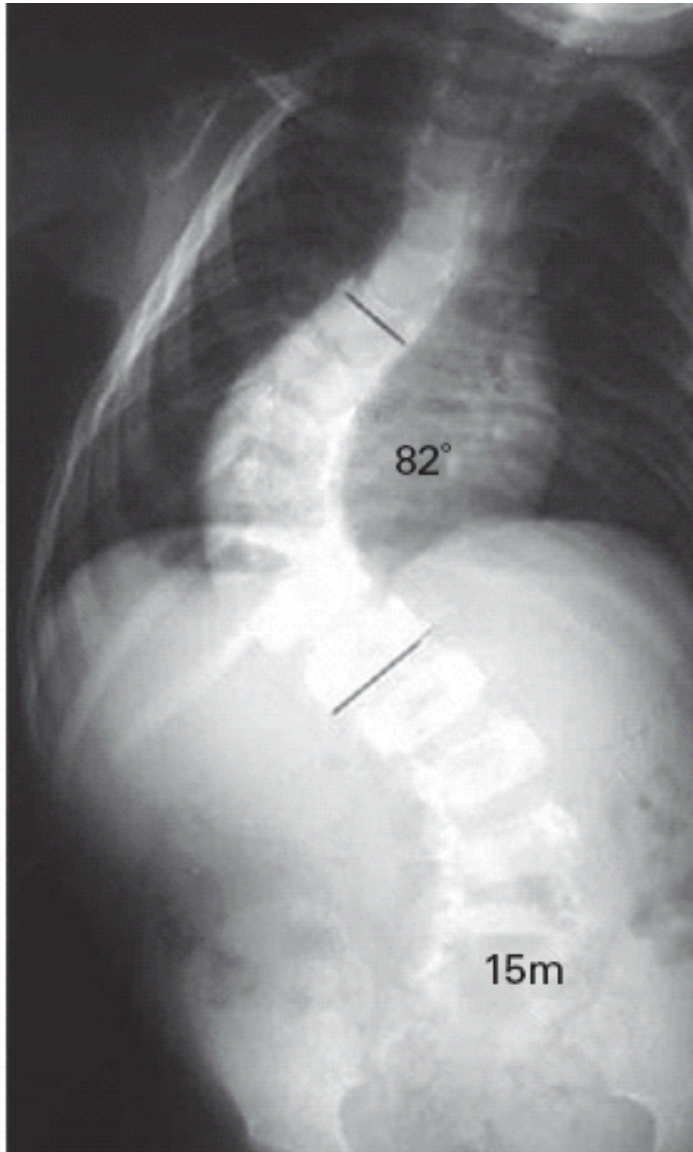


Spinal deformity

BACD, Derby: March 10th 2006.

David Hall.



Scoliosis,
kyphosis and
lordosis



Growth as a corrective force in the early treatment of progressive infantile scoliosis

M. H. Mchta

*From the Royal
National
Orthopaedic
Hospital Trust,
Stanmore, England*

This prospective study of 136 children with progressive infantile scoliosis treated under the age of four years, and followed up for nine years, shows that the scoliosis can be reversed by harnessing the vigorous growth of the infant to early treatment by serial corrective plaster jackets.

In 94 children (group 1), who were referred and treated in the early stages of progression, at a mean age of one year seven months (6 to 48 months) and with a mean Cobb angle of 32° (11° to 65°), the scoliosis resolved by a mean age of three years and six months. They needed no further treatment and went on to lead a normal life. At the last follow-up, their mean age was 11 years and two months (1 year 10 months to 25 years 2 months), 23 (24.5%) were at Risser stages 4 and 5 and 13 girls were post-menarchal.

In 42 children (group 2), who were referred late at a mean age of two years and six months (11 to 48 months) and with a mean Cobb angle of 52° (23° to 92°), treatment could only reduce but not reverse the deformity. At the last follow-up, at a mean age of ten years and four months (1 year 9 months to 22 years 1 month), eight children (19%) were at Risser stages 4 and 5 and five girls were post-menarchal. Fifteen children (35.7%) had undergone spinal fusion, as may all the rest eventually.

17. Cotrel Y, Morel G. The elongation-derotation-flexion technique in the correction of scoliosis. *Rev Chir Orthop Reparatrice Appar Mot* 1964;50:59-75 (in French).

