

64TH CONFERENCE ON EXCEPTIONAL CHILDREN



WORKING TOGETHER TO ACHIEVE STUDENT SUCCESS

**Using the Evidence to
Guide Practice in the
Educational Setting**

Patricia Laverdure, OTD, OTR/L, BCP



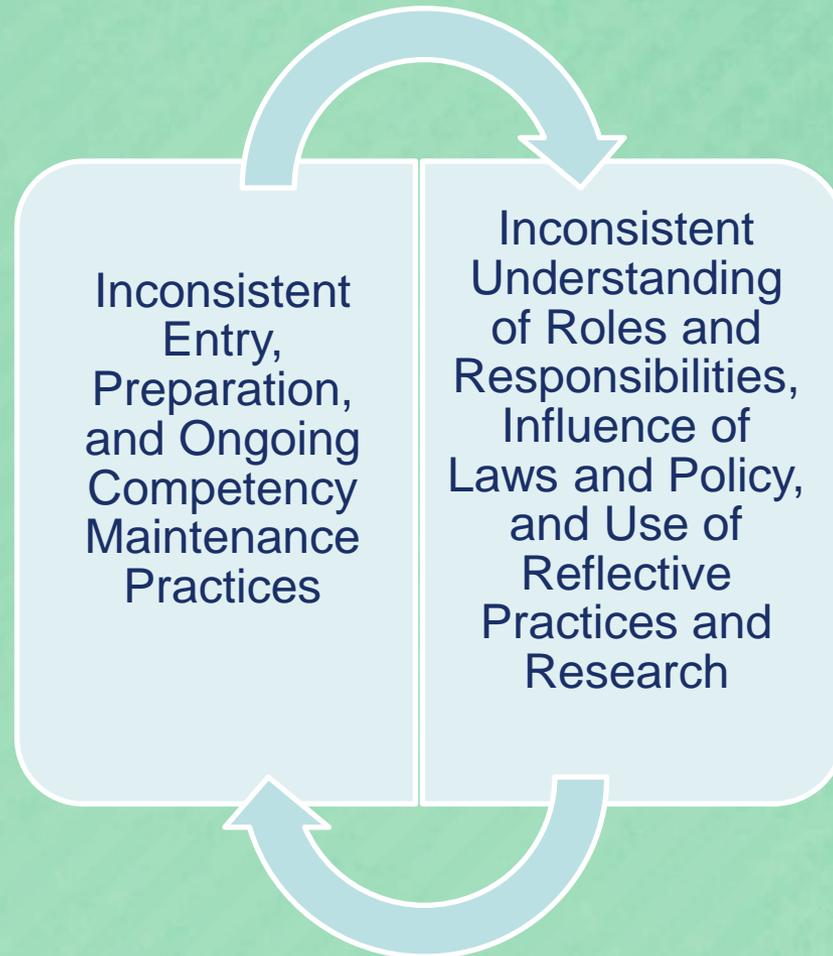


Collaborative Decision Making

- Collaborative inter and multidisciplinary partners
 - Educational reform
 - Political, educational, economic and health care complexity
 - Access disparity
 - Changes in social diversity, intervention options and technology



Dynamic Rapidly Changing Practice





EBP: *What??*

“I’ve used this intervention for years – and I am telling you ... it works!”

“I use explicit outcome measures that demonstrate the efficacy of my interventions ... isn’t my data enough?”

“I carefully read journal articles that support my practice ... I don’t have time for much more!”

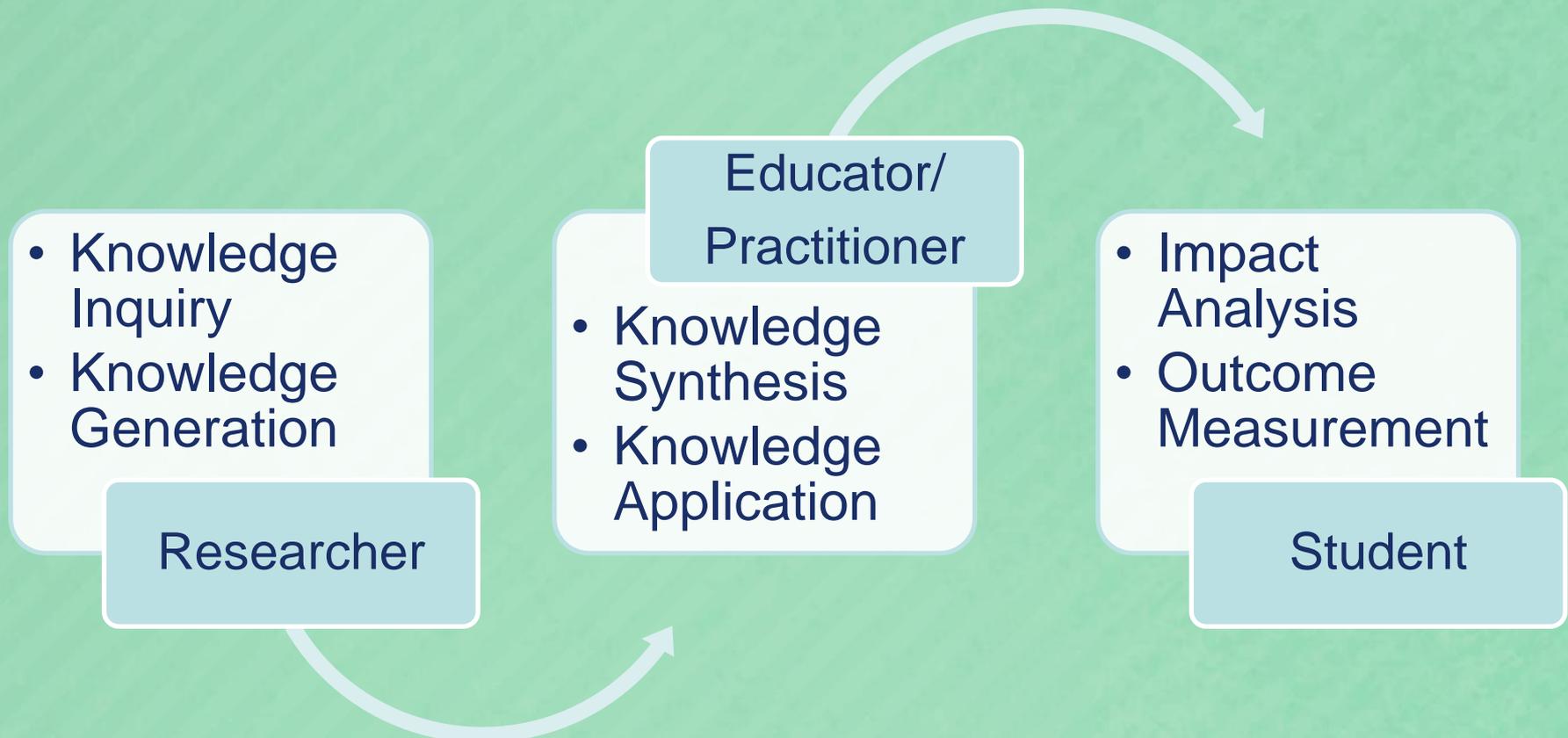


EBP: *Why??*

- EBP important paradigm in health care
- “The occupational therapist...utilize[s]...evidence, and clinical reasoning to guide the intervention.” (AOTA, 2002)
- “Physical therapists...will render evidence-based services...” (APTA, 2006)
- “Audiologists and speech-language pathologists incorporate the principles of evidence-based practice in clinical decision making...” (ASHA, 2005)



Evidence Based Practice





Show of Hands



**EBP is a new
concept for me**



**I have a basic
understanding**

**I regularly use
evidence in my
practice**



Transfer Learning/Knowledge

- Engage experiential knowledge with relevant contextual factors
- Validate narrative/qualitative (action) research
- Bring EBP to the systems level
- Bridge research to practice gap

