

Specifying current physical therapy practice for paediatric trials: A survey of United Kingdom physical therapists

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ABSTRACT

Background: Advancing physical therapy interventions for children and young people is a high research priority. This includes research to describe and specify the control condition, typically “current care”, for effectiveness trials.

This paper aims to identify physical therapy outcomes commonly targeted, and intervention techniques and approaches commonly used, by physiotherapists working with children (aged 2-19 years) with mobility limitations in the United Kingdom.

Methods: A cross-sectional survey. Participants were recruited through the interactive Chartered Society of Physiotherapy members-only online discussion forum, the Association of Paediatric Chartered Physiotherapists, direct emails and snowball sampling within the authors’ professional networks, and Twitter. Data were collected using a structured online questionnaire and analysed using descriptive statistics.

Results: We received 146 responses, 95/146 (65.1%) of which were fully complete. Therapists reported targeting 367 unique outcome constructs of which 193 (52.6%) mapped onto activities and participation (e.g. moving around using equipment, maintaining body position, walking), 158 (43.1%) on body functions (e.g. muscle strength, joint mobility, gait functions), 11 (3.0%) on body structure (e.g. muscle length), and 3 (0.8%) on environmental factors (e.g. access home environment, access school environment, family confidence). The most commonly used interventions related to postural management (115/133 of respondents, 86.4%) and exercise therapy (116/137, 84.67%), and included techniques such as ‘use equipment’ (118/137, 86.1%), ‘instruct how to do something’ (117/137, 85.4%), ‘practice’ (105/137, 76.6%), and ‘stretch’ (99/137, 72.3%).

Conclusions: In designing trials, current care can be described as a combination of [biomechanical](#) and physiological techniques and approaches targeted at body functions and through that to activity and participation. While some environmental behaviour change techniques and strategies [were reported](#), the explicit use of these in current care appears limited.

KEY MESSAGES

- Physical therapy outcomes most commonly targeted related to activities and participation, and body functions.
- Physical therapists' practice [focuses on outcomes beyond body structures and functions, including activity, but has further scope to extend to more fully address participation](#) outcomes.
- Contrary to recommendations, physical therapists' consideration of environmental and personal factors affecting participation may be limited.
- Any evaluations where the experimental technique is biomechanically or physiologically based need to clearly specify the control condition in order to avoid contamination.
- Evaluations of techniques targeting e.g. environmental changes, personal factors, or body [structures](#) are much less likely to face contamination as these interventions appear rare in current practice

INTRODUCTION

The current evidence base for physical therapy interventions for children and young people is exceptionally weak (Beresford et al., 2018; Novak et al., 2013), and improving this is a high research priority (Morris et al., 2015). Improving this evidence base will require formal evaluations of interventions against a control – usually stated to be the “current care” (Beresford et al., 2018; James Lind Alliance, 2014). In this, it is important to clearly specify what such current care consists of, in order to avoid contamination between the experimental intervention and the control (Beresford et al., 2018). This is important regardless of the study design; that is, this is an issue affecting all evaluation designs from small case studies to large trials as, conceptually, any evaluation relies on an assessment of comparing the proposed improvement or solution to something else (i.e. to the control).

Specifying current physical therapy care as a control condition involves identifying and articulating the health and wellbeing outcomes targeted in current practice and the intervention techniques and approaches used in relation to them. This is a challenge for paediatric physical therapy, and for allied health and rehabilitation professions more broadly, as often a wide range of outcomes are perceived as important, the interventions are complex with multiple hard-to-define components, and it can be difficult to say who is targeting what with which interventions (Janssens et al., 2014; Kolehmainen et al., 2012). Furthermore, paediatric physical therapy interventions have traditionally been labelled in terms of broad approaches as opposed to specified on the basis of their constituent techniques (Beresford et al., 2018). This means that any short-hand intervention labels tend to refer to different sets of techniques across individuals, groups, contexts, and time (Vaughan-Graham et al., 2015). For example, a ‘home programme’ can include a range of techniques

(Beresford et al., 2018; Novak, 2011). Therefore, to ensure a control condition is clearly specified, there is a need to describe current interventions in terms of their specific constituent 'techniques', or hypothesized 'active ingredients' (Beresford et al., 2018; NICE, 2012), and not just the broad labels.

