory (i.e. there is no outside checking procedure, the manufacturer simply puts a sticker on the product to say that it complies with the regulations), and as the Walkers are being built by a very large & reputable manufacturer, there should be no problem with them meeting the regulations regarding structural strength etc.

   Regarding braking systems, speed limiting devices or devices to stop the Walkers running backwards, they do not currently have any of these fitted, as our experience shows that with the type of child for whom the Walker is suitable, they are not needed.

Because the child has to support itself within the frame of the Walker using its legs, if the Walker starts to run away (for example down a slope), the child inevitably loses its footing and slumps within the harness, and the resulting drag from the child's feet causes the Walker to stop without harm to the child.

A brake can be fitted to the Walker's rear wheels, but we believe that much of the value of the Walker is that it provides a suitable child with the nearest form of mobility to not having an aid at all, and the freedom to move at will in any direction without restriction is an important advantage that the Walker provides.

The Walker has been tested with a number of children on all sorts of surfaces, and has proved exceptionally stable; the original supermarket trolley from which the Walker derives was designed to support a lot of weight (i.e. shopping) at the top of the frame, so with a child's weight suspended 2 feet lower than this, the resulting lower centre of gravity provides a better degree of stability than the original design intended.

In early use of the Walker, it is obviously sensible for an adult to continually supervise its use; once a child gains confidence, it is possible that in unsupervised use the Walker can be toppled, but this is no different to any child learning how to ride a bicycle, and despite enormous use of the existing Walkers (including several enthusiastic boys regularly playing football in them!), I do not know of any injury at all resulting from their use.

With regard to manual handling, there are no problems with the Walker (such as have been experienced with other devices such as the Harte Walker); the harness weighs almost nothing, and you only need to support the child in a standing position while attaching its clips to the frame.

2. Lauren Elvy had been provided with one of the walking frames with 2 small wheels, which proved useless, as she was unable to support herself and immediately toppled over. She was not deemed to have a serious enough impairment to warrant use of a gait trainer, and so had nothing (apart from mum holding her) to help her develop mobility skills.

3. In terms of criteria for its use, a particular child's Portage visitor may recommend that he/she may be suitable for the Walker, but it is always then up to the Physiotherapist to decide.

   From experience we do know that the Walker is only suitable for children with balance & co-ordination difficulties such as mild Cerebral Palsy sufferers; it is not suitable for any child with a significant physical disability.

   The basic criteria for its use seems to be that if a child can make progress with walking & balancing skills with an adult supporting him/her by holding at the hips, then the Walker is likely to be of benefit.

4. The harness is secured around the child's trunk, and is fitted with straps which pass round the thighs to stop it slipping; it is not a "sling" harness.

   Physiotherapists working with the children currently using the Walker have all recommended that the straps holding the harness vertically are slackened so that the child has to support its own weight; when tired, the children do slump down in the harness, but it is not comfortable in this position, and within a short time they are up on their feet again.

   One of the principal benefits of the Walker is that it allows the child lots of free movement within the frame, so that the child can swivel, swing its hips and generally move in a very natural manner, rather than "marching" as gait trainers only tend to allow.

In conclusion, I am grateful that your organisation has taken an interest in the Portage Walker, and hope sincerely that we can work together to ensure that a lot of children benefit from the project.

As I mentioned to you on the phone, we have found so far that many Physiotherapists are quite extraordinarily negative about the Walker, appearing to only look for faults; their attitude has been almost to dismiss it out of hand before they have even seen or tried it.

The Walker is not a gait trainer, and in some instances its use may not even produce any significant medical benefit for a particular child; personally, however, I believe that if the child gains an improved quality of life from the independence that the walker provides, and if the child's parents are spared the sort of problems which caring for a child that has to be physically supported all the time creates, it is beneficial anyway.

As you quite rightly pointed out during our telephone conversation, as Physiotherapists you also have a responsibility to prevent the childrens' parents from developing back problems etc; one of the main benefits Lauren Elvey's Walker has provided is that it has cured the chronic back pains which her mother Lee developed from trying to hold Lauren up manually to develop her walking ability.

The Walker project has attracted an amazing amount of publicity, which has been really beneficial in raising public awareness of Portage and children with special needs in general; with ASDA now offering to sponsor the project on a national basis, you can imagine how keen we are as a charity to make the most of the opportunity this provides.

As we discussed, I will arrange for one of the Walkers currently being manufactured to be sent to you, and obviously your members around the UK will be able to evaluate them through liaison with the various regional Portage units, each of which will be receiving one during late August or early September.

Thank you again for your interest and help, and I look forward to speaking with you again in the near future.

Kind regards,
yours sincerely,

J.P. Green

Communication, collaboration and co-operation

Introduction

The aim of this document is to improve communication, collaboration and co-operation between parents and agencies involved in working with children with motor impairments.

It is the result of consultation between various National bodies (Appendix 1). The guidance is built on principles of good practice and communication and aims to provide a benchmark for local partnerships.