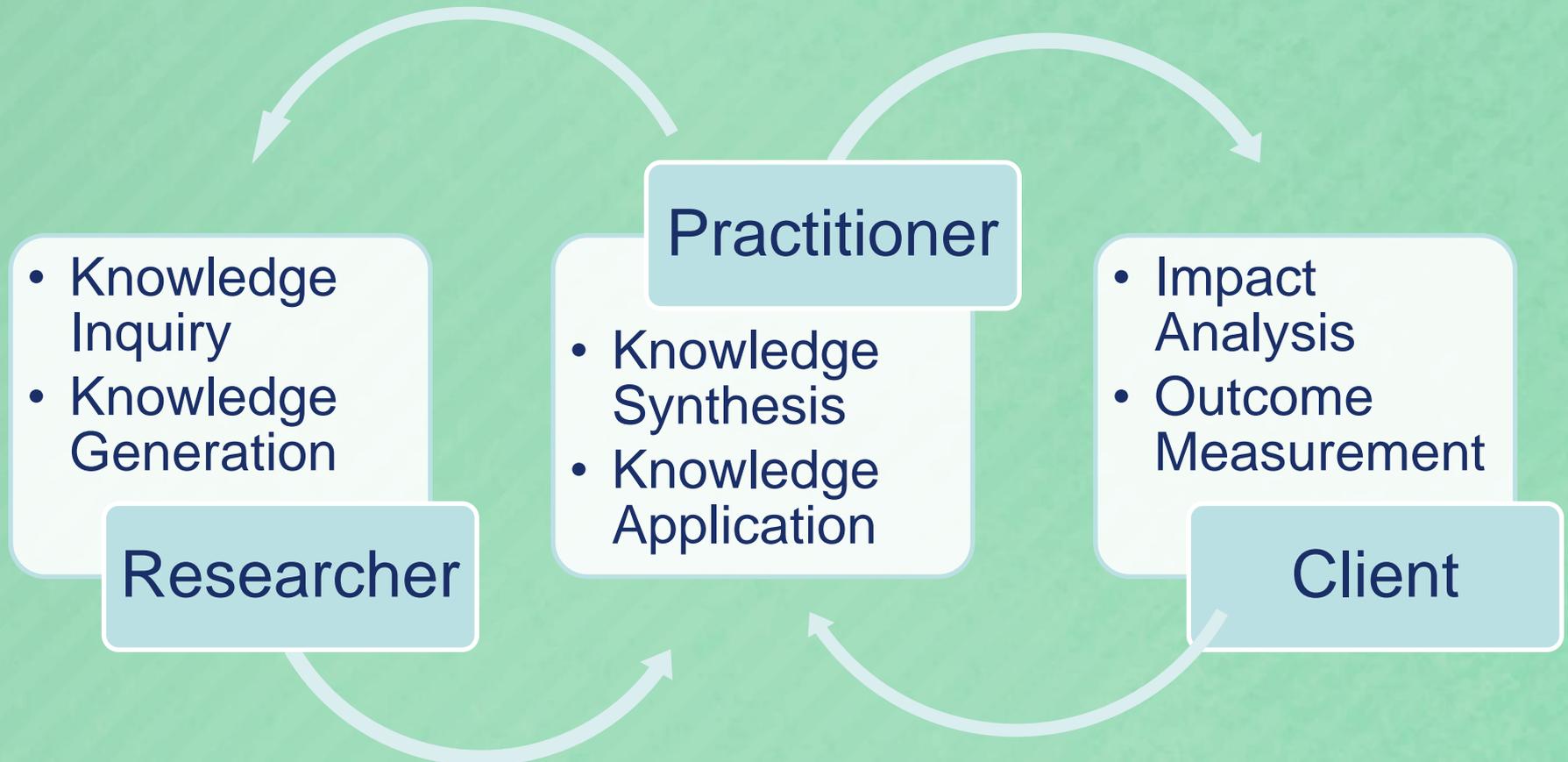
Lencucha, R., Kothari, A., & Rouse, M. (2007). The Issue Is—Knowledge translation: A concept for occupational therapy? *American Journal of Occupational Therapy*, 61, 593–596.

Schreiber, J. & Dole, R. (2012). The effect of knowledge translation procedures on application of information from a continuing education conference. *Pediatric Physical therapy*, 24, 259-266.

Van Sant, A.F. Translating Research to Practice. *Pediatric Physical Therapy*, 23, 321.



Translating Knowledge to Practice





Learning Objectives

- Identify effective strategies to:
 - Make distinctions between assumptions/biases, clinical experience and evidence in professional practice,
 - Synthesize, translate and implement knowledge,
 - Critically evaluate practice, and
 - Change practice in educational settings.

- Identify collaborative approaches that build:
 - Access to relevant evidence,
 - Clarify informational needs,
 - Facilitate knowledge development, and
 - Close knowledge to practice gaps.



Why Does EBP Competency Matter?

**Teacher/
Practitioner
Quality**

**Student
Engagement**

**Student
Learning
Outcomes**

**Teacher/
Practitioner
Effectiveness**



Competency Requirements

- AOTA, APTA and ASHA
 - Standards for Continuing Competence
 - Self Evaluation and Life Long Learning
- IDEA 2004
 - Highly Qualified and Use of Evidence
- ESEA/NCLB
 - Subject matter competency
- CEC Content standard 9
 - Plan and engage in PD that fosters professional competence and evidence based practice



ESEA/ IDEA Guidance

- Elementary and Secondary Education Act (NCLB)
 - Schools are accountable for outcomes
 - Use instructional methodology that demonstrates effectiveness through scientifically-based research
- IDEA
 - Continually assess all student learning
 - Apply research to decision making process



EBP on the IEP

- “...a statement of the special education and related services and supplementary aids and services, based on peer-reviewed research to the extent practicable, to be provided to the child” (IDEA, 20 U.S.C. § 1414 (d)(1)(A)(i)(IV))



EBP on the IEP

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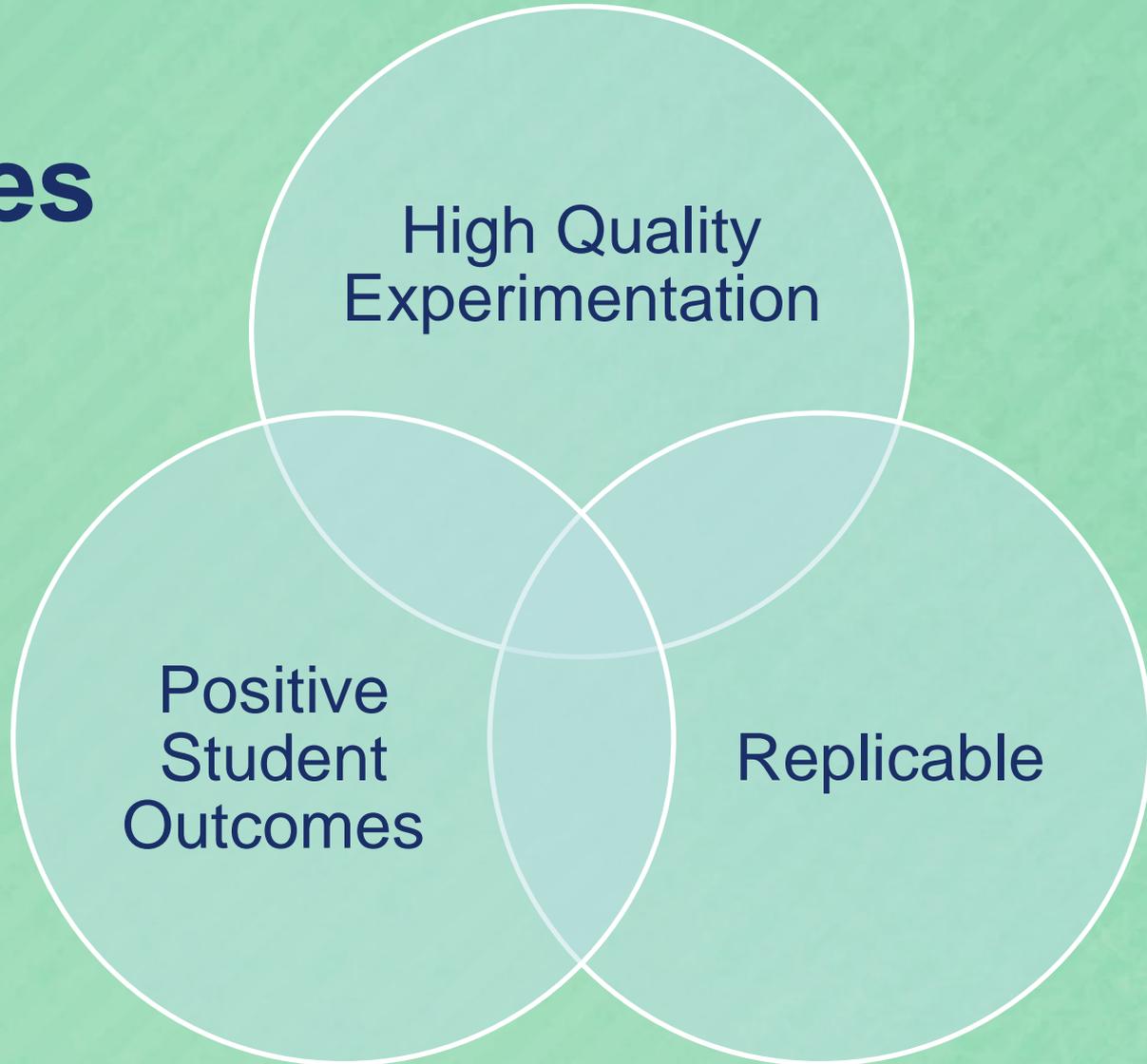