There is a scarcity of published, up to date descriptions of outcomes and interventions targeted and used by paediatric physical therapists in current practice. The present study described the outcomes commonly targeted, and interventions commonly used, by [United Kingdom \(UK\)](#) physiotherapists working with children with mobility limitations.

METHODS

An online cross-sectional survey design was used. [National Health Service \(NHS\)](#) Research and Development approval was granted for the survey. NHS ethics approval was not required because the participants were service providers.

Participants and recruitment

Participants were UK-based physiotherapists working with children aged 2-19 years with mobility limitations. Mobility limitations was defined to mean children who move around using powered or non-powered wheelchairs or other mobility aids.

Recruitment was through: the interactive Chartered Society of Physiotherapy members-only online discussion forum; the Association of Paediatric Chartered Physiotherapists (APCP), a paediatric professional network within the Chartered Society of Physiotherapy; direct emails and snowball sampling within the authors' professional networks; and Twitter.

Data collection

Data were collected using an online questionnaire (see appendix 1). Data on outcomes targeted and intervention techniques used were elicited through open questions with free text responses. Further data on specific intervention techniques were also elicited using a multiple-choice question based on a list of rehabilitation intervention techniques identified in a previous systematic review (Kolehmainen et al., 2016). Data on broad intervention approaches were elicited using a free text option and a multiple choice question based on a list of approaches identified in a previous systematic review (Novak et al., 2013).

The questions were structured to encourage participants to reflect on their actual, recent practice, as opposed to hypothetical or average cases. Specifically, they were asked to think about children they had seen in the last five working days, and to base their responses on these cases. The questionnaire was piloted with two paediatric physiotherapists and minor amendments were made.

The survey was conducted in February 2016 using SurveyMonkey (SurveyMonkey Inc., n.d.). Email reminders via the [APCP](#) professional network were used to increase the response rate. All responses were anonymous, and data were exported to Microsoft Excel 2016 for analysis.

Data analysis

Respondents' free text responses were coded word by word using content analysis (Krippendorff, 2004) by one researcher (CD) and the coding was checked by a second researcher (NK). The coded data were then sorted into one of four categories: 'outcomes', 'interventions', 'outcome measures', and 'other'. Items coded as 'outcomes' were further mapped onto the International Classification of

Field Code Changed

Functioning, Disability, and Health (ICF) using the published coding rules (Cieza et al., 2002). Items coded as 'interventions' were mapped onto the lists of approaches (Novak et al., 2013) and techniques (Kolehmainen et al., 2016). Items that could not be mapped onto the existing approaches or techniques were sorted into new categories. A key to the coding and mapping of the 'interventions' is provided (table S1, supplementary material). A third researcher (JM) was involved throughout the analysis in generating decision rules and critiquing the coding and mapping. Finally, items coded as 'outcome measures' and 'other' were reported separately in the results.

All the coded data and the multiple choice ('structured') responses about broad approaches and specific intervention techniques were subsequently summarised using descriptive statistics as the number and proportion of outcomes targeted and interventions used by physiotherapists in the last five days.

RESULTS

We received 146 questionnaires, of which 95 (65.1%) were fully completed. All returned data, including from the incomplete questionnaires, were retained and included in the analysis. The majority of respondents worked in community/outpatient settings (111/128, 86.7%) and in the NHS (77/128, 60.2%).

Outcomes

Participants described a total of 367 unique outcome constructs (Table 2). Most of these described activities and participation (193/367, 52.6%) or body functions (158/367, 43.1%). A small proportion related to body structures (11/367, 3.0%), environmental factors (3/367, 0.8%) or other, which consisted of quality of life and

'having fun' (2/367, 0.5%). The spread of the reported outcome constructs across the domains covered 16 activities and participation categories, 12 body functions categories, 5 body structure categories, and 3 environmental categories (Table 2). Some of the outcome constructs (n=28) could not be coded to specific ICF categories but could be mapped to the broad ICF domains of 'activities and participation' and 'body functions'.

