Strategies for translating research evidence into practice from knowledge translation research in cerebral palsy.

Leanne Sakzewski
Iona Novak

Plan
1. Introduction of the know-do gap & solutions
2. SOLUTION 1: tailored approach to close the know-do gap
3. SOLUTION 2: whole organisation approach to close the know do gap
4. Interactive learning

Clinical PRACTICE lags 10-20yrs behind RESEARCH

10-40% do not receive proven effective treatments
>20% receive ineffective OR harmful treatments

Flores-Mateo et al 2007
DO NOTHING
 Jess Good will alone
 Jess Passive dissemination of information
 Jess Education alone

BEHAVIOUR CHANGE INTERVENTIONS
 ✔ Audit & feedback
 ✔ Continuous quality improvement
 ✔ Financial incentives
 ✔ Mass media
 ✔ Opinion leaders as educators
 ✔ Outreach visits
 ✔ Peer comparison feedback
 ✔ Reminders at decision making

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KNOWLEDGE TRANSLATION
 Novak et al 2013

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SOLUTION 1:
TAILORED APPROACH

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Overview

• TRIP Project "Increasing intensive activity-based upper limb therapy for children with hemiplegia"

• Step by step guide to develop a theory-informed implementation intervention to change clinical practice behaviour

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Step 1. Who needs to do what differently?

Step 2. Which barriers and enablers need to be addressed?

Step 3. Which intervention components could overcome barriers and enhance enablers?

Step 4. How can behaviour change be measured and understood?

Step 5. How can behaviour change be sustained?
Background to TRIP Project

AIM: To test the feasibility of an implementation program to increase the quality and dose of upper limb therapy for children with unilateral CP provided by occupational therapists.

METHOD: Before and after study

TARGET GROUPS: 3 teams of OTs (n=9)

Team 1: CP Health
- Tertiary level health assessment and intervention programs
- Botulinum toxin injecting
- Post injection therapy blocks for local children
- Role in educating and supporting therapists state-wide

Team 2: State-wide tertiary rehabilitation service

Team 3: Regional North QLD hospital & community paediatric OTs

INTERVENTION: File audit & feedback, barrier identification, interactive training focusing on barriers

TRIP Example: What evidence criteria did we address?

TRIP Project Example

1. Collaborative goals will be set with caregivers/children prior to therapy episode and measured objectively pre/post therapy episode
2. Motor learning based approach will be used (e.g. CIMT, bimanual therapy, goal-directed therapy)
3. Flexible service delivery model (from management)
4. Adequate dose is achieved (target 30-40 hours)
5. Upper limb activity outcome/s measured pre/post therapy episode

Activity 1

Name some new evidence you have seen here at the conference that you think you should implement in your practice?

- Step 1. Who needs to do what differently?
- Step 2. Which barriers and enablers need to be addressed?
- Step 3. Which intervention components could overcome barriers and enhance enablers?
- Step 4. How can behaviour change be measured and understood?
- Step 5. How can behaviour change be sustained?
Who needs to do what differently?

Is there an evidence practice gap?

Step 1 Who needs to do what differently?

Which barriers and enablers need to be addressed?

Which intervention components could overcome barriers and enhance enablers?

How can behaviour change be measured and understood?

How can behaviour change be sustained?

What are the barriers to you implementing this change in practice?
ACTIVITY 2: discussion of potential barriers and mapping against a theoretical framework: The Theoretical Domains Framework (Michie et al, 2005; Cane et al., 2012)