Descriptors





Attributes





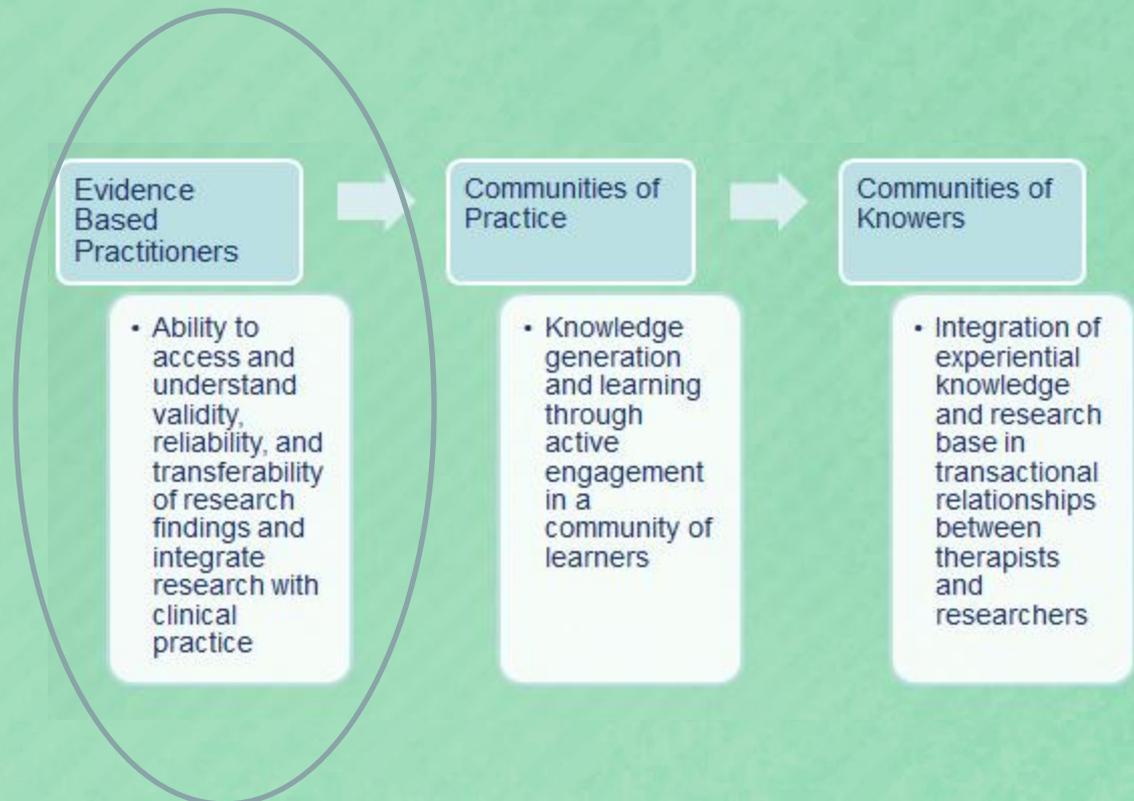
Process





Evidence Based Practitioners

- Access, understand and integrate research with practice

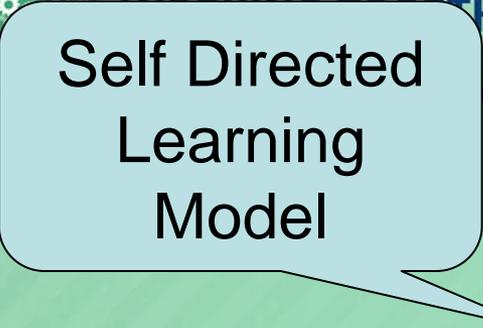




Definition: EBP

“...the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients.”

“The practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research.”



Self Directed Learning Model

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“The practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research.”



Self Directed
Learning
Model

In a way that
influences
problem solving

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“The practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research.”



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Access right
information at
the right time



Self Directed
Learning
Model

In a way that
influences
problem solving

“...the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients.”

“The practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research.”

And changes
our behavior

Access right
information at
the right time



What Is EBP?



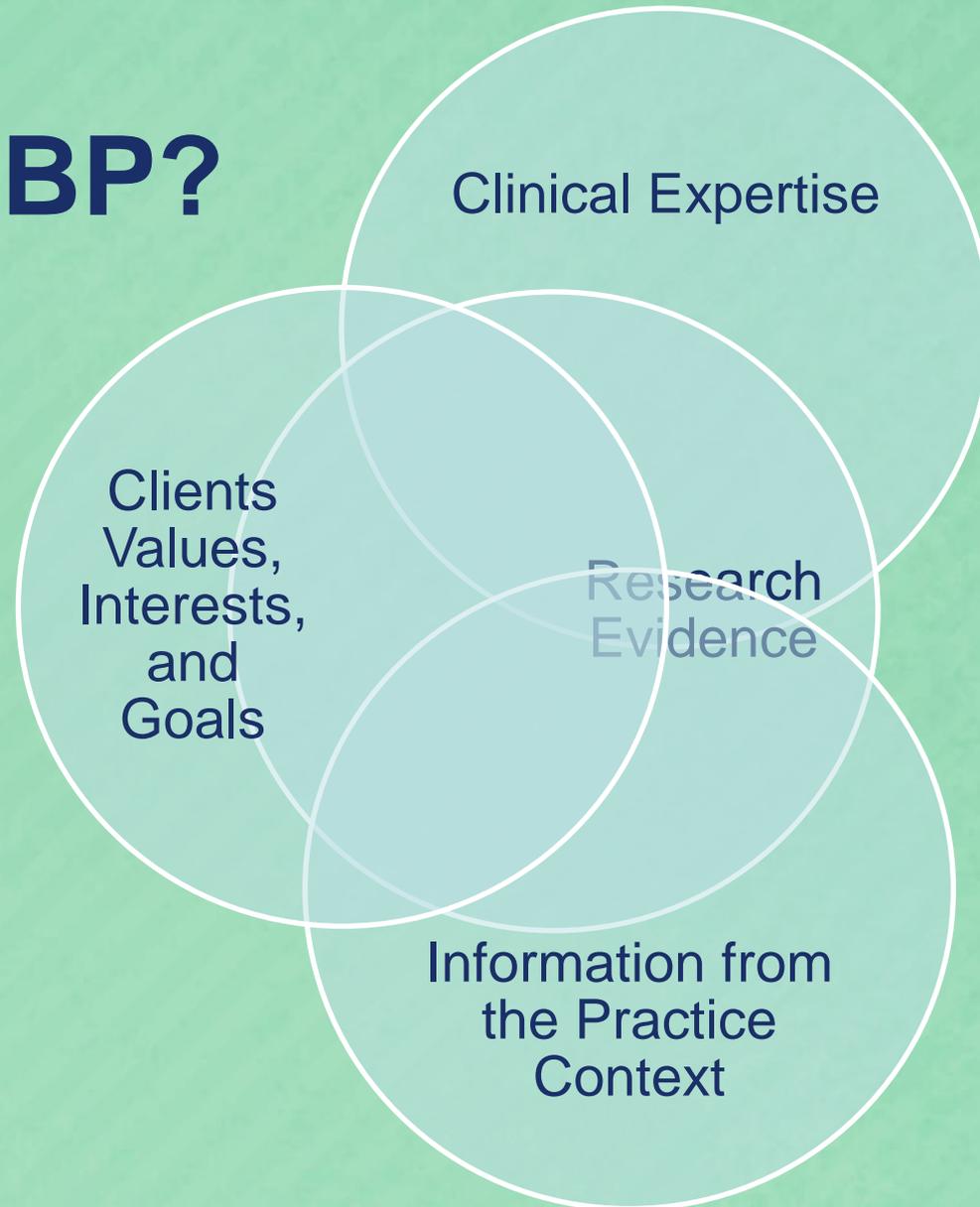


What Is EBP?





What Is EBP?





Evidence Based Practices



Turn to a shoulder partner and share your thoughts about the benefits and barriers to EBP.