In 17 questionnaires, participants spontaneously reported outcome measures in response to the question about outcomes targeted in the last 5 days. The measures reported were: Goal Attainment Scaling (3/17), Gross Motor Function Measure (3/17), Timed Up and Go (2/17), six-minute walk test (2/17), 10 metre walk test (1/17), Therapy Outcome Measure (1/17), Care Aims Framework (1/17), Goldsmith Indices of Body Symmetry (1/17), Berg Balance Scale (1/17), Functional Gait Assessment (1/17), and Spinal Cord Independence Measure (1/17).

Interventions

In terms of broad intervention approaches (Table 3), in response to the open-ended question, participants reported 31 interventions that both generated new categories (e.g. orthotics, gait re-education) and clustered around the existing options (e.g. postural management, equipment provision). Across these and the responses to the multiple-choice questions, the most commonly used intervention was reported as 'postural management'. The least commonly reported were 'hippotherapy', 'treadmill training' and 'sensory integration'. In terms of consistency across the two response modes, one noticeable discrepancy was that 'fitness training' and 'context-focused therapy' were two of the least commonly reported within the open-ended responses,

despite being in the top four most commonly reported interventions within the multiple-choice responses.

For the specific intervention techniques (Table 4), across response options, the most commonly reported were: 'use equipment', 'deliver therapy programme', 'instruct how to do something', 'practice', and 'stretch'. From the multiple-choice responses, the following interventions emerged as commonly used: 'identify solutions', 'instruct what to do', 'identify and set goals', 'demonstrate how to do something', and 'cue/prompt' but these results were not replicated within the open-ended responses. The least commonly reported were: 'constrain', 'sensory stimulation', 'grade', 'explore' and 'compare performance to goals or baseline'. 'Resistance' (i.e. strengthening exercise) was commonly reported within the open-ended responses but was not provided as an option in the multiple-choice list on the questionnaire. Across the different response options, eight intervention techniques were not reported at all within the open-ended responses. At least half of respondents reported having used almost all of the techniques (15/18) in the last five days. Five respondents commented that they usually use more/all of the techniques, but outside of the five-day period investigated.

The majority of responses mapped to 'use equipment' were in reference to postural management equipment (e.g. standing frames, walking frames, and sleep systems), and some of the responses mapped to 'deliver therapy programme' were in reference to a postural management programme. This corresponded with spontaneously reported broad approaches and specific techniques, where the most commonly used interventions related to postural management' (including 'use

equipment' and 'deliver therapy programme'), 'orthotics', 'resistance' (i.e. strengthening), and 'deliver therapy programme' (i.e. specifically exercise programmes, having accounted for postural management programmes).

Looking across all the intervention responses, there was some convergence in that techniques and approaches broadly related to postural management were commonly reported while those broadly related to hippotherapy were rarely reported. The most noticeable divergence was in relation to the use of Bobath/Neurodevelopmental Therapy, fitness training, and context-focused therapy. Half of respondents indicated using these with a specific child in the last 5 days when asked a structured question, but fewer than 5% spontaneously reported having used them. Similarly, for the following techniques the structured question consistently elicited considerably higher reported use: 'identify solutions', 'instruct "what to" do', 'identify and set goals', and 'demonstrate how to do something'.

DISCUSSION

This study sought to identify outcomes commonly targeted, and interventions commonly used, by physiotherapists working with children (aged 2-19 years) with mobility limitations. The study found that the outcomes most commonly targeted related to activities and participation and body functions. The most commonly used interventions focused on postural management and the delivery of exercise therapy programmes including 'use equipment', 'instruct how to do something', 'practice', and 'stretch'. There was divergence in responses to the structured question and spontaneously reported responses about broad intervention approaches and specific intervention techniques.

Key strengths of the study were the use of different modes of questions to elicit responses which allowed triangulation, and the use of two researchers to systematically map outcomes, intervention approaches, and intervention techniques, which enhanced reliability. The main limitations were the lack of information on the absolute response rate and characteristics of non-responders and the related inability to assess selection bias and representativeness. The reliance on self-report introduces the potential for recall bias, although this is likely to have been reduced by the focus on specific cases seen in the past five days as opposed to respondents' abstract sense of their own practice.