<table>
<thead>
<tr>
<th>TDF domain</th>
<th>Definition</th>
<th>Barriers</th>
<th>Enablers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>An awareness of the existence of something</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Knowledge of condition; scientific rationale; procedural knowledge; knowledge of task and environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skills</td>
<td>An ability or proficiency acquired through practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skills, skills development, competence, ability, interpersonal skills…</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social/professional role and identity</td>
<td>A coherent set of behaviours and displayed personal qualities of an individual in a social or work setting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Professional identity; professional role; social identity; professional boundaries, professional confidence….</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beliefs about capabilities</td>
<td>Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Self-confidence, perceived competence, self-efficacy, beliefs, self-esteem….</td>
<td></td>
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<tr>
<td>Beliefs about consequences</td>
<td>Acceptance of the truth, reality, or validity about outcomes of a behaviour in a given situation</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Beliefs; outcome expectancies, characteristics of outcome; anticipated regret</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goals</td>
<td>Mental representation of outcomes or end states that an individual wants to achieve</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Goal priority; goal/target setting; action planning; implementation intention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memory, attention and decision processes</td>
<td>The ability to retain information, focus selectively on aspects of the environment and choose between two or more alternatives</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Memory; attention; decision making; cognitive overload</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental context and resources</td>
<td>Any circumstance of a person’s situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviour</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Environmental stressors; resources/materials; organisational culture….</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Social influences</strong></td>
<td>Those interpersonal processes that can cause an individual to change their thoughts, feelings, or behaviours</td>
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<tr>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------------------------------------</td>
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<tr>
<td></td>
<td>Social pressure; social norms; social comparisons; intergroup conflict…</td>
<td></td>
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<tr>
<td><strong>Intentions</strong></td>
<td>A conscious decision to perform a behaviour or a resolve to act in a certain way</td>
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<tr>
<td></td>
<td>Stability of intentions; stages of change model…</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Emotion</strong></td>
<td>A complex reaction pattern, involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personally significant matter or event</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Fear; anxiety; affect; stress; depression; burnout…</td>
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</tr>
<tr>
<td><strong>Optimism</strong></td>
<td>The confidence that things will happen for the best or that desired goals will be attained</td>
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<tr>
<td></td>
<td>Optimism; pessimism; unrealistic optimism…</td>
<td></td>
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<tr>
<td><strong>Reinforcement</strong></td>
<td>Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus</td>
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<td></td>
<td>Rewards; incentives; punishment…</td>
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<tr>
<td><strong>Behavioural regulation</strong></td>
<td>Anything aimed at managing or changing objectively observed or measured actions</td>
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<td></td>
<td>Self-monitoring; breaking habit; action planning</td>
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</tbody>
</table>

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**Measure the evidence practice gap**

**Why measure?**
Determine current levels of care provision
Identify and quantify gaps
Evaluate progress

**How do we measure?**
Define indicators
“a measurable element of practice performance for which there is evidence or consensus that it can be used to assess the quality, and hence change in the quality of care provided” Lawrence et al., 1997
**Measure the evidence practice gap**

- Indicators can be
  - Processes of care
  - Clinical outcomes

- What data sources do you have available to you?
  - Medical records
  - Patient statistics
  - Databases

- Developing your indicators
  - Develop a preliminary set of indicators
  - Find consensus among users (OTs)
  - Pilot indicators
  - Use indicators

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**Activity**

What information do you routinely collect in your clinical practice that you could use to quantify the evidence practice gap?

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**What indicators could you use to measure the evidence practice gap?**
Examples from TRIP project: Principles of file audit

- Allocate staff time
- Assess process of care: e.g. was something done?
- Assess outcomes of care: e.g. number of therapy goals fully achieved
- Selecting criteria for audit: e.g. must vs should do
- Selecting files to audit: sequential/random sample, how many
- Reliability: are therapists doing the audit in a consistent way?
  - Double audit some of the charts to check

File audit example

Review of data about current practice (n=16 file audits)

Evidence criteria 1 and 2: Goals were recorded prior to therapy and measured objectively before and after therapy (graph 1).
Review of data about current practice

Evidence criteria 2: Evidence of use of contemporary motor learning approach

<table>
<thead>
<tr>
<th>Therapy approach</th>
<th>0%</th>
<th>25%</th>
<th>25%</th>
<th>20%</th>
<th>18%</th>
<th>19%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal directed</td>
<td></td>
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<tr>
<td>Bimanual</td>
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<tr>
<td>Sensory training</td>
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<tr>
<td>Strengthening</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Stretching</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>CIMT</td>
<td>100%</td>
<td></td>
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<tr>
<td>Splint/cast</td>
<td>63%</td>
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</tbody>
</table>

Evidence criteria 3: Evidence of flexible delivery

100% individual therapy
63% had home programs

Evidence criteria 4: Adequate dose of therapy achieved

0%

Evidence criteria 5: Reliable and valid upper limb outcome measure/s are used before and after intervention.