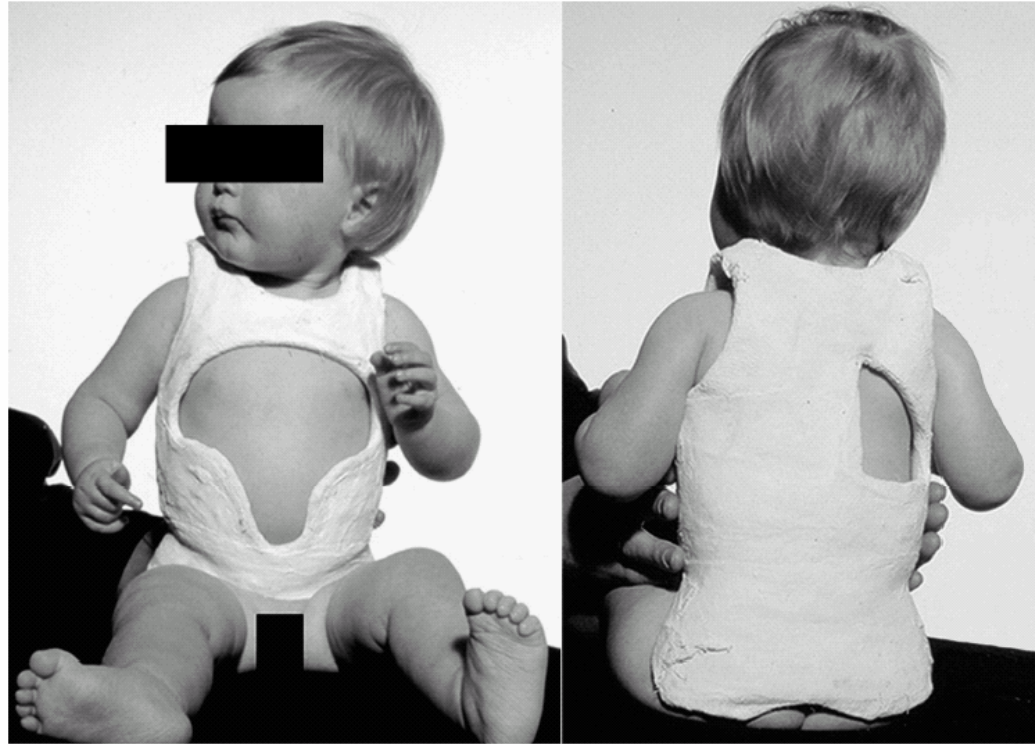


Fig. 1

Photographs of a 13-month-old girl with a left thoracic scoliosis of 45° in her first plaster-of-Paris jacket. The scoliosis resolved at the age of 29 months. She is now 15 years old, post-menarchal and her spine remains straight.

**A review of spinal deformity
services for
children and young people –
with particular reference to
disabled children.**

***London Specialised
Commissioning Group
2004 and 2006***

Work plan (1)

- Expert group
- Defining the problem
- Literature review – natural history, prognosis and intervention
- Consultation with users
- Analysis of activity

Work plan (2)

- Research on current practice
- Literature for users
- Commissioning plan
- Professional standards
- Report

Classification of spinal deformity

- ***Scoliosis Research Society classification:-***
- cases related to congenital bony anomalies &...
- neurological disease:-
 - Cerebral palsies
 - Neuro-muscular disease
 - Syndromic cases
- an idiopathic group
 - early onset (mixed group, including normal asymmetry?)
 - late onset (idiopathic adolescent scoliosis, IAS)



Develop. Med. Child Neurol. 1968, **10**, 82-92

Persisting Head Turning in the Early Months: Some Effects in the Early Years

Peter Robson



Unilateral outward-turning leg in infancy

ROLFE BIRCH, JULIAN WENGER

Abstract

An unreported condition of the legs in infants was found in more than 130 children referred to one hospital from 1973 to 1979. One hundred of these children were studied. One leg, usually the right, lay in external rotation. Although there was no loss or restriction of movement at the hip joints, in most cases there was a difference