It is hoped that by encouraging greater interagency collaboration, the parents, children and professionals involved will be aware of choices available. This should be based upon accurate and up-to-date information to allow for the provision of appropriate, consistent and clear advice.

Sharing skills, knowledge and understanding is essential to ensure safe and effective care of the child and family. Practitioners from different approaches are encouraged to share experiences and observe others' practice as well as discussing aims and objectives.

Parental choice

Parents and children have a choice and whilst receiving intervention from one source may turn to another approach. Families are encouraged to discuss with the other agencies involved any additional intervention they are receiving, to enable the best plan for their child to be negotiated and agreed.

Practitioners should respect the choice of intervention made by parents and their child, and all services should remain accessible to them, whichever approach they select. Communication between the parents, child and practitioners involved will enable the child to access a co-ordinated service which can be responsive to the needs and priorities over a period of time.

Complementary Approaches

It is very important that those involved with the child's care, communicate regularly with each other. Where possible, practitioners should agree on similar aims and objectives to allow the child to receive the maximum benefit. Good working practices between practitioners will allow complementary approaches to be developed alongside each other and statements of criticism about different interventions must be avoided.

It is recommended that parents and practitioners record and share information, which should be disseminated to those concerned.

1 For ease of reading, 'parent' refers to parent or carer throughout the document.

Appendix 1

This document has been created by the following organisations.
Each organisation produces its own publications/standards of practice: individual organisations should be contacted for further information.

The Association of Paediatric Chartered Physiotherapists
c/o the Chartered Society of Physiotherapy, 14 Bedford Row, London WC1R 4ED
The Association of Paediatric Chartered Physiotherapists is a clinical interest group concerned with all aspects of physiotherapy related to the needs, care and well being of the sick, injured and developing child and family/ carers.

The British Association of Bobath Trained Therapists
The Bobath Centre, 250 East End Road, London N2 8AU
The British Association of Bobath Trained Therapists consists of Physiotherapists, Occupational Therapists, Speech and Language Therapists and Doctors who have completed the inter-disciplinary post-registration course on the Bobath (NDT) approach to the treatment of Cerebral Palsy and allied neurological conditions.

The Chartered Society of Physiotherapy
14 Bedford Row, London WC1R 4ED
The Chartered Society of Physiotherapy is the professional association, educational body and trade union for the UK's 34,000 chartered physiotherapists, physiotherapy assistants and students.

Conductors' Employers' Group
c/o Andrew Sutton, The National Institute,
Cannon Hill House, Russell Road, Moseley, Birmingham. B13 8RD

The National Association of Conductors (NAC)
Liz Zsargo, NAC Secretary, 32 Larchwood, Keel University, Keele, Staffordshire, ST5 5BB
The National Association of Conductors is an association of Peto qualified conductors working in the UK, which aims to promote the interests and standards of conductors in the UK and to play a prominent role in the development of Conductive Education in the UK.

Royal College of Paediatrics and Child Health
50 Hallam Street, London W1N 6DE
The Royal College of Paediatrics and Child Health is the Professional Body for Paediatricians.

Speech and Language Therapists UK Special Interest Group in Cerebral Palsy
c/o The Royal College of Speech and Language Therapists,
7 Bath Place, Rivington Street, London EC2A 3DR.
This Special Interest Group represents The Royal College of Speech and Language Therapists.

UK Federation for Conductive Education
c/o Horton Lodge School, Rudyard, Leek, Staffordshire ST13 8RB
A members organisation of users, parents, professionals and interested supporters, committed to the quality development of conductive education in the United Kingdom.

September 1998

TORTICOLLIS

Different diagnosis, assessment and treatment, surgical management and bracing.

Editor:	**Karen Karmel-Ross**
Publishers:	**The Haworth Press, Inc. - New York**
Published in:	**1997**
ISBN Number:	**0-7890-0316-3 (alk. paper)** **0-7890-0317-1 (pbk)**
Number of pages:	**124**

This text from the U.S.A., edited by a Physical Therapist, is made up of 6 chapters, and clearly reflects the philosophy of a team approach by including contributions from a Paediatric Orthopod, General Surgeon and Therapists.

The book is aimed at several medical disciplines, in particular Physiotherapists working with children. Muscular Torticollis is the third most common paediatric congenital musculoskeletal anomaly. It is most important that when a torticollis posture is encountered, a search for the correct diagnosis is critical in determining appropriate treatment, and the first short chapter on differential diagnosis highlights this.

The second chapter reports on a literature review on the conservative management of congenital muscular torticollis, so that the conclusions are up to date and well documented.

The third chapter is on the "Assessment and Treatment". This chapter presents a systematic approach to the assessment and treatment, with extremely helpful guidelines on evaluation, indicators, measurements, anticipated outcomes and treatment protocols. Although the evaluation form is perhaps too long and involved to carry out with every new patient, ideas can be taken and your own formulated. The illustrations are very clear on the exercise regime and are easy to follow.

The fourth chapter takes a historical look at the role of surgery in this condition and its evolution into today's management principles. It is useful for therapists as it provides guidelines for the timing of surgery.