Before therapy: 12.5%
After therapy: 6%

Develop goals and strategies

Evidence Criteria 1: Goals recorded prior to therapy and measured objectively before and after intervention.

Goal 1. Commencing from Monday 13th August 2012, all children receiving upper limb Botulinum toxin injections will have goals set and measured on the COPM or a modified COPM prior to and after intervention.

Action Plan

• To put the COPM visual analogue scale on the Botox Clinic Pre-evaluation form used by occupational therapists.
• Post botox form will include the COPM goals but not VAS. Occupational therapists can use form as per the previous study which can be handed to parents to complete the COPM scoring prior to their medical post botox appointment. Alternatively, the occupational therapist will complete the COPM with the parent during the post botox clinic.

Develop goals and strategies

Evidence criteria 3: Evidence of flexible delivery model.

• No specific goal set

Action Plan

• Therapists will record model of therapy delivery on the new Btx-A database.
• Occupational therapists to begin looking at clinic lists to determine whether any children can be grouped together in small groups for therapy.
• Survey to determine current botox patient/family preference for therapy delivery models
• To approach Iona Novak’s re: workshop around home programs and to review her method of recording home programs.
• To investigate different methods of recording home program completion, to gather details of protocol used by other researchers to report home program completion.
Step 1: Who needs to do what differently?
Which barriers and enablers need to be addressed?
Which intervention components could overcome barriers and enhance enablers?
How can behaviour change be measured and understood?
How can behaviour change be sustained?

Step 3: Which intervention components could overcome the modifiable barriers?

- Capability: “Individuals psychological and physical capacity to engage in the activity”
- Opportunity: “Factors that lie outside the individual that makes the behaviour possible or prompt it”
- Motivation: “Brain processes that energize and direct behaviour, not just goals and conscious decision making”

Intervention components
What intervention strategies can you use to address your identified barriers?

<table>
<thead>
<tr>
<th>Barrier</th>
<th>TDF domain</th>
<th>COM-B</th>
<th>Intervention component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low awareness of current evidence for UL interventions</td>
<td>Knowledge</td>
<td>Psychological capability</td>
<td>Education, training, enablement</td>
</tr>
<tr>
<td>Unclear about specific aspects of CIMT including types of restraint,</td>
<td>Knowledge, skills</td>
<td>Psychological capability</td>
<td>Training, enablement, education</td>
</tr>
<tr>
<td>structuring programs</td>
<td>Physical capability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belief that home programs were not effective, not giving families</td>
<td>Beliefs about capabilities</td>
<td>Reflective motivation</td>
<td>Education, persuasion, incentivisation, coercion</td>
</tr>
<tr>
<td>enough info</td>
<td>Skills</td>
<td>Physical capability</td>
<td>Training, enablement</td>
</tr>
<tr>
<td>Lack of space for large groups</td>
<td>Resources and environmental context</td>
<td>Physical opportunity</td>
<td>Restriction, environmental restructuring, enablement</td>
</tr>
<tr>
<td>Lack of time for OT assessments within current organisation of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>clinical practice</td>
<td></td>
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</tr>
<tr>
<td>Forgetting to measure goals in the busy clinic setting</td>
<td>Memory, attention, decision processes</td>
<td>Psychological capability</td>
<td>Training, education, enablement</td>
</tr>
</tbody>
</table>
Putting it all together

• Workshop 1: 2 x ½ day interactive and facilitated
  – Systematic review: appraisal of RCT evidence
    • Exploring models of therapy
    • What can be adapted for the local context?
  – Choosing the right type of intervention for the right child
    • Case studies, videos, group based problem solving
  – Planning and implementing group based interventions
    • Risk management
    • Developing group structure
    • Mapping child goals, determining treatment goals
    • Filling in the program

Putting it all together

• Reminders: e.g. COPM on clinic forms
• Educational materials
  – Decision tree
  – Workshop manuals

Putting it all together

Full day workshop: OT home programs

  – expert opinion leader
Step 1 Who needs to do what differently?