Introduction

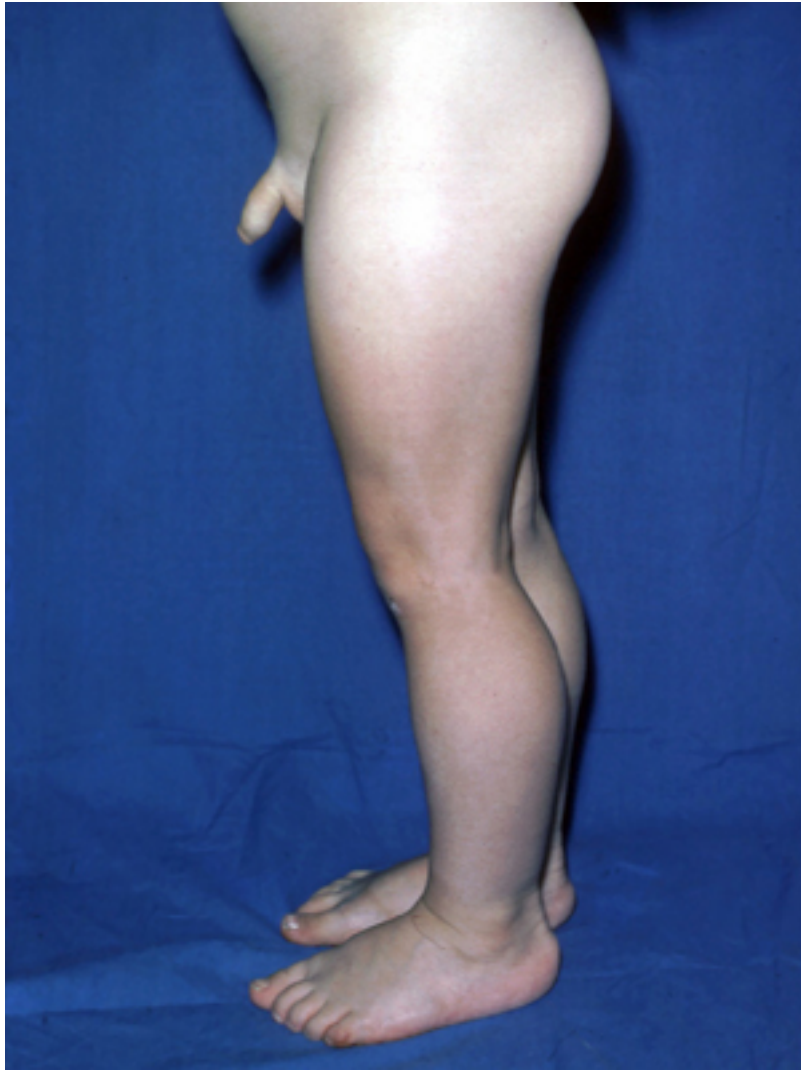
From 1973 to 1979 over 130 children were referred to Queen Mary's Hospital with a condition previously unreported and characterised by one leg in external rotation. This is often referred to as the mother's knee. Wenger