Myths of EBP

MYTHS

- EBP already exists
- EBP is impossible to put into practice
- EBP is cookie cutter practice
- EBP is a cost cutting mechanism

REALITY

- Many practitioners take little or no time to review current literature
- Even very busy practitioners can advance EBP in their work
- EBP requires advanced clinical expertise/mentorship
- EBP emphasizes the best available evidence for each unique circumstance



Process of EBP

Step	Action
1	Convert information needs into an answerable question
2	Find the best evidence to answer question
3	Critically appraise the evidence for its validity, impact and applicability
4	Integrate evidence with clinical expertise, client values, interest, and goals, and contextual demands
5	Evaluate the effectiveness of the process



Process of EBP

Step	Five As	Action
1	ASK a question	Convert you information needs into an answerable question
2	ACCESS the info	Find the best evidence to answer your question
3	APPRAISE the articles	Critically appraise the evidence for its validity, impact and applicability
4	APPLY the info	Integrate evidence with clinical expertise, client values, interest, and goals, and contextual demands
5	AUDIT the process	Evaluate the effectiveness of this process



Ask an Answerable Question

Answerable Question	Examples
Etiology/Frequency	
Prognosis	
Diagnosis	
Treatment/Intervention	
Client's experiences	



Ask an Answerable Question

Answerable Question	Examples
Etiology/Frequency	What causes this condition and how often does it occur in the population?
Prognosis	
Diagnosis	
Treatment/Intervention	
Client's experiences	



Diagnostic Understanding

Leukodystrophy

A disorder characterized by degeneration of the white matter in the brain

Progressive loss in muscle tone, movement, gait, speech, ability to eat, vision, hearing and behavior

Active and gentle stretching
Environmental adaptation
Accommodation

Leukoencephalopathy

A group of disorders that may include progressive white matter degeneration

Mild motor symptoms that may include spasticity and ataxia

Strength training
Progressive weight bearing and ambulation
ADLs



Ask an Answerable Question

Answerable Question	Examples
Etiology/Frequency	What causes this condition and how often does it occur in the population?
Prognosis	What is the likely outcome?
Diagnosis	
Treatment/Intervention	
Client's experiences	



Disease Progression and Prognosis

Pompe Disease

Proximal muscle weakness and respiratory insufficiency

Gait abnormalities

Loss of ambulation

Ventilation support



Ask an Answerable Question

Answerable Question	Examples
Etiology/Frequency	What causes this condition and how often does it occur in the population?
Prognosis	What is the likely outcome?
Diagnosis	What are the considerations, symptoms, assessments that can detect this condition?
Treatment/Intervention	
Client's experiences	



Assessment Analysis

- The Rehabilitation Measures Database
 - www.rehabmeasures.org
- CanChild Centre for Child Disability Research
 - <http://www.canchild.ca/en/>



Assessment Development

References:

- Berninger, V., Abbott, R., Augsburger, A., & Garcia, N. (2009). Comparison of Pen and Keyboard Transcription Modes in Children with and without Learning Disabilities. *Learning Disability Quarterly*, 32, 123-141.
- Chwirka, B., Gurney, B. & Burtner, P. Keyboarding and Visual-Motor Skills in Elementary Students: A Pilot Study. *Occupational Therapy in Health Care*, 16, 39- 51.
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- International Society for Technology in Education (ISTE) (2000). National educational technology standards for students. Retrieved from http://cnets.iste.org/students/pdf/netss_standards.pdf
- Kahn, J., & Freyd, P. (1990). Online: A whole language perspective on keyboarding. *Language arts*, 67, 84-90.
- Kahn, J., & Freyd, P. (1990). Touch typing for young children: Help or hindrance? *Educational technology*, 41-45.
- MacIntyre, P. (1990). The development of elementary keyboarding skills using typewriters and



Keyboarding Rubric

LAVERDURE

Technology Guidelines: 1 – 8 Grade

Student Name: _____ Date: _____

Grade	Source	Skill	Mastery
1-2	VSOL	I can turn on/off the computer	
	VSOL	I know my school user name and password	
	VSOL	I can log on to the computer	
	VSOL	I can use the mouse to navigate the page	
		I can navigate using keyboard arrows and scroll bar	
		I can use the backward and forward buttons	
	VSOL	I can open and close a window, program, document	
	VSOL	I can use a pull down menu	
	VSOL	I can compose using the keyboard	
	<u>MacIntyre,</u> <u>Rogers</u>	I can compose using word processing software (Microsoft Word)	
	<u>Chwirka</u>	I can transfer writing from handwritten document to a word processor	



Ask an Answerable Question

Answerable Question	Examples
Etiology/Frequency	What causes this condition and how often does it occur in the population?
Prognosis	What is the likely outcome?
Diagnosis	What are the considerations, symptoms, assessments that can detect this condition?
Treatment/Intervention	What are the outcomes of specific interventions used with this condition? Are there any adverse effects of this intervention?
Client's experiences	



Intervention Analysis or Comparison

Constraint-Induced Movement Therapy

Benefits were maintained over 6 months, with supplemental evidence of quality-of-life changes for many children.

Risks

Temporary loss of independence, increase in frustration, falling, injury to the involved arm and hand



Ask an Answerable Question

Answerable Question	Examples
Etiology/Frequency	What causes this condition and how often does it occur in the population?
Prognosis	What is the likely outcome?
Diagnosis	What are the considerations, symptoms, assessments that can detect this condition?
Treatment/Intervention	What are the outcomes of specific interventions used with this condition? Are there any adverse effects of this intervention?
Client's experiences	How does the client's experiences effect the outcomes?



Participation





Ask an Answerable Question

P

- Patient, Population, Problem Characteristics

I

- Intervention

C*

- Comparison (Is there an alternative to the intervention?)

O

- Outcome (What are the relevant outcomes?)

P

- Grade-school children with handwriting difficulties

I

- Handwriting instruction approaches

C*

O

- Schoolwork production and writing legibility

What is the effectiveness of handwriting instruction approaches on improving schoolwork production and writing legibility of grade-school children with handwriting difficulties?

P

- Grade-school children with cerebral palsy

I

- Stretching interventions

C*

O

- Function and school participation

What is the effectiveness of stretching interventions on improving function and school participation in grade-school children with cerebral palsy?



Think about Your Population and Compose an Answerable Question

P

I

C*

O



Critical Analysis

- Access scientific data bases
- Analyze the literature
- Apply the knowledge



Access the Information

- Construct final clinical question
- Identify keywords and search phrases
- Decide which online resources to use
- Identify the level of literature of interest
- Search the literature
- Access and analyze the information



Key Words and Search Phrases

Broader or narrower terms	Developmental disability, Downs syndrome
Synonyms	Stretching, range of motion
Acronyms	CIMT
Alternative spellings	Behavior, behaviour
Singular/Pleural forms	Woman, Women
Consult articles, textbooks and colleagues	Visual perception, convergence insufficiency
Use dictionaries to check spelling and find synonyms	Grasp, hold, grip
Regional/historic variations	Indian, Native American



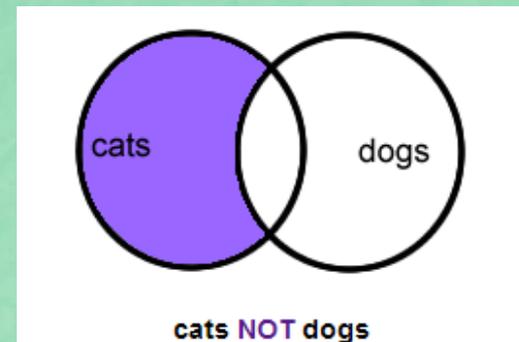
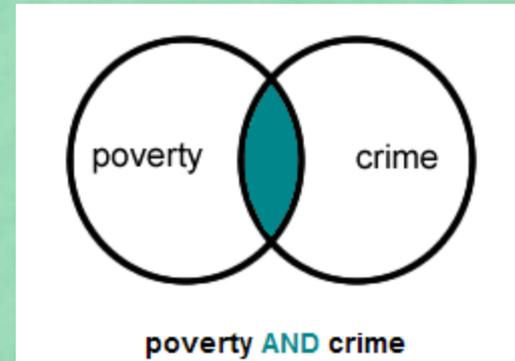
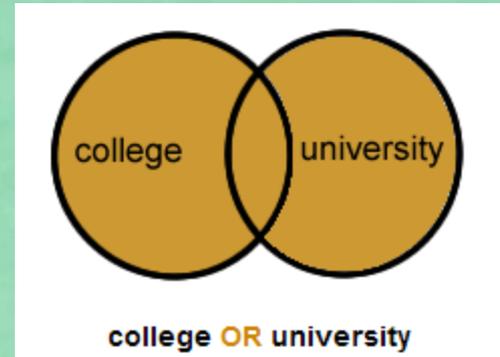
Defining Your Key Words

Population	Intervention	Comparison	Outcome



Searching for Literature

- Boolean Logic
 - OR – Synonymous terms
 - AND – Two or more terms
 - NOT – Eliminate a term





Searching for Literature

- Boolean Logic
 - Phrase Searching– Words must appear in that order and placed in quotes
 - “physical therapy”
 - * – Any word with the root will be included
 - Ther*
 - Therapy
 - Therapist
 - Therapists
 - Therapeutic



Searching for Literature

- Boolean Logic
 - Wild cards - Substitute a wildcard symbol for letter(s) in a word
 - organi?ation will find organisation or organization



Searching for Literature

Searching: **CINAHL** | [Choose Databases](#)

Suggest Subject Terms

"occupational therapy"

in

Select a Field (optional)



Search

AND

in

Select a Field (optional)



AND

in

Select a Field (optional)



Add Row

[Basic Search](#) | [Advanced Search](#) | [Visual Search](#) | [Search History](#)



Searching for Literature

 Suggest Subject Terms

in 

AND in

AND in [Add Row](#)

[Basic Search](#) | [Advanced Search](#) | [Visual Search](#) | [Search History](#)

Search History/Alerts

[Print Search History](#) | [Retrieve Searches](#) | [Retrieve Alerts](#) | [Save Searches / Alerts](#)

Select / deselect all

	Search ID#	Search Terms	Search Options	Actions
<input type="checkbox"/>	S1	 "occupational therapy"	Search modes - Boolean/Phrase	 View Results (18,790)  View Details

Page: 1 2 3 4 5 > Date Descending ▾ Page Options ▾ Alert / Save / Share ▾

18,790 Results for...
Boolean/Phrase: 1  [Computer Training for Seniors: An Academic-Community](#)



Searching for Literature

Searching: **CINAHL** | Choose Databases

Suggest Subject Terms

S1 in Select a Field (optional) ▼

AND ▼ weight* AND vest in Select a Field (optional) ▼

AND ▼ in Select a Field (optional) ▼

Search **Clear** ?