The findings from the present study align with and expand a recent qualitative study that scoped therapy practice for children and a Delphi study of multi-disciplinary professionals that identified key health outcomes for children (Beresford et al., 2018; Janssens et al., 2014). Both of these previous studies reported that therapists placed importance on outcomes related to body structure and functions, activity and participation. The qualitative study further suggested that [therapists targeted](#) body structure and functions and activity outcomes as intermediate outcomes to the ultimate outcome of participation, e.g. by reducing pain and helping a child to use a trike, the child could participate in play opportunities. The present study concurs with these results quantitatively, showing the weight that therapists seem to place on outcomes [related to body functions, activity and participation](#) compared to others e.g. body structures or environmental changes. The present study further expands the qualitative work by specifying, at a more granular level, the interventions used. The present study also covers a broader population [than the studies above](#).

The findings from the present study suggest that physical therapists' practice, or at least their perceptions of their practice, not only focus on body function as once assumed, but do integrate a focus on outcomes from within the 'activities and participation' domain converging with the wide recommendation for their practice to focus on participation outcomes (Burslem et al., 2016). However, it appears the outcomes of focus are more within basic activities (e.g. 'moving around using equipment', 'walking') than participation. This suggests a need to further consider how participation outcomes could be a bigger focus. Contrary to the recommendations of Burslem et al (2016), physical therapists' consideration of environmental and personal factors affecting participation may be limited. Physical therapists are not using a common language when describing intervention outcomes (that common language being the ICF) thus making it difficult to identify the intervention outcomes commonly targeted in the UK. This lack of common language makes it difficult to specify current practice amongst individual therapists, NHS trusts, and different sectors i.e. NHS vs private.

In terms of future physical therapy research, the present study provides a clear basis for future evaluations of interventions by defining the intervention techniques likely to be present in current practice. On one hand, the results suggest that any evaluations where the experimental technique is biomechanically or physiologically based, e.g. a postural management or exercise technique, need to very carefully consider how the control condition is stipulated in order to avoid contamination, and include methods to capture and analyse the specific control condition – a mere unspecified statement of “current care” is unlikely to provide a solid foundation for an effective evaluation.

The present study could be used as a basis for considering a definition of the control condition in future evaluative research. On the other hand, evaluations of techniques targeting e.g. environmental changes, personal factors, or body structures are much less likely to face contamination as these interventions appear rare in current practice.

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TABLES

Table 1. Participant demographics

Area of clinical practice [†]	%	n
Community/outpatient	86.7	111
Acute	15.6	20
NHS	60.2	77
Private sector	8.6	11
Other*	12.5	16
Country		
England	83.6	107
Scotland	7.8	10
Wales	5.5	7
Northern Ireland	3.1	4
Total respondents		128

[†]Respondents could select more than one option (n=128)

*Other: charity, voluntary, social enterprise, special school, research

Table 2. Outcomes reported by participants

Domain	Category	Example of data covered by/ded into the category	n	%
BODY FUNCTIONS		'Improving function', 'functional goals'	8	2.2
	b730 Muscle power functions	'Muscle strengthening', 'core strength', 'improve lower limb strength'	48	13.1
	b710 Mobility of joints	'Range of movement', 'improve knee extension', 'prevent contracture'	40	10.9
	b770 Gait pattern functions	'Improve gait pattern', 'gait re-education'	19	5.2
	b455 Exercise tolerance functions	'Conditioning', 'endurance', 'stamina', 'exercise tolerance'	14	3.8
	b735 Muscle tone functions	'Normalise tone', 'tone reduction', 'altered tone'	7	1.9
	b715 Stability of joints	'Core stability', 'hip stability', 'trunk stability'	7	1.9