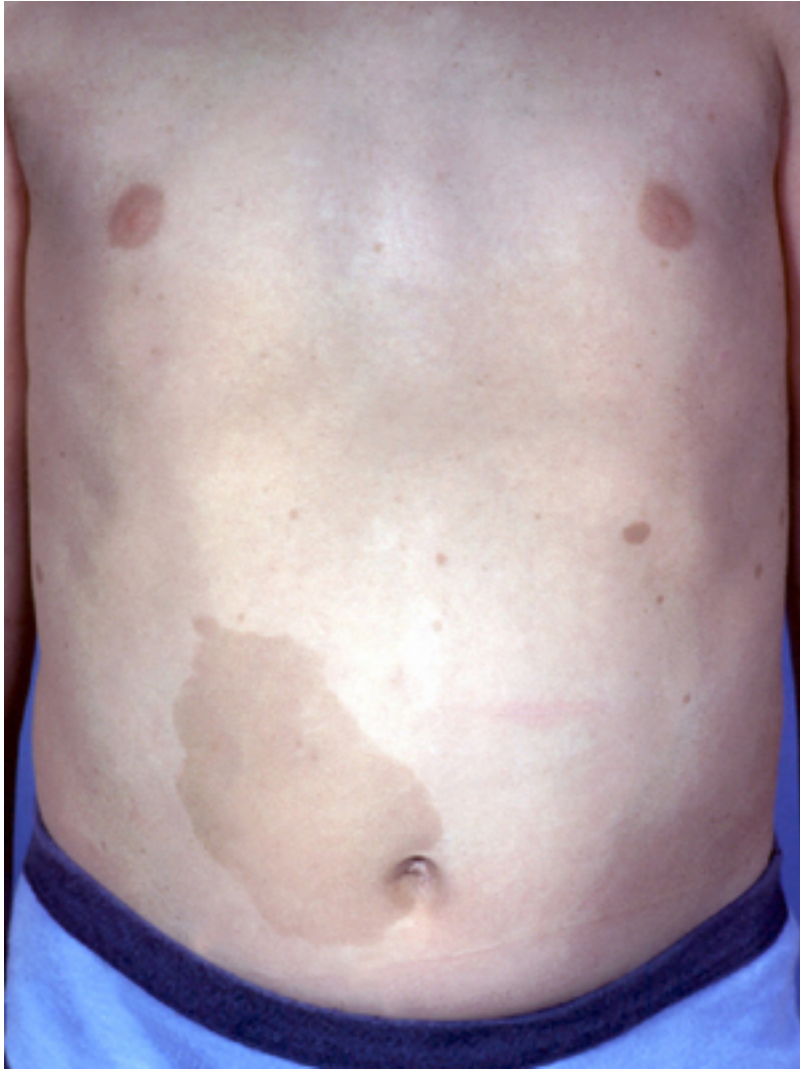
4-limb spastic cerebral palsy



Hemiplegia – low risk of spinal deformity



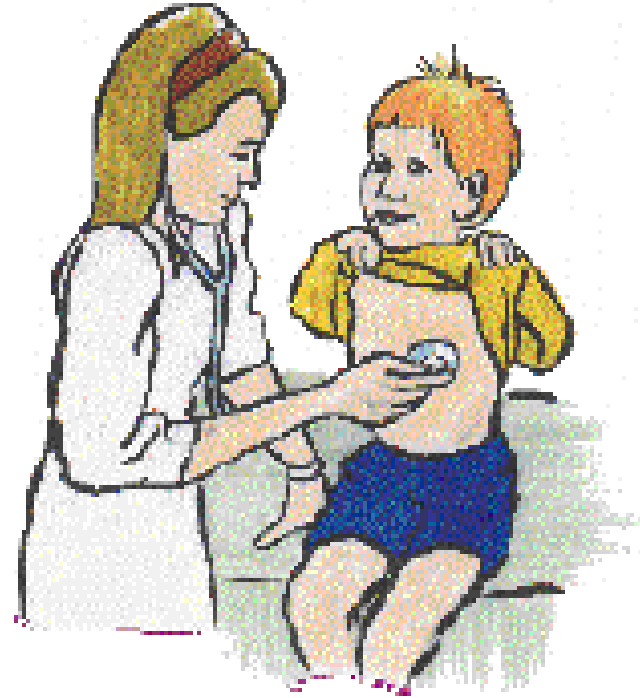
Neuro-muscular disease



Syndromic – e.g., neurofibromatosis

Prognosis – does it matter?

- Cosmetic
- Psychological
- Seating?
- Pain?
- Function?
- Cardiac and respiratory problems?