Different types of collars for both conservative and post-operative treatment are described in the following chapter. The authors believe that a child of 4 months or older benefits from a collar for persisting head tilt. One of the custom made collars appears to be complicated to make, and I am not sure how readily acceptable it would be to a young child and parents.

The final chapter, written by Nancy Hylton, explores the thesis that residual, strong torticollis retained past four months of age appears to have a profound effect on internal sensory maps/body image formation, ability to organise postural responses, mid-line postural stability and patterns of surface loading, and makes for very interesting reading.

After reading this book, it is obvious that future research is needed to answer many questions, and these are highlighted in the epilogue.

This book is extremely thorough and comprehensive, and the depth of the descriptions included on primary and secondary deformities in congenital muscular torticollis is excellent. It is a very valuable source of information and should earn a place in all Paediatric Physiotherapy departments and hospital libraries.

Diane Coggings. MCSP. SRP

PAEDIATRIC PAIN MANAGEMENT
a multi-disciplinary approach

Edited by:	**Alison Twycross, Anthony Moriarty and Tracy Betts**
Publisher:	**Radcliffe Medical Press, Abingdon**
ISBN Number :	**1 85775 246 5**
Cost:	**£17.50**
Number of pages	**176**

As its title suggests, this book is intended to help all members of the multi-disciplinary team (MDT) to ensure that children do not suffer unnecessary pain. It aims to achieve this by providing the relevant background theory to the physiology of pain in children and a strong evidence-based approach to its management. The book informs us that "of the 15,472 pages in the ten most frequently used paediatric textbooks, only 3.5 pages were found to be related to the discussion of pain" - so this text is long overdue.

The book is divided into 11 chapters, some of which stand alone in making useful reading. The first chapter provides a well-referenced literature review, and aims to correct some misconceptions and myths about paediatric pain. The following chapters discuss the adult's perceptions of children's pain, and then contrast this with the child's own perception at various cognitive stages. A clear association between Piaget's stages of cognitive development and the child's ability to conceptualise illness and pain is demonstrated.

A single chapter describes the basic neurophysiological mechanisms which produce pain. This complex subject is presented in a very simplified and easy to understand manner, pitched at the level of undergraduate physiotherapy education. It may not satisfy the more knowledgeable reader, but will meet the needs of many.

The book then goes on to consider a variety of methods of pain assessment. A multitude of tools are briefly described, some with clear illustrations, and suggestions as to their appropriateness and use given. There is a particularly interesting chapter on pain assessment in the pre-verbal child, which again suggests appropriate assessment tools. The authors acknowledge the special problems of assessing pain in children with learning disability (sadly described as mentally handicapped in this 1998 publication!), but fail to offer a solution.

Four chapters are devoted to the actual management of pain, mainly from pharmacological and psychological viewpoints. Moriarty describes how pain relief can be achieved by the use of only four drugs, in the form of an 'analgesic ladder', ranging from oral paracetamol for mild pain, up to combinations of morphine, paracetamol or diclofenac, administered via various routes, for severe pain. Liley considers the management of chronic pain, and briefly describes options for analgesia in several different conditions.

Commonly used physiotherapeutic modalities, such as TENS, massage, use of heat and cold and acupuncture are suggested as non-drug methods of pain control. Surprisingly, given the multi-disciplinary tenet of the book the physiotherapist is not specifically mentioned in the chapter which discusses treatments. However, in the final chapter, which offers recommendations and looks to the future, it is suggested that a physiotherapist should be part of the multi-disciplinary pain team.

The style of the book might not appeal to all readers - lots of bullet points and highlighted boxes used to summarise sections of text - but it is clearly laid out, and easy to pick up as a quick reference. The few illustrations are clear and well-labelled. Each chapter is thoroughly referenced and suggests further reading.

This is a valuable book for the physiotherapist working with children who are experiencing physical pain, whether for an acute or chronic problem, and from the premature neonate to the young adult. It could be considered a 'starter text' containing all major points, but therapists must remember that it is not intended to be a manual of physiotherapeutic modalities. It would be a useful addition to the bookshelf of any paediatric physiotherapist, particularly one working in the acute field, and may be of benefit to other physiotherapists who work on-call in paediatrics.

E.A. Hardy
APCP

PROUD CHILD, SAFER CHILD.
A Handbook for Parents and Carers of Disabled Children

Author:	**Merry Cross.**
Publisher:	**The Women's Press Handbook Series. London 1998**
ISBN Number:	**0-7043-4561-7**
Cost:	**£7.99**
Number of pages:	**206 pages**

Merry Cross, who is herself disabled, writes both as a parent and as a disability trainer and Consultant of over sixteen years experience. Since 1989 she has specialised in the protection of disabled children from abuse and is an experienced writer on this subject.

The content of the book may not, to many, be obvious from the title. The focus is one of an exploration of how abuse can occur in the lives of disabled children, because of the level of intimate care many of them need, the contact they have with numerous people

for a variety of reasons, and the environments in which they are raised and educated.

The book also examines the outward, yet subtle, signs and symptoms that one may observe which could indicate that abuse has occurred or is occurring.