	b280 Sensation of pain	'Pain reduction', 'pain management'	6	1.6
	b1 Mental functions	'Self-esteem', 'sequencing skills', 'improve awareness of space'	3	0.8
	b760 Control of voluntary movements	'Selective movement', 'bilateral use of arms'	2	0.5
	b799 Neuromusculoskeletal and movement-related functions, unspecified	'Weight-bearing'	2	0.5
	b429 Functions of the cardiovascular system, other specified and unspecified	'Increase cardiovascular output'	1	0.3
	b445 Respiratory muscle functions	'Chest clearance techniques'	1	0.3
ACTIVITIES AND PARTICIPATION		'Independence', 'functional independence', 'safety awareness', 'active participation'	20	5.4
	d465 Moving around using equipment	'Wheelchair skills', 'independence with mobility aid', 'walking with a device'	28	7.6
	d415 Maintaining a body position	'Balance', 'improve posture', 'symmetry in lying'	25	6.8
	d450 Walking	'Distance walked', 'walk independently'	22	6.0
	d4154 Maintaining a standing position	'Supported standing', 'standing balance', 'single leg stand'	21	5.7
	d420 Transferring oneself	'Independent transfers', 'safe transfers', 'standing transfers'	17	4.6
	d499 Mobility, unspecified	'Improve mobility', 'outdoor mobility', 'increase distance'	16	4.4
	d820 School education	'Access school curriculum', 'participation in physical education'	9	2.5
	d410 Changing basic body position	'Sit to stand', 'develop independent stepping', 'improve ability to step up and down a step'	8	2.2
	d5 Self-care	'Weight reduction', 'comfort in chair', 'promote self-help skills'	6	1.6

	d4153 Maintaining a sitting position	'Sitting balance', 'seating posture to improve upper limb function'	5	1.4
	d455 Moving around	'Active movement in water', 'reciprocal crawling pattern', 'independence on stairs'	5	1.4
	d9 Community, social and civic life	'Promoting community access', 'access to leisure'	5	1.4
	d1 Learning and applying knowledge	'Postural awareness', 'experience of movement'	3	0.8
	d429 Changing and maintaining body position, other specified and unspecified	'Gross motor milestones'	1	0.3
	d4608 Moving around in different locations, other specified	'Maintaining mobility at home and school'	1	0.3
	d310 Communicating with - receiving - spoken messages	'Be able to stop powered wheelchair on verbal command'	1	0.3
BODY STRUCTURES				
	s7702 Muscles	'Muscle length', 'maintain muscle integrity'	7	1.9
	s750 structure of the lower extremity	'Prevent foot posture deterioration'	1	0.3
	s770 additional musculoskeletal structures related to movement	'Maintain bone density'	1	0.3
	s7701 joints	'Joint integrity'	1	0.3
	s799 structures related to movement, unspecified	'Tissue length'	1	0.3
ENVIRONMENTAL FACTORS				
	e155 Design, construction and building products and technology of buildings for private use	'Access home environment safely'	1	0.3
	e150 Design, construction and building products and technology of buildings for public use	'Access school environment safely'	1	0.3
	e410 Individual attitudes of immediate family members	'Family to feel confident in accessing mainstream swimming facilities'	1	0.3
Other		'Quality of life', 'having	2	0.5

		fun'		
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Table 3. Intervention approaches

Intervention Approaches	structured question (n=133 ^a)		spontaneously reported (n=139 ^b)	
	%	n	%	n
Postural management	86.5	115	12.2	17
Bobath/NDT	69.2	92	4.3	6
Fitness training	62.4	83	1.4	2
Context-focused therapy	40.6	54	0.0	0
Hydrotherapy	36.1	48	14.4	20
Other*	18.1	24	12.2	17
Casting	16.5	22	2.2	3
Rebound therapy	9.0	12	5.8	8
Sensory integration	8.3	11	0.0	0
Treadmill training	6.8	9	1.4	2
Hippotherapy	3.0	4	0.7	1
			New categories	
			Orthotics	27.3 38
			Gait re-education	7.9 11
			Co-ordination of care	5.8 8
			Balance activities	4.3 6
			Botox	2.9 4
			Unable to code	2.2 3

^anumber of respondents=133, ^bnumber of respondents=139

*'FES', 'robotics', 'human sandwich approach where gravity eliminated and gravity assisted activities are incorporated to reach goals', 'exploring movement', 'MOVE', 'kinesiotaping'