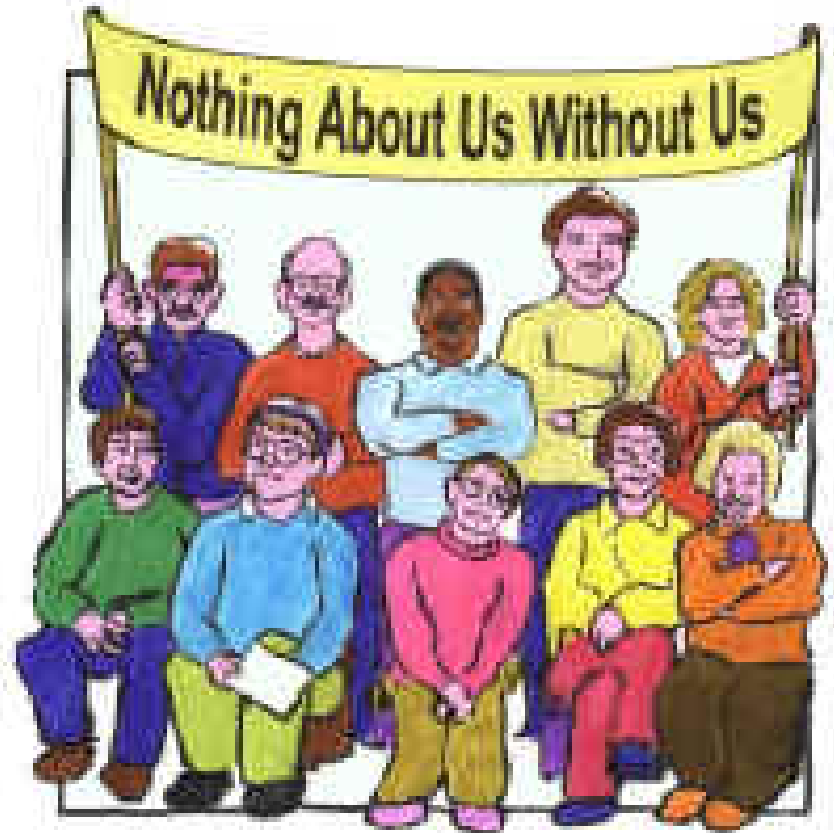


Intervention – the literature

- What are the desired outcome measures – angles, function, pain, long term morbidity and mortality?
- No clear superiority of surgery versus conservative and little evidence on techniques
- No clear evidence of any one approach to monitoring

User consultation – two main themes

- Parents – feeling let down, anger, loss of trust: “should have been warned”; unacceptable delays.
- Quality of service and care – information, courtesy and respect, pain control, follow up.



Activity analysis

- Too many centres doing very small numbers
- Few centres have full range of facilities recommended by spinal surgeons

A Review of Services throughout England for Children with Spinal Deformity

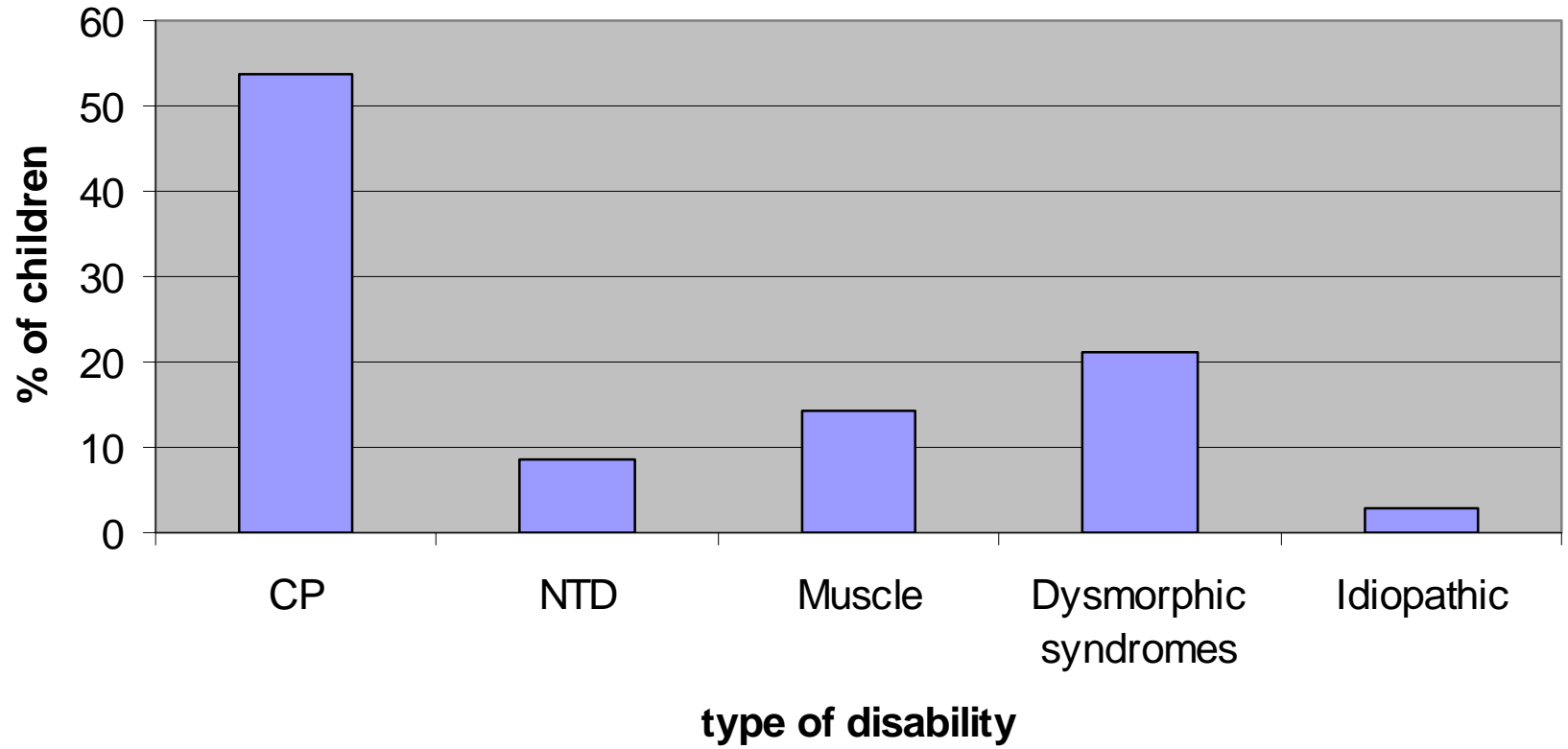
Eva Bower Ph.D., F.C.S.P.