Which barriers and enablers need to be addressed?

Which intervention components could overcome barriers and enhance enablers?

How can behaviour change be measured and understood?

How can behaviour change be sustained?

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Changes to delivery of post BoNT-A therapy

- Longer blocks of therapy, less frequently
- Offering therapy in pairs/small groups
- Recording therapy that occurs elsewhere
- More structured/consistent approach to home programs (“Novak-style”)
- Recording home program dose (difficult)
- Increased intensity, higher density training
- Specific education for families about amount of training required for motor change
- Increased confidence in the effectiveness of home programs

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Introduction of post BoNT-A therapy groups

- 2 types of post BoNT-A therapy groups:
  - School aged
  - Pre-prep
- Introduction of new assessment group for toddlers
### School aged group

- 2/week for 5 weeks (2 hours sessions = 20 hrs + HP)
- Every afternoon for 5 consecutive days (2.5 hours sessions = 12.5 hrs + HP)
- 5-6 children
- OT, PT, AHA
- Goal directed - direct skill training and use task specific intervention and cognitive strategies

### Pre-prep group

- Twice a week – five weeks
- General session plan
  - Warm up game & yoga
  - Goal based activities
  - Gross motor activity
  - Specific UL Training activities (bimanual and unimanual – mCIMT)
  - Snack

### Toddler group

- New service for CP Health
- Assessment/therapy group for toddlers prior to entry to BoNT-A program
- 5 children
- 1/week for 5 weeks, 75 minutes
**Toddler group goals**

- Further assessment & determine appropriate “follow-on” intervention
- Parent education
- Introduction to modified Constraint Induced Movement Therapy (mCIMT)
- Support in developing family-centred goals
- Provide opportunity for social network and professional support

**Follow up audit results: goals measured**

![Graph showing goals measured pre and post therapy](chart)

**Recorded use of contemporary motor learning approach**

![Graph showing recorded use of contemporary motor learning approach](chart)
Flexible mode of service delivery

Pre/post UL outcome measures

Dosage achieved (30-40 hours)

- Pre: 0%
- Post: 10%
(limited reporting of HP activities)
**Patient outcomes**

**COPM**
Mean (SD) pre: 3.0 (1.4)
Mean (SD) post: 5.5 (1.6)
MD 2.5, 95% CI 1.4, 3.5; p<0.001

**AHA**
Median (IQR) pre: 48 (37, 60)
Median (IQR) post: 59 (39, 64)
Z=2.5; p=0.01

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**Step 1 Who needs to do what differently?**
Which barriers and enablers need to be addressed?
Which intervention components could overcome barriers and enhance enablers?
How can behaviour change be measured and understood?
How can behaviour change be sustained?

---

**Sustaining behaviour change**
- Significant support at management level for group programs
- Written into service development plans
- Regular group planning meetings and yearly plan
- ‘Group ‘champions’
- Ongoing education of allied health and medical team
- Linking toddler group with researchers and acute OT dept (infant team): pilot project in process
- Home program templates for efficiency
- Documented group processes, risk management and activities
- Group program mentoring between therapists as rotations occur
- Change to forms to prompt re-measurement of goals
- Application for funding grant to provide mentoring state-wide for implementation of groups, and resource development, developing outreach processes
- Group room included in plans for LCCH, day hospital model
**Sustainability**

Conditions for successful sustainable change (Gruen et al., 2008)

- Continuous attention of managers
- Fits general aims of organization
- Resources: sufficient staff and budget
- Champion
- Visible positive outcomes of project

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**SOLUTION 2: WHOLE ORGANISATION APPROACH**

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**EVIDENCE BASED SERVICES**

- Measure outcomes
- Summarise existing knowledge
- Generate new knowledge
- Feed forward new knowledge
- Translate?