Table 4. Intervention techniques

Intervention Techniques	structured question (n=137 ^a)		spontaneously reported (n=139 ^b)	
	%	n	%	n
Identify solutions	87.6*	120	0.0	0
Instruct "what to" do	87.6*	120	2.9	4
Use equipment	86.1	118	64.0	89
Identify and set goals	85.4*	117	1.4	2
Instruct "how to" do something	85.4*	117	11.5	16
Deliver therapy programme	84.7	116	49.6	69

Demonstrate how to do something	82.5*	113	0.0	0
Cue/Prompt	80.3*	110	2.2	3
Practice	76.6	105	13.7	19
Identify antecedents, facilitators and barriers	75.9*	104	0.0	0
Feedback	74.5*	102	0.0	0
Reward	73.0*	100	0.0	0
Stretch	72.3	99	11.5	16
Compare performance to goals or baseline	58.4	80	2.2	3
Explore	52.6	72	0.0	0
Grade	48.2	66	0.7	1
Sensory stimulation	29.9	41	0.0	0
Constrain	9.5	13	0.0	0
Resistance	Not included in survey		23.7	33

^anumber of respondents=137, ^bnumber of respondents=139

*>70% difference in respondents compared to spontaneously reported

APPENDICES

Appendix 1: Online questionnaire.

A Survey of UK Physiotherapy Interventions for Children with Mobility Limitations

INFORMATION SHEET

Physical therapy interventions for children with mobility limitations

Principal Investigator: Catherine Duff

Co-Investigators: Niina Kolehmainen and Jennifer McAnuff

Background

There is a lack of evidence about the interventions used in children's community physiotherapy in the UK, and about their effect. This survey is the first part of a bigger programme of work to advance this evidence.

A key starting point for advancing research into physiotherapy interventions is to estimate the use of current interventions in the NHS.

Aim of this survey

To scope what physiotherapy intervention techniques are commonly offered by NHS therapists to children with mobility limitations; and what outcomes these interventions target.

How will the results be used?

The results of the survey will help to identify which interventions are important to focus on for research.

To complete the survey

If you decide to take part in this study, you will be asked to complete a survey that will take about 10 minutes to complete. The survey will ask questions about which interventions you currently offer.

You can skip any of the questions you do not want to answer. All of the information we collect will be stored in a secure manner and only study team members will have access to it. There are no other expected risks. There are also no expected benefits. All answers will remain anonymous. You do not need to provide your name.

Your participation in this study is completely voluntary. You are free not to participate or to withdraw at any time, for whatever reason. No matter what decision you make, there will be no penalty or loss of benefits to which you are otherwise entitled.

For more information or questions about this research you may contact Catherine Duff at c.duff1@nhs.net or 07985258996.

Research governance and funding

This study is funded through Research Capability Funding from Leeds Community Healthcare NHS Trust. The survey has an NHS R&D approval. REC approval is not required because the survey collects data only from staff.

This questionnaire is about children with mobility limitations. For the purpose of this survey, this means children who move around using wheelchairs (powered or non-powered) or other mobility aids.

1. Do you have children on your caseload aged 2-19 years who are independently mobile using a wheelchair (powered or non-powered) or a mobility aid (e.g. posterior walker or crutches)?

Yes – please continue to Question 2

No – you do not need to complete further questions. Thank you for your time!

QUESTIONNAIRE – PART 1: Outcomes and Interventions for recent cases

2. Think about children with mobility limitations who you have seen **in the last five days**.

2a) What outcomes have you been targeting with these children with mobility limitations who you have seen in the last five days?

2b) What specific actions have you taken to achieve these outcomes with these children?

QUESTIONNAIRE - PART 2: Specific intervention techniques used in the past 5 days

3. Continue to think about children with mobility limitations who you have seen in the past 5 days. Tick all the things that you have done with these children in the last 5 working days. (select all that apply)