and

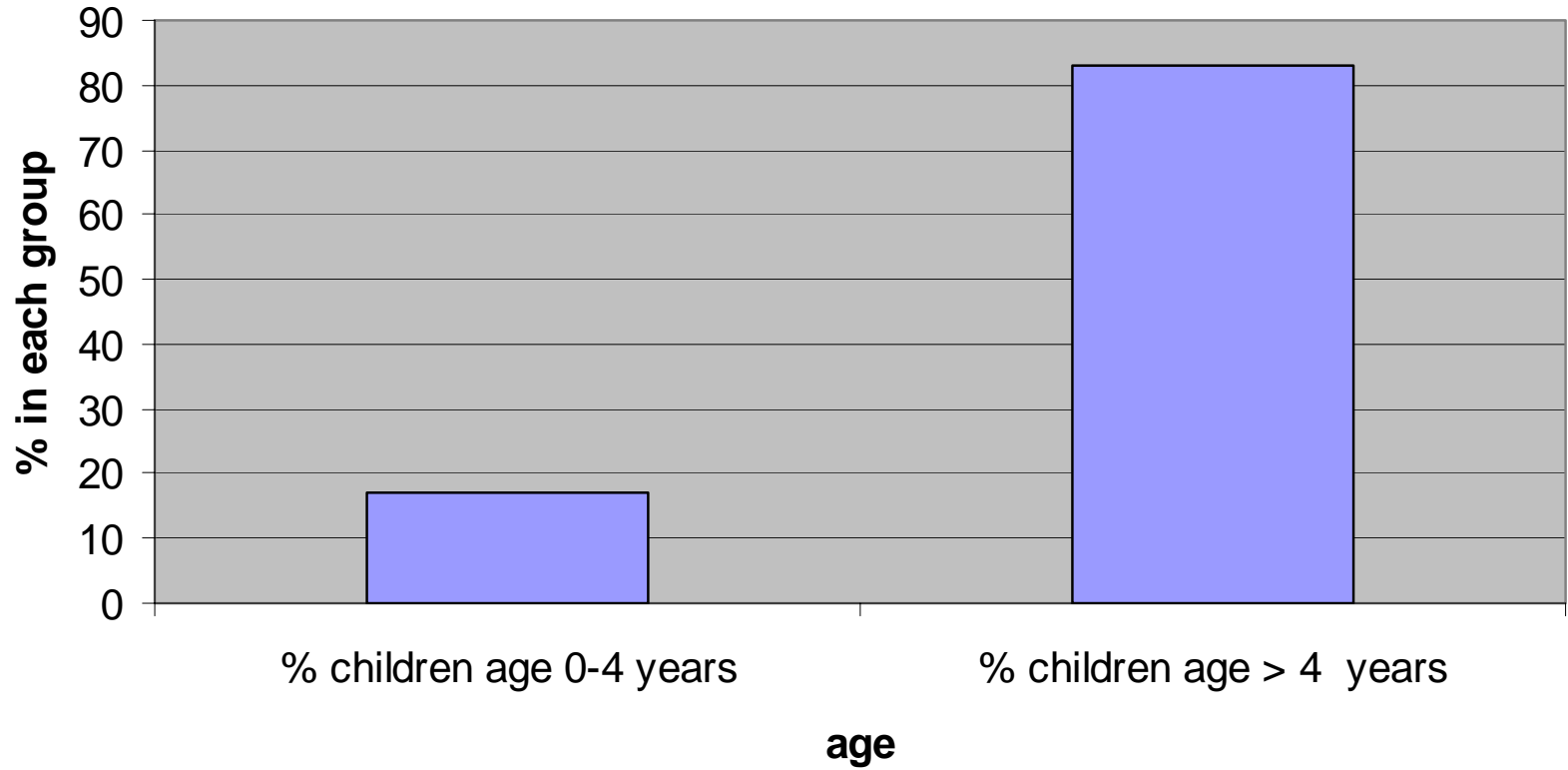
David Hall M.B.B.S., B.Sc., F.R.C.P., F.R.C.P.C.H