Although the author states that this book is for parents and carers I feel that many of the professionals, e.g. therapists, if not all, dealing with young disabled children would also find it useful to read.

The text is easy to follow even though the subject can be distressing.

The book has a logical format - broken down into three sections : The Children in Our Care, Our Children in The Hands of Professionals and Institutions, Recognising and Dealing with Abuse. These sections cover such aspects as self image, communication, intimate care, sexuality, professionals, medical intervention, schooling, signs and indicators of abuse and what to do if you suspect abuse.

At the end there is a very useful resource and reference section. Despite being a small paperback, this book is packed with very powerful material that should actively heighten and possibly change the non-disabled "carers" (in whatever context), perception and understanding of the potential danger of abuse to the children with whom they work.

It is a valuable resource for all professionals and would promote excellent discussion about practice and useful background material for in-service training and workshops.

If recommended to parents, I feel they would need to be offered an opportunity to talk through many of the issues raised with others - be they friends, family or a professional qualified in this particular field.

I would highly recommend this text as an easy to read, affordable book for any department or hospital library.

Julia Graham BSc (Hons) MCSP
Senior Paediatric Physiotherapist

A MULTIDISCIPLINARY APPRAISAL OF THE BRITISH INSTITUTE FOR BRAIN INJURED CHILDREN (BIBIC) (1995-1997)

Commissioned by the Child Development & Disability Group (A sub group of the British Association for Community Child Health, part of the Royal College of Paediatrics and Child health). Available from the British Association for Community Child Health, 5 St. Andrew's Place, London WC1

Prof. David Hall's foreword to this report outlines what drives many parents to alternative therapy centres like BIBIC and explains why they should be independently scrutinised and why he concludes, in this case, that 'the benefits to children are uncertain... and the demands on the family may be considerable.' He considers it should be available for all prospective users of the centre. It will be of value and interest also, to the many therapists working with brain damaged children not least as a model for solving the often acrimonious disagreements between mainstream and alternative therapy centres and for promoting understanding and collaborative working between them.

The study arose as a response by BIBIC patrons to criticisms of the Institute. It was not a control trial to compare BIBIC with conventional therapy as resources were limited, but a descriptive study of all aspects of the Institute's work and it's effect on a small group of children.

The report is divided into two sections. The first covers an outline of the evaluation process used in this appraisal, the history and theory behind BIBIC, previous studies and their findings, and what happens at BIBIC. Section B describes the developmental profile used by the centre; sets out the findings of the appraisal team and the results of a questionnaire; comments on specific aspects of therapy and outlines conclusions and recommendations.

The objectives of the appraisal were to describe the theory behind the method and the techniques used by

BIBIC (including such controversial aspects as suspended inverted rotation and masking); to see if the children on the programme were altered developmentally and to establish the emotional and psychological effect on carers and siblings.

The appraisers, 2 physiotherapists (Eva Bower and Janet Hankinson), 2 speech and language therapists, 2 child psychologists, 3 paediatricians specialising in neurodisability and 1 in neurology, worked in 2 teams of 5. They assessed 12 children, using a variety of standardised tests, e.g. GMFM, Griffiths, REEL, and behaviour checklists, as the children started their therapy, and then a year later.

The BIBIC development profile, derived from the original Doman-Delacato profile is critiqued in detail. It's 6 subscales are divided into 8 chronologically significant stages. On the mobility subscale the levels were found to be over simplistic and occasionally at the wrong developmental age. They did not take into account rolling or sitting - skills generally considered fundamental in most developmental scales. The language subscales were felt to give an inaccurate and misleading assessment and the manual subscales, though reasonably accurate, needed rethinking at 2 levels. The assessment findings for the 12 children are described in detail, both on the scales used by the appraisers and on the BIBIC development profile: comparisons of the scores given by BIBIC staff and appraisers are shown for the latter.

The 137 questionnaires sent to previous users of the centre, elicited a response of only 15% and disappointingly, the 85% of non-respondents were not followed up. Almost all replies were positive about the benefits of the programme although many noted difficulties with it and mentioned associated financial and employment problems.

The following section comments on 17 specific aspects of the therapy programmes given to the families. It describes techniques and programmes in detail; discusses potential or actual harmful side-effects; outlines weaknesses in the theoretical basis and makes recommendations. It includes comments on the effect of the intensity of the programme on both children and their families and the often significant financial strain placed on families. It raises points about the importance of local services continuing for families and the 'us versus them' attitude fostered by the institute.

A final section sets out 20 conclusions and recommendations beginning with the positive aspects and benefits of the centre for some families, suggesting changes and improvements that should be made and welcoming the institutes willingness to change and form closer links with NHS professionals. A reference section and appendices are included and examples of the questionnaires used.

Significantly the report concludes with a response from BIBIC in which the institute accepts the need for change. They acknowledge that the gulf separating them from orthodox medical approaches cannot in the long term benefit the child with brain injury and his/her family. They look for closer co-operation with established professionals in order to offer 'an appropriate and useful extra dimension to the management of brain injury'.
A postscript suggests that a reappraisal is carried out and published in a year's time.