[Add Row](#)

[Basic Search](#) | [Advanced Search](#) | [Visual Search](#) | ▼ [Search History](#)



Searching for Literature

Search ID#	Search Terms	Search Options	Actions
S3	S1 AND (weight* AND vest)	Search modes - Boolean/Phrase	View Results (2) View Details Edit
S2	S1 AND (weight* AND vest)	Search modes - Boolean/Phrase	View Results (2) View Details Edit
S1	"occupational therapy"	Search modes - Boolean/Phrase	View Results (18,790) View Details Edit

Page: 1 Date Descending ▾ Page Options ▾ Alert / Save / Share ▾ >>

Alert, Save and Share Results

1. [The use of a weighted vest to increase on-task behavior in children with attention difficulties.](#)
(includes abstract) VandenBerg NL; American Journal of **Occupational Therapy**, 2001 Nov-Dec; 55 (6): 621-8. (journal article - research, tables/charts) ISSN: 0272-9490 PMID: 12959226
Abstract: Objective. Children described as having attention deficit hyperactivity disorder often demonstrate inability to sustain visual attention during classroom fine motor activities. This study investigated the effect of wearing a **weighted vest** (deep pressure



Searching for Literature

- Choose Advance Search
- Anywhere except full text - instead of the default *Anywhere*
- Use limiters to specify a date range, publication type, or limit to peer-reviewed articles



Google Scholar

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Find articles ✕

with **all** of the words

with the **exact phrase**

with **at least one** of the words

without the words

where my words occur

Return articles **authored by**
e.g., "PJ Hayes" or McCarthy

Return articles **published in**
e.g., J Biol Chem or Nature

Return articles **dated between** —
e.g., 1996



PubMed

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PubMed Advanced Search Builder

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Builder

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[Show index list](#)

or [Add to history](#)

History

There is no recent history

You are here: [NCBI](#) > [Literature](#) > [PubMed](#) [Write to the Help Desk](#)

GETTING STARTED	RESOURCES	POPULAR	FEATURED	NCBI INFORMATION
NCBI Education	Chemicals & Bioassays	PubMed	Genetic Testing Registry	About NCBI
NCBI Help Manual	Data & Software	Bookshelf	PubMed Health	Research at NCBI
NCBI Handbook	DNA & RNA	PubMed Central	GenBank	NCBI News
Training & Tutorials	Domains & Structures	PubMed Health	Reference Sequences	NCBI FTP Site
	Genes & Expression	BLAST	Gene Expression Omnibus	NCBI on Facebook
	Genetics & Medicine	Nucleotide	Map Viewer	NCBI on Twitter
	Genomes & Maps	Genome	Human Genome	NCBI on YouTube
	Homology	SNP	Mouse Genome	
	Literature	Gene	Influenza Virus	
	Proteins	Protein	Primer-BLAST	
	Sequence Analysis	PubChem	Sequence Read Archive	
	Taxonomy			
	Training & Tutorials			
	Variation			

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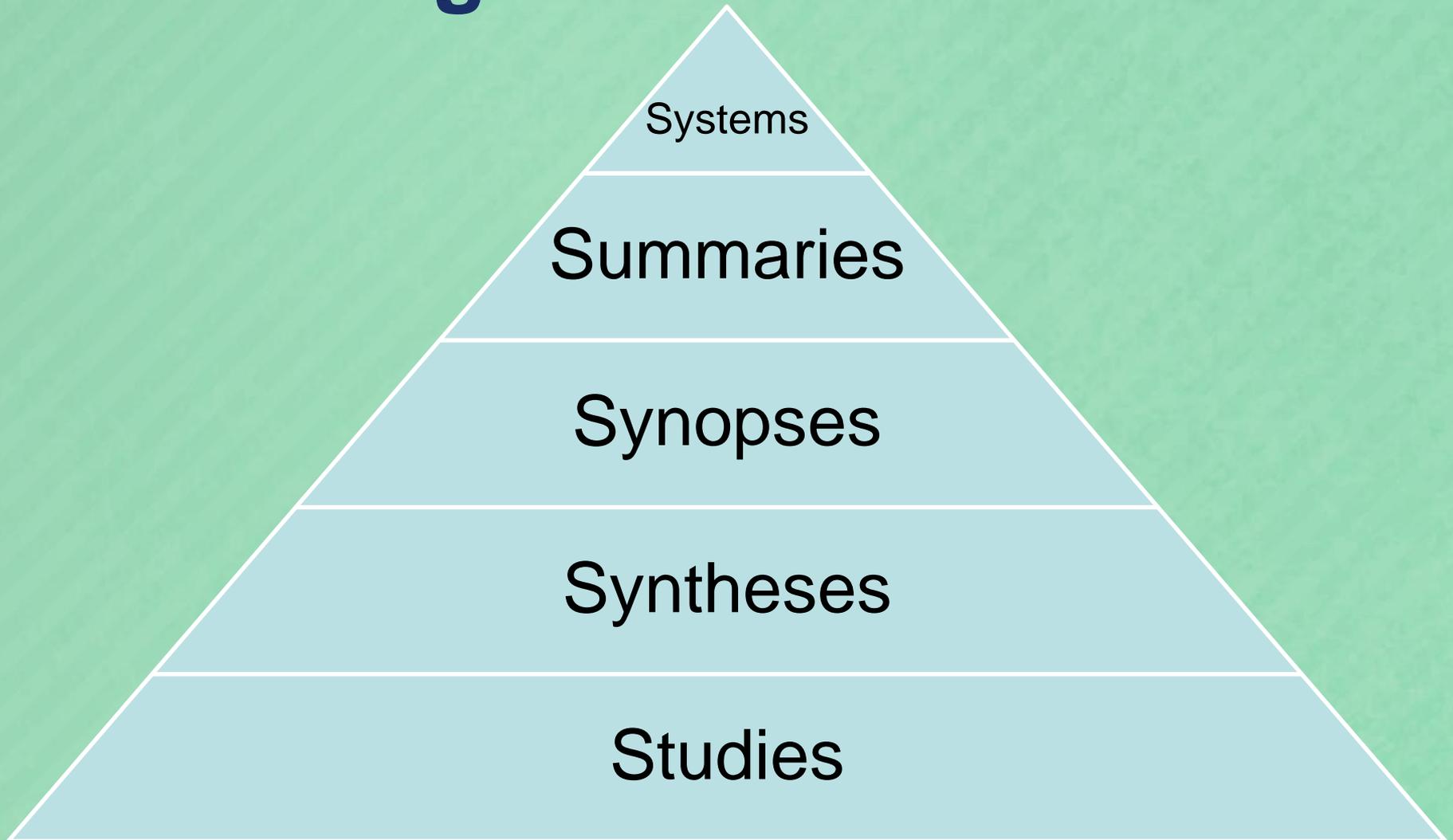


Accessing Literature

- Open Source
- Professional Organizations
 - NBCOT
 - APTA
 - ASHA
- University Alumni Association
- School Division Education Library
- Students and their Universities



Accessing Literature

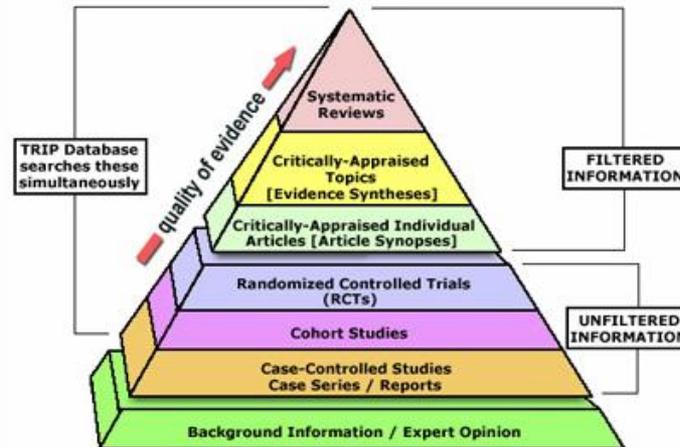




Resource

- New York Universities Libraries - <http://nyu.libguides.com>

CLICK ON A SEGMENT OF THE PYRAMID BELOW TO ACCESS LINKED RESOURCES at NYU



New York University Libraries » Research Guides »
Physical Therapy Research Guide



Access the Information

Too Many Articles

Narrow question

Use more specific search terms

Search using subject headings

Apply subheadings

Combine terms using AND

Too Few Articles

Broaden question

Find more search terms

Try different combinations of terms

Use truncation (*)

Add synonyms and related terms

Use both heading and keywords



Appraise the Information

What is Critical Appraisal?