	Technique	Examples
<input type="checkbox"/>	Identify and set goals	<ul style="list-style-type: none"> ▪ <i>define goals</i> ▪ <i>determine motor tasks, goals</i> ▪ <i>establish functional goals, goals in terms of skills, priorities with parents and child</i> ▪ <i>prioritise and/or set (goals)</i>
<input type="checkbox"/>	Identify antecedents, facilitators and barriers	<ul style="list-style-type: none"> ▪ <i>assess functional motor performance</i> ▪ <i>collect information about the physical and social environments of the child</i> ▪ <i>identify factors within the task/environment that help/hinder child's performance</i> ▪ <i>observe child's difficulties</i>
<input type="checkbox"/>	Identify solutions	<ul style="list-style-type: none"> ▪ <i>find solutions for motor problems</i> ▪ <i>problem solve</i> ▪ <i>identify strategies</i> ▪ <i>develop ideas and/or plans</i>
<input type="checkbox"/>	Compare performance to goals or baseline	<ul style="list-style-type: none"> ▪ <i>evaluate goal achievement</i> ▪ <i>evaluate outcomes</i> ▪ <i>monitor own progress</i> ▪ <i>review individual participants' goals</i> ▪ <i>'systems review' (i.e. review positive/negative effects of relevant systems on the selected activity and adapt intervention plan)</i> ▪ <i>measure outcomes</i>
<input type="checkbox"/>	Use equipment	<ul style="list-style-type: none"> ▪ <i>provide equipment</i> ▪ <i>set up equipment</i>
<input type="checkbox"/>	Feedback	<ul style="list-style-type: none"> ▪ <i>encourage through visual feedback</i> ▪ <i>present standardized feedback</i> ▪ <i>provide feedback (multimodal sensory, real-time)</i> ▪ <i>give immediate feedback on task performance and results</i> ▪ <i>use augmented feedback, tests</i>
<input type="checkbox"/>	Instruct "what to" do	<ul style="list-style-type: none"> ▪ <i>ask child practice motor task</i> ▪ <i>ask (parent to stimulate child to use affected arm, register),</i> ▪ <i>ask child to do things</i> ▪ <i>tell children they have to use the affected arm</i> ▪ <i>suggest activity to be replicated at home</i> ▪ <i>instruct the PTA about approach</i>
<input type="checkbox"/>	Instruct "how to" do something	<ul style="list-style-type: none"> ▪ <i>discuss how, when, and where to practice</i> ▪ <i>discuss stretching procedures</i> ▪ <i>give individual training</i>

		<ul style="list-style-type: none"> ▪ <i>instruct parents, child on home therapy</i> ▪ <i>provide clear written instructions</i> ▪ <i>teach parents how to hold the child</i> ▪ <i>tell the patient to flex</i> ▪ <i>train caregiver</i>
<input type="checkbox"/>	Demonstrate how to do something	<ul style="list-style-type: none"> ▪ <i>demonstrate program's activities</i> ▪ <i>demonstrate the "next" stage</i> ▪ <i>illustrate what improvement would look like</i> ▪ <i>model for parent</i> ▪ <i>demonstrate specific interaction and positioning techniques</i> ▪ <i>show child a different way</i>
<input type="checkbox"/>	Deliver therapy programme	<ul style="list-style-type: none"> ▪ <i>administer the functional physical therapy programme</i> ▪ <i>give home exercises</i> ▪ <i>implement a home programme</i>
<input type="checkbox"/>	Explore	<ul style="list-style-type: none"> ▪ <i>try/attempt a new task</i> ▪ <i>perform trials of the task</i> ▪ <i>repeat trials</i> ▪ <i>give/provide trials, applications</i> ▪ <i>experiment with strategy</i> ▪ <i>explore strategies, movement</i>
<input type="checkbox"/>	Cue/Prompt	<ul style="list-style-type: none"> ▪ <i>cue verbally</i> ▪ <i>prompt the child</i> ▪ <i>prompt/guide physically</i> ▪ <i>emphasize sensory cues</i> ▪ <i>signal/prompt with non-verbal cues for the child to take a turn</i> ▪ <i>give hints</i> ▪ <i>provide cues</i>
<input type="checkbox"/>	Practice	<ul style="list-style-type: none"> ▪ <i>'home repetition' i.e. integrate posture and movement components into function at home</i> ▪ <i>practice a new skill in the most appropriate environment</i> ▪ <i>practice/repeat movements/actions</i> ▪ <i>provide opportunities for practice</i> ▪ <i>rehearse/practice mentally i.e. think about the action in the picture image</i>
<input type="checkbox"/>	Grade	<ul style="list-style-type: none"> ▪ <i>scale strategies to next level of difficulty</i> ▪ <i>'shape' (increase task demands, precision, strength, fluency, automaticity, versatility, self-initiation, accuracy, control, duration),</i> ▪ <i>shape i.e. approach a motor or behavioural objective in small steps by successive approximations</i> ▪ <i>integrate graded task-specific training</i>
<input type="checkbox"/>	Reward	<ul style="list-style-type: none"> ▪ <i>generate positive reinforcement</i> ▪ <i>provide incentives for observed efforts</i> ▪ <i>provide rewards/praise</i> ▪ <i>'shape' i.e. present interesting and useful activities to the child in ways that provided immediate, frequent, and repetitive rewards</i>
<input type="checkbox"/>	Sensory stimulation	<ul style="list-style-type: none"> ▪ <i>present sensory opportunities</i> ▪ <i>create multisensory stimuli</i> ▪ <i>apply stimulation</i>