This report is a most welcome airing of the concerns felt by therapists over many years and BIBIC should be commended for their co-operation and their willingness to make changes. However, there are wider concerns that it does not address, primarily - why are alternative therapy centres able to set-up and operate without regulation? Their often extravagant claims of success attract much one-sided media attention which is impossible for families to ignore and may lead to huge financial and emotional demands on them.

Also it should highlight once again the importance for all therapies of measuring the effect of what they do. Without measurements we cannot know that an 'orthodox' intervention is any more or less effective than any other approach.

Carrie Jackson APCP

The 26th Annual General Meeting

of the

Association of Paediatric Chartered Physiotherapists

will be held on

Saturday 17 April 1999

at the

Sir James Spence Institute of Child Health

Royal Victoria Infirmary, Newcastle

All paid up members of the Association are entitled to attend. Voting will be restricted to full members of the Association and a current membership card will be required.

Minutes of the last AGM are available from the Secretary on receipt of a S.A.E.

Nominations are invited for three committee vacancies.

Nominations should be sent to the Secretary by the end of February 1999 together with the names of a proposer and a seconder who must be paid up members of the Association.

The retiring committee members are:

Fiona Corkhill - CIG Liaison Officer
Kate MacKinnon Alex Winney

Nomination Forms on last page of this Journal

AGM & STUDY DAY

Feet, Hips & Spines
'Everyday problems'

Saturday 17th April 1999
10am - 4pm

St James Spence Institute for Child Health
Royal Victoria Infirmary
Newcastle - Upon - Tyne

Members £25
Non members £30
(lunch Included)

Speakers: Di Coggins MCSP
Val Peat MCSP
Team from Alder Hey Children's Hospital

SUMMARY OF ISSUES DISCUSSED AT THE APCP NATIONAL COMMITTEE MEETING HELD AT THE CHARTERED SOCIETY OF PHYSIOTHERAPY ON 9 OCTOBER 1998

1. APCP/SCOPE
   Joint document "Working Together, Parents and Physiotherapists" currently being printed. A copy to be sent to every Paediatric or Child Health Team in the country. Information will be contained in a binder and may be photocopied.

2. Paediatric Involvement in Intensive Care
   Recent meeting organised by Gwynn Owen to discuss work on Paediatric Intensive Care Units (PICU's) attended by Liz Hardy. Who should undertake this work? It was concluded that:

   - It does not matter who undertakes the work, providing the therapist has the appropriate training to meet the needs of the child.
   - A need exists for a course to be organised on Paediatric Intensive Care. APCP and ACPRC to collaborate on organisation of a course.

   Gwynn Owen will write a paper on the days discussion.

3. Communication, Collaboration and Co-operation
   Final meeting of various national bodies has taken place. The resulting document is to improve communication collaboration and co-operation between parents and agencies involved in working with children with impairments. Copies of the document to be printed in Journals of all participating organisations.

4. Manual Handling Pack
   Aim to proof-read final document before Christmas and go to print in 1999.

5. Asda/Portage Shopping Trolley Walker
   Committee members expressed concern about safety aspects of the 'trolley walker'. The latter has now been distributed to every Portage group in the country.
   Further enquiries to be made.

6. Access to Membership Data Base
   The committee discussed the continuing demands for access to APCP Membership list. Editorial note to be included in next APCP Journal explaining that this is not permitted though there are ways of distributing information to members.

7. APCP Payment to Conference Organisers
   Committee agreed that the £1,000 normally paid to conference organisers should be paid to the London Region currently undertaking the organisation of the APCP contribution to the 1999 National Physiotherapy Conference.

8. Education and Training
   Education committee's work since July focused on Clinical Guidelines. Concern remains on cost of guideline development, which must include multidisciplinary and consumer input. APCP asked to consider producing "Evidence Based Guides to Physiotherapy".
   Judy Mead (CSP) to be approached for further advice.
   Edinburgh M Sc

This course to commence in September 1999 and will include a Double Paediatric Module.

9. Research
Helen Fosman (CSP Research Officer) has written to indicate that NHSE are currently seeking research proposals that they may be able to fund.

Information pack for Commissioning of Physiotherapy Services
A brief outline of the role of the Paediatric Physiotherapist has been drawn up, reviewed and amended. Final document to form part of the CSPs Information Pack.

10. CIG Liaison
National Service Frameworks
Aim of Frameworks is to measure quality of care and achieve national standards of care. Big emphasis on patient surveys. Likely to mean a big change in the commissioning of manpower - the government will want to start integrating manpower planning with service delivery within NSF's Refs: A First Class Service.
May make it more difficult for PAM's to move across services. Currently little input being requested into setting the national agenda. Essential that any SIG contact re: NSF's is fedback to the CSP via Gwynn Owen.

11. Membership
Now stands at 1391. Total number of new members since 1.1.98 is 193.

12. Publications
Tests and Measures Resource Pack
This has now been updated and three additional Standard Measures have been included. Pack to be updated annually.

APCP Leaflets
Updated leaflets to be printed forthwith.