Critical appraisal is the process of carefully and systematically examining research to judge its trustworthiness, value and relevance in a particular context.



Analytic Study

PICO QUESTION

Target Population
(Inclusion/Exclusion)

Predictor
(Risk Factor,
Intervention,
Assessment)

Outcome
(What is impacted)



Analytic Study

PICO QUESTION

Target Population
(Inclusion/Exclusion)

Predictor
(Risk Factor,
Intervention,
Assessment)

Outcome
(What is impacted)

STUDY DESIGN

Subjects
(Characteristics)

Predictor Variable
(Defined and
Measured)

Outcome
(Defined and
Measured)



Analytic Study: Findings

STUDY DESIGN

Subjects
(Characteristics)

Predictor Variable
(Defined and Measured)

Outcome Variable
(Defined and Measured)





Is the Study Finding Believable?

- Do the subjects and variables match my PICO question?
- Is the finding contributable to other factors?
- Is the finding believable in the context of other knowledge
- What is clinically relevant?



Appraise the Information

Levels of Evidence	Characteristic
Level I	Systematic reviews, meta-analyses, randomized controlled trials
Level II	Two groups, nonrandomized studies (e.g., cohort, case-control)
Level III	One group, nonrandomized (e.g., before and after, pretest and posttest)
Level IV	Descriptive studies that include analysis of outcomes (single subject design, case series)
Level V	Case reports and expert opinion that include narrative literature reviews and consensus statements



Hierarchy of Evidence

- Studies at the higher levels of evidence are:
 - Least vulnerable to bias
 - More generalizable
 - Outcomes are more likely to be attributed to the intervention being studied

Levels of Evidence

Level I

Level II

Level III

Level IV

Level V



Research Objectives

- What were the objectives of the study?
- What research questions are being asked?
- Does it match the PICO question?



Sample Selection

- Who is the study about? (Population/sample)
 - Inclusion
 - Exclusion
 - How were participants recruited
 - Sample characteristics
 - Did the study have enough participants to minimize the power of chance



Intervention & Control Groups

- What was the intervention?
 - Is there a description of the intervention?
 - Setting
 - Who delivered?
 - What was the frequency and duration?
 - If there was a comparison group and was that intervention described?



Intervention & Control Groups

- Intervention biases
 - Contamination
 - Co-intervention
 - Timing
 - Site
 - Use of different therapists to provide intervention





Measures and Outcomes

- How was the outcome measured?
 - Was it appropriate for the question?
 - Was it reliable?
 - Was it valid?
 - Was the assessment blind?
 - Was there recall or memory bias?



Results: Role of Chance

- How were the results represented and what is the main result (relative to answering the focused question)?
 - Were p-values or confidence intervals reported?
 - Were effect sizes reported, if appropriate?
 - Was the study adequately powered? Was the statistical analysis appropriate?
 - Were the conclusions of the article justified?



Evidence Table

What is the effectiveness of handwriting instruction approaches on improving schoolwork production and writing legibility of grade-school children with handwriting difficulties?

Author/ Year	Study Objectives	Level/Design/Subjects	Intervention and Outcome Measures	Results	Study Limitations	Implications for OT
Blandford & Lloyd (1987)	To evaluate the outcome of teaching self-instructional strategies on the handwriting improvement of children with learning disabilities and poor handwriting performance.	IV; Single subject design - Multiple Baseline Design Subjects: Two boys with learning disabilities and handwriting difficulties Ages: 11 years 4 months and 10 years 6 months.	<i>Intervention:</i> The students participated in the same special education classroom in which reading, spelling, English, handwriting and social studies were taught. They were taught handwriting using the Building Handwriting Skills Curriculum. They were also instructed in a regular education setting for math, health science, physical education, music and library. A card showing seven self-instructional	Results: The study results indicated that: Handwriting improves markedly when self-instructional cards are introduced. Gains achieved in handwriting persist over time while the card remains available. Effects are maintained even after the card is no longer available. Effects are transferable (generalized) to other settings.	The reliability and validity of the outcome measure is questionable. In addition, the methodology for capturing the results of the writing outcomes in the inclusive instructional settings is highly questionable. A school volunteer was used in the agreement determination of the reliability of the outcome measurement and agreement was only obtained at 78%.	Practice Community: The study offers preliminary but very cautious evidence that using cognitive task cards may improve a student's learning of and accountability for his/her own handwriting. Though the study results are not strong (due to the sample size, statistical analysis and study design limitations) it may inform supplemental intervention choices. Program Development/Policy: The intervention



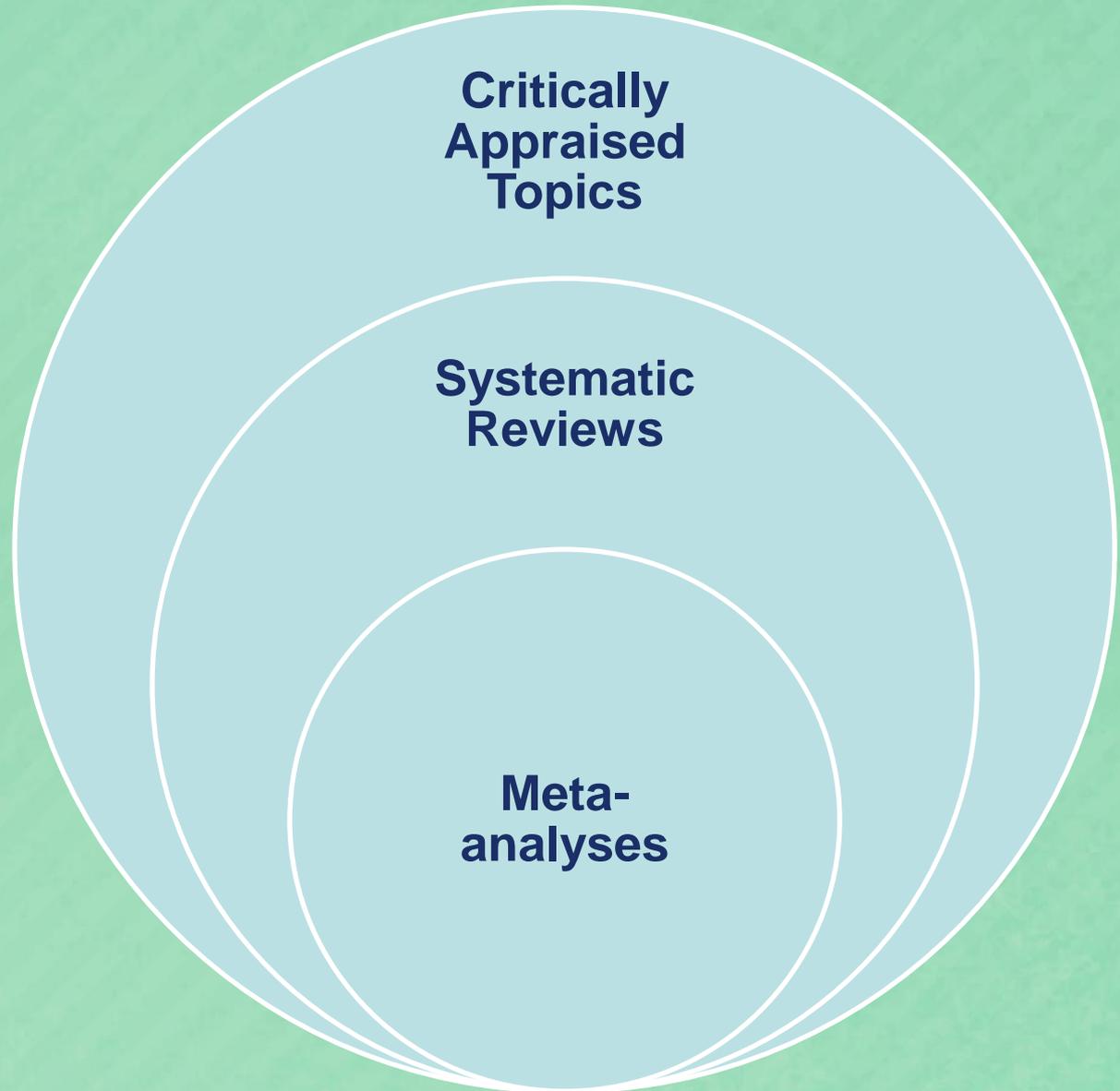
Limits of a Single Study

- Use of one study versus multiple studies
 - One study makes it more difficult to generalize
 - Do the limitations of the study affect the strength of the evidence





Reviews





Reviews

- A review of existing knowledge that uses explicit and scientific methods to review an array of studies on a specific topic.