<input type="checkbox"/>	Constrain	<ul style="list-style-type: none"> ▪ <i>constrain unimpaired arm</i> ▪ <i>immobilise unaffected arm</i> ▪ <i>apply restraint of the unaffected arm and hand</i>
<input type="checkbox"/>	Stretch	<ul style="list-style-type: none"> ▪ <i>stretch legs</i> ▪ <i>stretch muscle</i> ▪ <i>do stretching exercises</i> ▪ <i>perform muscle stretching exercises</i> ▪ <i>apply muscle stretching</i>
<input type="checkbox"/>	Resistance	<ul style="list-style-type: none"> ▪ <i>allow resistive finger movement</i> ▪ <i>apply resistance</i> ▪ <i>apply weight-bearing exercises</i> ▪ <i>provide resistance</i> ▪ <i>resist spastic muscle</i> ▪ <i>use resistive activities</i>

QUESTIONNAIRE – PART 3: Broad intervention approaches used in the past 5 days

4. Continuing to focus on children with mobility limitations, what broad approaches have you used in the last 5 working days? (select all that apply)

	Approach	Example
<input type="checkbox"/>	Bobath/NDT	<i>direct, passive handling and guidance to optimise function</i>
<input type="checkbox"/>	Casting	<i>plaster casts applied to limbs to stretch muscles for muscle lengthening or reduce spasticity</i>
<input type="checkbox"/>	Context-focused therapy	<i>changing the task or environment (but not the child) to promote successful task performance</i>
<input type="checkbox"/>	Fitness training	<i>planned structured activities involving repeated movement of skeletal muscles that result in energy expenditure to improve or maintain levels of physical fitness</i>
<input type="checkbox"/>	Hydrotherapy	<i>aquatic based exercises</i>
<input type="checkbox"/>	Hippotherapy	<i>therapeutic horse riding to practice balance and symmetry</i>
<input type="checkbox"/>	Postural management	<i>a programme of suitable handling, treatment and positioning of children that promotes motor development and reduces the risk of postural deformity</i>
<input type="checkbox"/>	Rebound therapy	<i>therapeutic use of the trampoline</i>
<input type="checkbox"/>	Sensory integration	<i>therapeutic activities to organise sensation from the body and environment, to facilitate adaptive responses, e.g. hammock swinging</i>
<input type="checkbox"/>	Treadmill training	<i>walking practice on a treadmill, which includes partial body support</i>
<input type="checkbox"/>	Other	<i>Please state...</i>

QUESTIONNAIRE – PART 4: General information

5. Who do you consider a leading local, national or international expert in non-drug interventions delivered in community settings for children with mobility limitations? Please provide as many names as you would like (no need to provide contact details).

Demographics

What is your current area of clinical practice? (select all that apply)

- Community or outpatients
- Acute
- NHS
- Private sector
- Other – please specify

In which region are you based?

- North West
- North East
- Yorkshire and the Humber
- East Midlands
- West Midlands
- East Anglia
- Greater London
- South East

- South West
- Northern Ireland
- Scotland
- Wales

If you would like to be informed of the results, put your email address in this box:

If you would like to be added on a mailing list about research into therapy interventions for children, please tick this box

Thank you for taking time to complete this survey.