13. Public Relations
PRO reported on several press releases issued by the CSP recently with the aim of raising the profile of physiotherapists.

Scope Leaflets have been reprinted - available from SCOPE helpline.

14. ARC
Proposals for motions to be presented at ARC '99 are urgently required.

15. APCP Conferences
Notice of the AGM and Study Day on 17 April 1999 to be placed in the December Journal.
Details of the National Physiotherapy Conference and APCP programme to also be included.

16. The next meeting of the National APCP Committee will be on Friday January 15 1999 at the Chartered Society of Physiotherapy.

Mary Goy
Hon. Secretary.

A full copy of minutes are available on request from Regional Representatives.

APCP INTRODUCTION TO PAEDIATRICS COURSE

7-11 JUNE 1999

GLASGOW CALEDONIAN UNIVERSITY

This five day course is for physiotherapists who are interested in or who have recently commenced their first paediatric post.

It aims to give an overview of the main aspects of paediatrics. Topics will include Child Development, Neurodevelopmental and Neuromuscular Conditions, Orthopaedics, Respiratory Care and Legal Aspects.

Each participant will be expected to complete a Multiple Choice Questionnaire and a Case Study in order to obtain a certificate from APCP.

The cost will be:

Residential (Full Board)	£330 APCP Members	£350 Non Members
Non Residential	£210 APCP Members	£230 Non Members

For further information and application form please send S.A.E. to:

Lyn Campbell
19 Craigmount Avenue North
Edinburgh
EH12 8DH

APCP PUBLICATIONS

SERIAL SPLINTING IN HEMIPLEGIC "CEREBRAL PALSY" *by Margaret Jones (2nd edition)*	£3.50
THE CHILDREN ACT 1989 *'A Synopsis for Paediatric Physiotherapists'*	£2.50
PAEDIATRIC PHYSIOTHERAPY *Guidelines for Good Practice*	£2.50
DYSPRAXIA - A HANDBOOK FOR THERAPISTS *by Michele Lee and Jenny French*	£5.50
GUIDELINES FOR CALCULATING PAEDIATRIC PHYSIOTHERAPY CASELOADS - FACTSHEET	£1.00
BABY MASSAGE - AN INTRODUCTION FOR PARENTS - FACTSHEET	£1.00
STANDARDS OF PRACTICE - PAEDIATRIC PHYSIOTHERAPY	£2.50
STATUTORY ASSESSMENT OF CHILDREN WITH SPECIAL EDUCATIONAL NEEDS	£4.00
HAEMOPHILIA *by Sue Chillingworth MCSP*	£3.50
TESTS & MEASURES PACK - 2ND EDITION	£3.50

Post & Packing	Single copies	£0.50
	2-5 copies	£1.00
	6-10 copies	£2.50
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CARRIE JACKSON
Research Officer APCP

ACCESS TO THE MEMBERSHIP LIST

From time to time APCP receives requests from researchers for access to the membership list for the purpose of sending out a questionnaire to members.

It has always been APCP policy NOT to sell or give members details to outside bodies whether for market research, product advertising or other reasons. However we are aware that in the present climate, when research to 'prove' clinical effectiveness is so important, we should be actively assisting quality research.

At the recent national committee meeting it was agreed in principle that we were in favour of supporting relevant M level projects or above through the distribution of questionnaires and needed to instigate a system for doing this.

We are discussing with our printers whether questionnaires could be inserted into a random selection of journals and what the costs would be. The alternative system may be to ask regional reps. to take on the task. Once this is done we will produce a standard letter for enquirers outlining the service available and the charges that would have to be made. In this way members details will continue to remain confidential.

If you as a member have any other comments on this proposal we would be pleased to hear from you.

PRO REPORT SEPT 1998

The CSP has issued several **press releases** in the last few weeks, hopefully raising the profile of physiotherapists.

These include:

1. June 5th Major medical condition, linked to delinquency and psychiatric illness significantly reduced by physiotherapy - research by Michele Lee.
2. July 14th Health Professionals call for genuine partnership in the new NHS - reports on a conference held for the Alliance of Health Professionals.
3. July 20th £21BN - but no detail from government on how staffing crisis can be tackled - new money is supposed to include improvements to services for children with special needs.
4. July 23rd Health Professionals express concern over future role and remit of the Pay Review Body - importance of it maintaining its independence.
5. August 12th Pre-school screening for Dyspraxia essential to have children best start in life, say physiotherapists - CSP campaigning in response to Michele's paper.
6. August 26th CSP responds to publication of new waiting list figures - vacancy rates in physiotherapy will not help in the campaign to lower waiting lists.
7. September 4th New survey predicts exodus of skilled NHS staff - PAMS surveyed.

East Anglia Board Conference
Liz Hardy and I represented APCP at Norwich on Sept 19th. Liz presented a really interesting talk, along with her new paper about immature lungs and how this affects chest physiotherapy for very young children.

SCOPE leaflets have been reprinted - 15,000 copies available from Scope Helpline. I will also hold some for exhibitions and Alex Winney also has some. Please contact Scope for copies to give to all your patients, carers and all interested professionals.