Reviews

- Systematic reviews have clear description of:
 - Research question
 - Inclusion/exclusion criteria
 - Process used to identify studies
 - Methods used to assess quality
 - Methods use to abstract and summarize data
 - May or may not combine data quantitatively (meta-analysis)



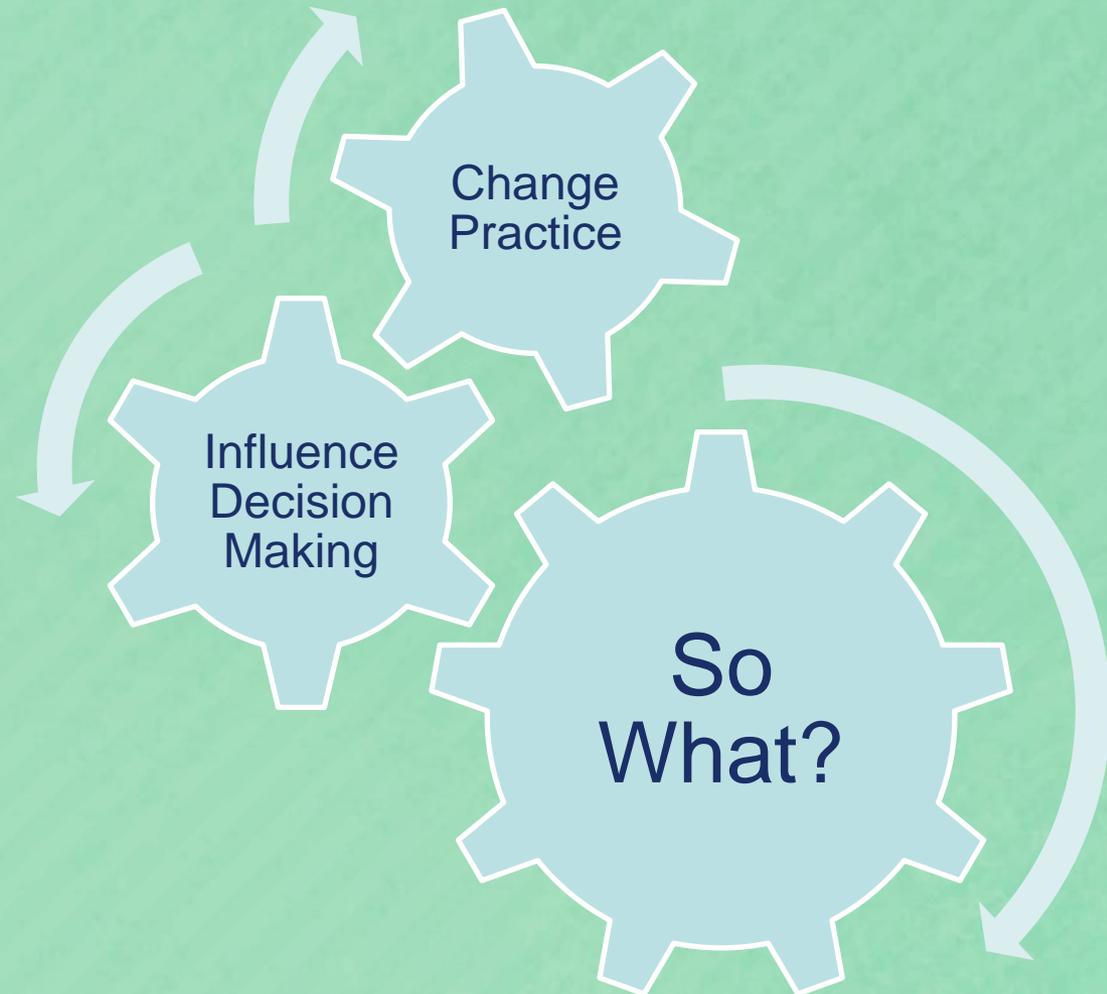
Critically Appraised Topics

- Pacific University: Common Knowledge
 - <http://commons.pacificu.edu/ptcats/>
- University of Nevada, Las Vegas
 - <http://www.unlv.edu/pt/research/appraised-topics>
- OTCATs
 - <http://www.otcats.com/topics/>
- Creighton University
 - <http://ot.creighton.edu/community/EvidenceReviews/CATS>



Applying the Information

- What do the results of information mean for teaching methodology and practice?





What is the effectiveness of handwriting instruction approaches on improving schoolwork production and writing legibility of grade-school children with handwriting difficulties?

- **Practice:**
 - Two overarching intervention approaches:
 - Perceptual and sensory-motor approaches
 - Meta-cognitive approaches – Most effective particularly if combined with supplemental handwriting instruction and blocked practice (Motor Learning Theory)



What is the effectiveness of handwriting instruction approaches on improving schoolwork production and writing legibility of grade-school children with handwriting difficulties?

- **Program development:**
 - **Common handwriting curricula should be:**
 - Systematic
 - Cognitive strategies
 - Self-monitoring
 - Self-assessment



What is the effectiveness of handwriting instruction approaches on improving schoolwork production and writing legibility of grade-school children with handwriting difficulties?

- **Societal needs:**
 - **What is the role of handwriting in our society?**
 - Studies suggest that early, individualized supplemental handwriting instruction may improve written language abilities
 - Advocacy for systematic, cognitive and motor learning based handwriting curricula



What is the effectiveness of handwriting instruction approaches on improving schoolwork production and writing legibility of grade-school children with handwriting difficulties?

- **Healthcare delivery and health policy:**
 - **What are the secondary impacts?**
 - Systematic, short term supplemental handwriting instruction may be beneficial in improving the handwriting, increasing interest and motivation in handwriting and writing occupations, and decreasing secondary effects on written language and learning.
 - Cost effective method of improving learning outcomes in children.



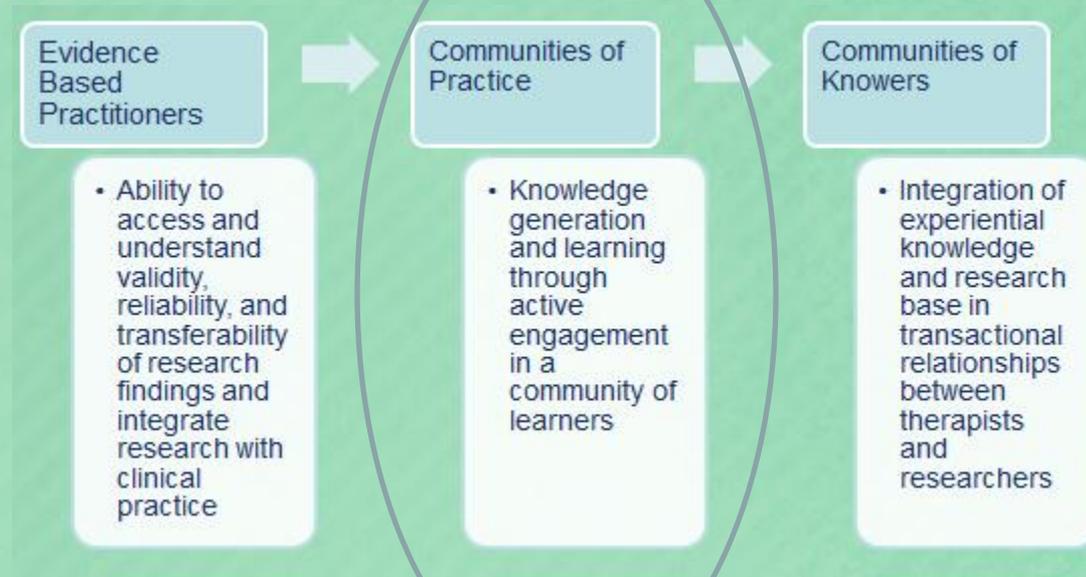
Applying the Information

- Shared Decision Making: Translating Information
 - Understand student's, family's, and school team's experiences and expectations
 - Build partnerships
 - Discuss the evidence using non-technical language (tailoring amount and pace according to audience)
 - Present recommendations
 - Check for understanding