Royal College of Paediatrics and Child Health. London UK

Distribution of caseload



age distribution

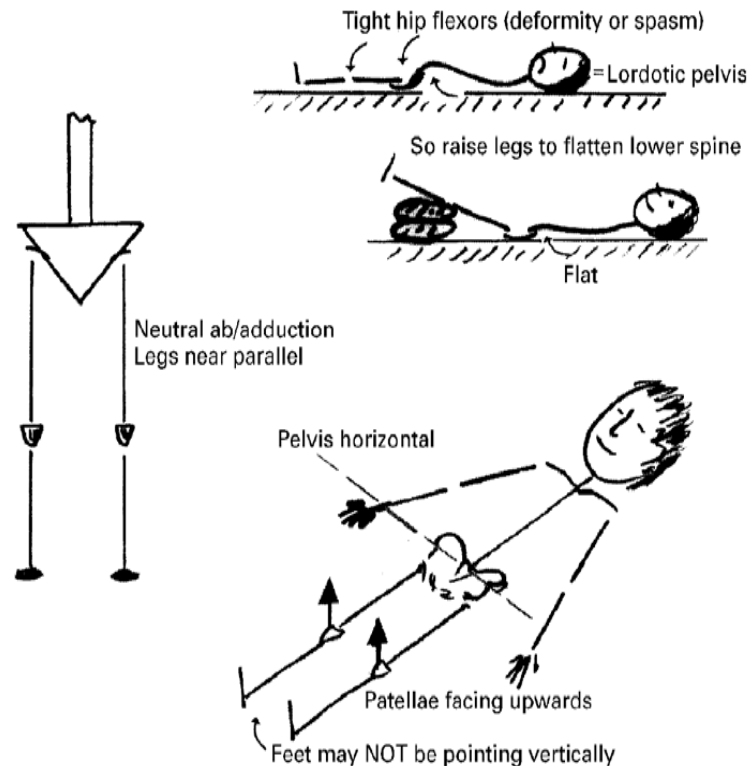


What do CDCs *DO*
and to whom?

Child Development and Disability Group – (survey for spinal deformity working group)

- 69% response rate from 244 people
- 50% felt that their services catered primarily for pre school children
- Varying range of conditions – e.g., not all care for acquired brain injury
- ?how are they caring for the over-5 age group

Monitoring children at risk



Scrutton D, Baird G. Surveillance measures of the hips of children with bilateral cerebral palsy. *Archives of Disease in Childhood* 1997;**76**:381–384.