**RESEARCH**

- Education + Mentoring
- Wikipedia
- CF Register
TRANSLATE DOING using Knowledge to Action Cycle

Proven Effective

Uncertain Effect

Proven Ineffective

MEASURE EFFECTS

? Add to research agenda

TRANSLATE STOPPING using Guidelines & Policies

Circus camps not feasible for all

Constraint [CIMT] Bimanual Training Botulinum Toxin + OT Home Programs

Groups + Home Program

CIHR Graham 2006

Knowledge Inquiry

Synthesis

Tools

Identify problem

Select knowledge

Adapt knowledge to local context

Assess barriers to knowledge use

Select, tailor, implement interventions

Monitor knowledge use

Evaluate outcomes

Sustain knowledge use

Circus camps not feasible for all

Groups + Home Program

Constraint [CIMT] Bimanual Training Botulinum Toxin + OT Home Programs

CIHR Graham 2006
Do we always provide CIMT to children with hemiplegia?

- **YES**
  - IF
    - ✔ AHA certified
    - ✔ Trained

- **NO**
  - **BARRIERS**
    - ✔ Not AHA trained
    - ✔ Live rural
    - ✔ Low group
    - ✔ Arrange training
    - ✔ Clinical guideline
    - ✔ Activity bank of ideas
    - ✔ Therapy Assistant & Home Programs
    - ✔ Monitor in supervision
  
  **SOLUTIONS**
  - ✔ Arrange training
  - ✔ Clinical guideline
  - ✔ Activity bank of ideas
  - ✔ Therapy Assistant & Home Programs
  - ✔ Monitor in supervision

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Multifaceted interventions

- **Audit & Feedback**
- **Research Role Models**
- **Tailored Interventions**

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A KT intervention including the evidence alert system to improve clinician’s evidence-based practice behavior—a cluster randomized controlled trial

- Lead: Campbell, J.; Novak, D.; Shab Wofiesz and team (aud)
Randomisation [n=135]

- EBP workshop [2day]
- Workplace supports [8wk]
- EBP participant presentation on implementation [1day]
- Communication workshop [2day]
- Workplace supports [8wk]
- Communication participant presentation on implementation [1day]

Primary endpoint (8 weeks)

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BARRIER: Lack of confidence/skill searching, appraising & synthesizing evidence

<table>
<thead>
<tr>
<th>KT strategy</th>
<th>Strategy/rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORKSHOP</td>
<td>Problem-based learning approach maximised the likelihood of increased confidence &amp; skill levels</td>
</tr>
<tr>
<td>EAS</td>
<td>Accurate, relevant research evidence on cerebral palsy assessment and treatment provided, bypassing the need for appraisal skills</td>
</tr>
<tr>
<td>MENTORING</td>
<td>Staff included in the problem solving process during mentoring sessions and aimed to increase confidence and build skill base.</td>
</tr>
</tbody>
</table>
### BARRIER: Lack of time

<table>
<thead>
<tr>
<th>KT strategy</th>
<th>Strategy/rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAS</td>
<td>Accurate, relevant summaries bypassed the need for extensive time spent searching and appraising</td>
</tr>
<tr>
<td>PAID EBP TIME IN POLICY</td>
<td>Paid, protected EBP time provided Changing policy suggested management ‘buy in’ and endorsement to support changes</td>
</tr>
<tr>
<td>DOCUMENTATION CHANGES</td>
<td>Patient documentation and work processes changed to support clinical decision making and save time EBP reminders built in</td>
</tr>
</tbody>
</table>

### BARRIER: Evidence considered as not clinically relevant

<table>
<thead>
<tr>
<th>KT strategy</th>
<th>Strategy/rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORKSHOP TEACHING EAS</td>
<td>Staff involved in the problem solving process, so that they ‘owned’ the EAS process. The 8-week period between workshops, allowed independent learning and time to apply the EAS to a real client. Facilitators demonstrate relevance through clinical examples and role playing</td>
</tr>
<tr>
<td>EAS</td>
<td>EAS was developed and disseminated</td>
</tr>
</tbody>
</table>

### BARRIER: No access to full articles and research databases

<table>
<thead>
<tr>
<th>KT strategy</th>
<th>Strategy/rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAS</td>
<td>All staff members at every level of the organisation had access to current cerebral palsy evidence and exchange of information via mentoring sessions and team meetings was promoted</td>
</tr>
<tr>
<td>EBSCO ACCESS</td>
<td>EBSCO library subscription purchased</td>
</tr>
</tbody>
</table>
**Improved EBP KNOWLEDGE: Exam scores**