The ring binders - information packs developed by Scope and APCP are nearly ready. Mark Fox from Scope has contacted me regarding the distribution of a master copy to all Trusts with a paediatric department. It is very important that every paediatric physiotherapist has access to this new document, which will be freely photocopiable. If you do not receive a copy in the next couple of months please get in touch with me.

Sue Whitby

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EAST ANGLIA

There is a change to our Autumn Schedule of Courses - the Study Day on seating is being re-scheduled from October to March of next year. This will tie-in with our A.G.M. and will be held, as usual, in Cambridge. Other Study Days on Gait Analysis and 'The Moving and Handling Scenario' are being put together for 1999 - Further information in the next Journal. We do hope as many of you as possible are able to attend these Study Days. If you have any specific topics you would like covered, do let the Committee know - that would be greatly appreciated.

TRENT REGIONAL REPORT

The committee is to reintroduce its Newsletter to be sent to Trent members biannually. Members are to be encouraged to apply for study bursaries. The committee has updated the criteria for application. The AGM & Study lecture will be in March 1999 and to encourage attendance, it will be held in the afternoon. A Rebound Study Day is to be held in June 1999, with a discussion afternoon on Educational Statementing to be organised later in the year.

ANN PETERS

NORTH EAST

In September we had an extremely successful study day on Erbs Palsy which was attended by many delegates. It was a lively meeting with much discussion which gave rise to concerns about the neuro-developmental needs of these children.

We have been very fortunate to secure the services of **Lois Addy, Senior Lecturer in Occupational Therapy,** as our tutor for a study day on **'Developmental Co-ordination Disorder' (Dyspraxia)** on 6th February 1999 at The White Hart Training Centre, Harrogate. This course will be limited to 40 delegates so I advise early application if you are thinking of attending. On the same day we will be holding our AGM and will be requiring at least one new committee member. Are you interested?

MARY HARRISON

WEST MIDLANDS

After organising the Annual conference in Birmingham we got back into the swing of things with a varied evening programme for the winter.

The first lecture at Victoria Special School on "floppy babies" was well attended, the next one is the "Move" project by Jenny French at Chadsgrove School on November 11th at 7 o'clock.

The final evening will be an update on "Talipes" by the team at Birmingham Children's Hospital in the Physiotherapy Department at the new Birmingham Children's Hospital, on December 2nd at 7 o'clock. Please remember to renew your membership for 1999, we are currently planning an exciting spring programme.

FIONA NICHOLSON

WALES

We had to postpone our afternoon in September on 'Normal Variations in Orthopaedics' with Lyn Horrocks, as she was away working on a riding for the the disabled programme in Russia - perhaps Lyn would like to share her experiences over there with us one day!

Unfortunately we also had to cancel our Critical Appraisal Skills study afternoon with our local Clinical Effectiveness Support Unit - so we're in the process of rearranging this when possible.

On November 12th we had an afternoon on the Physiotherapy management of Chronic Fatigue Syndrome at the UHW in Cardiff, with presentations from Mike Sadlier, Nerys Thomas (not Hughes as advertised!!) and Belinda Miles.

Looking ahead to next year, hopefully in February, Jenny Carroll from Bobath Cymru will give us an update on recent advances in the world of Bobath! We're also hoping to organise a course on Gait Analysis with Elaine Owen, possibly with the AGM. Ideas for our 1999-2000 programme include topics such as:

Profound and Multiple Learning Disability
Paediatric Orthopaedics
Care of Terminally Ill Child
Any other ideas, let me know!

A JCA Family Support Group has recently been set up at the UHW in Cardiff, with regular meetings and interesting lectures etc. For any further information, contact Jo Scarrott at the UHW.

Congratulations to Chris Batchelor on her new post in Palliative Care. On behalf of APCP Wales, I would like to thank her for all her committed work whilst working in Paediatrics and as a committee member. Best wishes for the future Chris. Good luck to the new Port Talbot Children Centre which opened in

September. Hope all is going well!
Finally, don't forget your membership renewals/ applications ... or else!! Happy Christmas! Nadolig Llawen A Blwyddyn Newydd Dda!

SIAN HOWELLS

SOUTH WEST

The Study Day "Topical Issues in Paediatrics" at Salisbury on 3 October was well attended and received very positive feedback. All the subjects covered stimulated much discussion and interest.

The Wessex CP workshop on the multiple disabled child focused particularly on the management of hip problems and muscle contractures. The next workshop will be in January/February, the subject will be the older child with CP (16+). Contact me for details.

The next Study Day/AGM will be at Dorchester on Saturday 13 March 1999. Subjects will include aspects of paediatric orthopaedics and cranio-sacral therapy. Please write this date in your diary now and contact me for further details.

There is an afternoon on Critical Appraisal Skills at Basingstoke on 15 October, led by Sue Barnard from Southampton University. It has proved difficult to make progress locally on Clinical Guidelines, partly due to the enormity of the task and the lack of a volunteer to lead the group. Thank you to those who have sent copies of standards, protocols, etc.