The problem of monitoring for spinal deformity

- More difficult:
 - Positioning
 - Radiation dosage?
 - Interpretation of X-rays

1	10 (10.7; 0 to 45)	52 (11.6; 11 to 92)	17 (10.2; 0 to 30)	25 (15.3; 0 to 79)	97	37
2	30 (11.3; 11 to 48)	52 (14.6; 23 to 92)	28 (11.5; 0 to 45)	39 (15.5; 4 to 80)	9	33

* RVAD, rib vertebra angle of difference

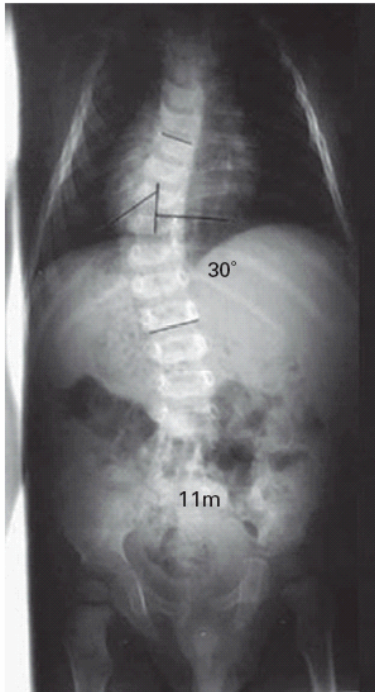


Fig. 3a

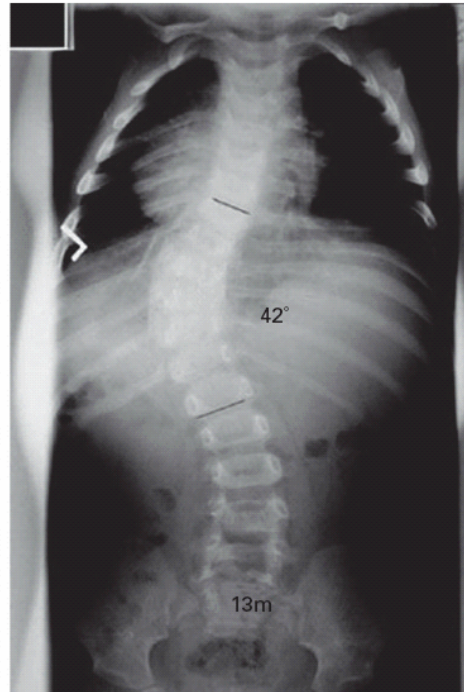


Fig. 3b

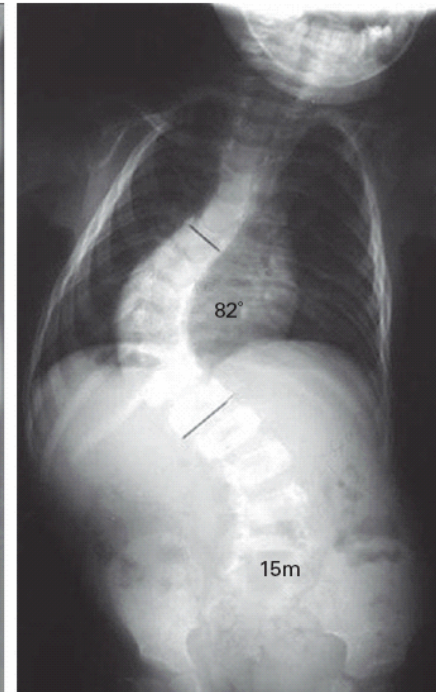


Fig. 3c

Measuring angles – there is significant inter- and intra- observer variation

The problem of monitoring for spinal deformity

- More difficult:
 - Positioning
 - Radiation dosage
 - Interpretation of X-rays
- Less clarity about interventions
- At risk until end of puberty

Recommendations (1)

- Be aware of parents' strong views about access to expertise – even though hard evidence is scanty
- Assess risk

Recommendations (2)

- Comprehensive responsibility for disabling conditions and for whole age range
- Very high risk to be monitored by special clinic (muscle disease etc)
- Others – combine with hip protocol

Recommendations (3)

- Network with children's orthopaedic surgeons and spinal surgery teams – combined clinics if possible
- Reduced number of children's spinal surgery teams with specialist commissioning to ensure quality & full range of support services



Recommendations (4)

- Better parent information (being developed)
- Planned process for children needing major interventions including post-op home support, revised seating etc.



*National Service Framework for Children,
Young People and Maternity Services*

Complex Disability



Further information

- Report on activity
- Early recognition
- X-ray protocol (example)
- Parent literature
- Commissioning information
- Links to other sites
- <http://www.londonspecialisedcommissioning.nhs.uk/>

Thank You