Effect size 2.97 (95% CI 1.97, 3.97)

* p<0.01

**Goal Attainment Scaling**

1. Participants self rated
2. Well-acquainted peer also rated their performance

Goals were devised by a multidisciplinary panel of experts, familiar with practice behaviours of participants

The scales measured:
- goal-setting behaviours (with patients)
- use of outcome measures and classification systems
- interactions with clients and their families
- use of the EAS
- support of research (e.g., Cerebral Palsy Register)

**PRACTICE BEHAVIOUR: Goal Attainment Scales**

Effect size 5.86 (95% CI -17.77, 29.50) p=0.62

Effect size 4.97 (95% CI -10.47, 20.41) p=0.52

Probable Type 2 Error
Opinion leaders & mentors

Knowledge Brokers

Evidence Based Clinical Decision Making Library

Constraint Induced Movement Therapy (CIMT)

Level of Evidence

For children aged 10 months and older

For children aged younger than 10 months

Wikipedia

What
References and resources

Resources for clinical audits
http://www.nice.org.uk/media/796/23/bestpracticeclinicalaudit.pdf

Principles for Best Practice in Clinical Audit
National Institute for Clinical Excellence

### Mapping TDF domains, COM-B and linking to intervention components

<table>
<thead>
<tr>
<th>Theory Domain</th>
<th>COM-B</th>
<th>Link to Intervention Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical skills</td>
<td>Physical capability</td>
<td>Education, training, enablement</td>
</tr>
<tr>
<td>Cognitive and interpersonal skills</td>
<td>Psychological capability</td>
<td>Education, training, enablement</td>
</tr>
<tr>
<td>Beliefs and decision processes</td>
<td>Reflective motivation</td>
<td>Persuasion, incentivisation, coercion</td>
</tr>
<tr>
<td>Behavioral regulation</td>
<td>Automatic motivation</td>
<td>Persuasion, incentivisation, coercion</td>
</tr>
<tr>
<td>Environmental and resource factors</td>
<td>Social opportunity</td>
<td>Restriction, environmental restructuring, enablement</td>
</tr>
<tr>
<td>Social influences</td>
<td>Social opportunity</td>
<td>Restriction, environmental restructuring, enablement</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Reflective motivation</td>
<td>Persuasion, incentivisation, coercion</td>
</tr>
<tr>
<td></td>
<td>Automtic motivation</td>
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</tr>
<tr>
<td></td>
<td>Social opportunity</td>
<td>Restriction, environmental restructuring, enablement</td>
</tr>
</tbody>
</table>

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### A step-by-step guide to develop a theory-informed implementation intervention

**Step 1: Specify the behavior change needed**
- Identify what is likely to be feasible, locally relevant, and acceptable.
- Come up with desirable target changes.

**Step 2: Select appropriate theory(ies), or theoretical framework(s)**
- Use the Chosen theory(ies), or framework, to identify potential intervention components into an acceptable intervention that can be delivered.

**Step 3: Determine feasibility of outcomes to be measured**
- Use qualitative and/or quantitative methods to identify barriers and enablers to that pathway.

**Step 4: Determine the magnitude of change needed**
- Use qualitative and/or quantitative methods to determine the likely level of resources, support and costs that are “roll-out-able.”

**Step 5: Measure the evidence**
- Use appropriate outcome measures (care provider, patient and/or system) to determine the likely level of resources, support and costs that are “roll-out-able.”

**Step 6: Scale up the intervention**
- “Scale up” the intervention, using the chosen theory, or framework, to identify potential intervention components into an acceptable intervention that can be delivered.

**Step 7: Monitor sustainability**
- From the literature, and experience of the development team, select which model(s) for improving delivery of evidence are likely to inform the pathways of maintenance of change. Specify the health professional group whose behavior need changing. Delineate the magnitude of change needed. Use qualitative and/or quantitative methods to determine the likely level of resources, support and costs that are “roll-out-able.”

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