Thanks to our SW Treasurer, Linda Berwick for her work over the years. We wish her good luck and happiness in her new job in London. We also wish Julia Graham good luck with her MSc.

PAM EVANS

NORTH WEST

We have been able to offer a re-run of the G.M.F.M. Day to those members who have been on our waiting list. It is to be held on October 12th at Alder Hey and thanks go to the team yet again for their hard work in organising this.
The 1999 AGM and Study Morning will be on Botulinum Toxin - venue Warrington. Look out for the advert in the Journal.
Plans are well ahead for the Erbs Palsy Day - May 15th 1999 with Speakers from Alder Hey and Mr Rolfe Birch and his team from Stanmore. It will be open to all professions so please tell OT, Nursing and Medical colleagues.
We will need ideas from you for future topics and speakers for more study days - please let me have your suggestions.
We continue to have funds available for study bursaries for A.P.C.P. local members. Please write to LORNA STYBELSKA at Royal Manchester Children's Hospital, Pendlebury M27 1HA for an application form.
Our video library continues to be well stocked. GILL HOLMES at Alder Hey Children's Trust holds the list of films available for hire. Write to her in C.D.C. Physiotherapy, Alder Hey Children's Trust, Eaton Road, Liverpool L12 2AP + SAE!
Finally. Thank you to everyone who has shown an interest in developing Clinical Guidelines. It is hoped to take a national approach to this led by the Educational Liaison Committee. Watch the Journal for progress reports.

SUE LEACH

NW REGION AGM AND STUDY MORNING ON THE BOTULISM TOXIN TRIAL

Saturday March 6, 1999 at Post Graduate Medical Centre
Warrington District General Hospital
Tutors: Dr. Moore and the Walton team
cost: £15 members £18 non-members
send SAE to:
Mrs Liz Roylance
10 Pool End Road
Macclesfield
Cheshire SK10 2LB

NORTH EAST REGION DEVELOPMENTAL CO-ORDINATION DISORDER (DYSPRAXIA)

Saturday 6th February 1999, 9.00 am - 4.30 pm
White Hart Training Centre, Harrogate
Course Tutor: Lois Addy, Senior Lecturer in Occupational Therapy.
Fee: APCP members £30, non-members £35

The day will consist of lectures and workshops on this topical subject.
Maximum number of participants 40.

Please make cheques payable to APCP - NE
Send to:
Jane Howland - Treasurer
8 Piper Road
Hutton
Driffield
East Yorkshire
YO25 9YY
Tel: 01377 270149

SERIAL SPLINTING IN CEREBRAL PALSY

Date: Tuesday, 2nd February 1999

Venue: Kent & Sussex Hospital
Tunbridge Wells, Kent

Tutor: Elspeth Will
Superintendent Paediatric Physiotherapist
Newcomen Centre, Guys Hospital

Cost: £55.00

For Further Information please contact:
Jane Deavin
Superintendent Paediatric Physiotherapist
Pembury Hospital
PEMBURY Tunbridge Wells Kent TN2 4QJ
Tel: 01892 823535 extn 3254/3
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Please return completed form to: APCP Secretary, Mrs. Mary Goy, Churn Cottage, Fieldside, East Hagbourne, Didcot. OX11 9LQ. to arrive no later than 4 weeks prior to the A.G.M.

Notes for Contributors

The Editorial Board welcomes research material; referenced articles and evaluations of physiotherapy practice; informal articles.

Manuscripts should be sent to Lin Wakely, 2 Ash Bank, Pipers Ash, Chester, Cheshire, CH4 7EH, U.K.

Copy to be submitted should be typed on one side of the paper, double spaced and with ample margins. All pages should be numbered consecutively.

Manuscripts should provide the title of the article and the author(s) name(s) and full postal address for correspondence.

References should be given in the Harvard System.

In text	Author(s) name and initials followed by the date of publication. Use a,b, to indicate more than one publication in the same year. Where there are 3 or more authors use first name followed by et al.
For books	Laszlo, J. & Bairstow, P. (1985) *Perpetual Motor Behaviour* (Rinehart and Winston)
For chapters within books	Morley, T.R. (1992) Spinal deformity in the physically handicapped child, in : G.T. McCarthy (Ed). *Physical Disability in Childhood* (Churchill Livingstone)
For articles	Scott O.M., Hyde S.A., Goddard C.M., Dubowitz V., (1981a) Prevention of deformity in Duchenne muscular dystrophy. *Physiotherapy* 67(6), 177-80.

Tables and Figures

The approximate position of the tables and figures should be indicated in the manuscript.

Keys to symbols should be included.

Tables should be numbered by Roman numerals and figures by Arabic numerals.

Figures should be supplied in a finished form, suitable for reproduction. Figures will not normally be redrawn.

Proofs will be sent to authors if major alterations have been made to the text.

The Editorial Board reserves the right to edit material submitted for publication.

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CYSTIC FIBROSIS

plus

MANAGEMENT OF THE WHEELCHAIR CHILD and THE PORTAGE WALKING FRAME