Communities of Practice

- Knowledge generation and learning with community of learners



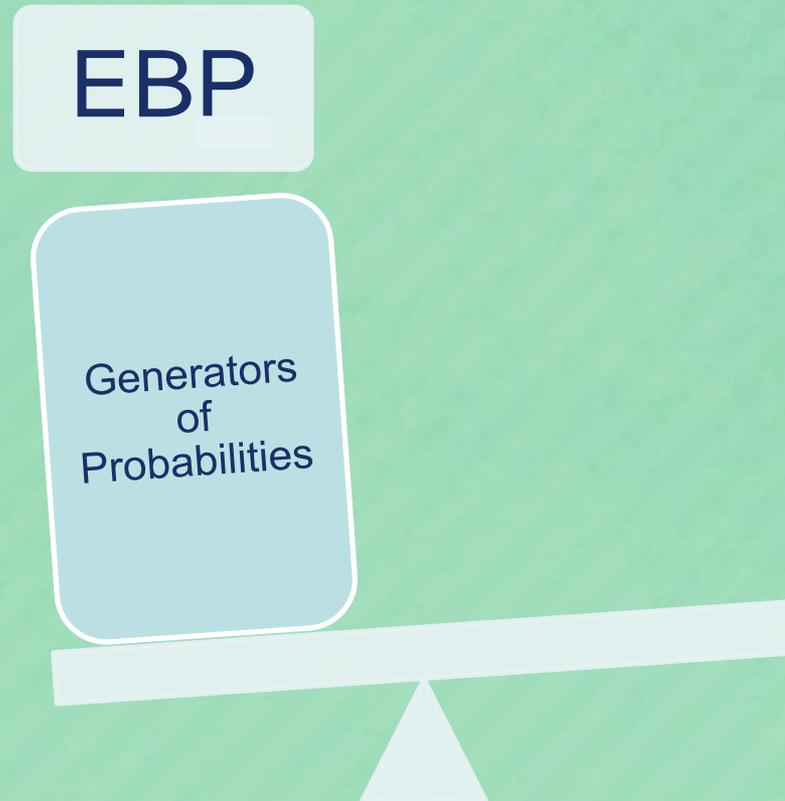


Practice Change

- Multi-component, multi-faceted and interactive learning activities
- Case relevancy
- Explicit knowledge translation supports and mentorship

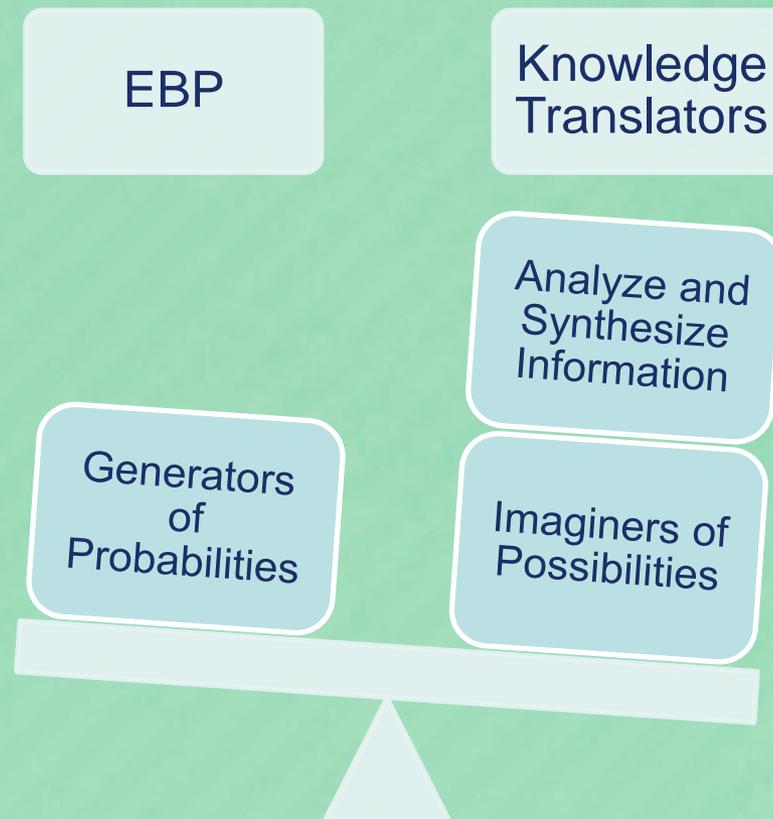


Practice Implementers





Practice Imaginers





Knowledge Brokering

- *Practice librarians*
 - Accessing and interpreting information
 - Understanding clinical applicability
 - Identifying barriers to implementation
- *Content experts*
 - Facilitating collaboration and research uptake
 - Facilitate a clinical community/social structure



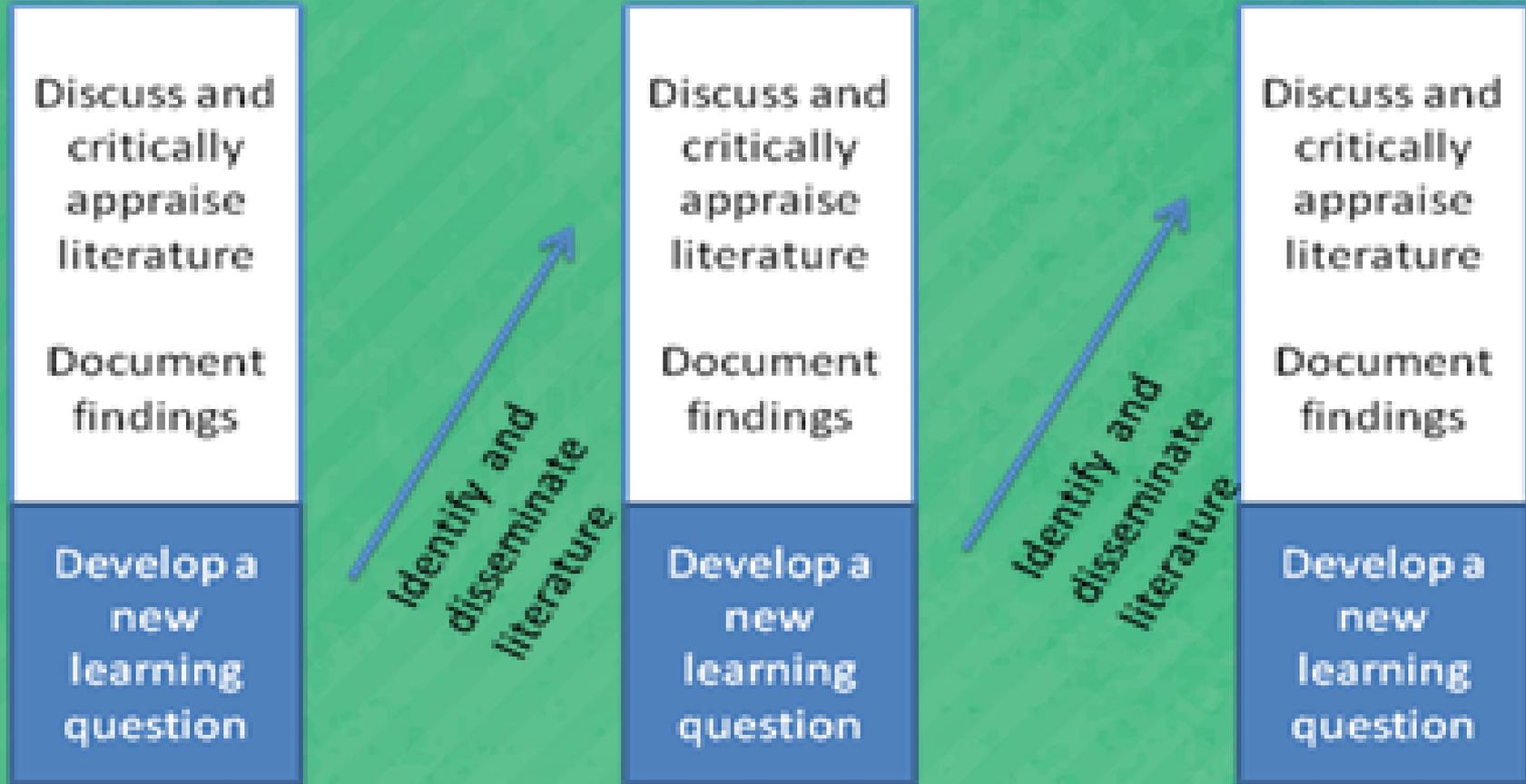
Journal Clubs

- Meet – Share – Learn – Create Change
 - Team approach to professional development and lifelong learning
 - Open up debate about in the critical analysis/evaluation of the effectiveness of practice
 - Build knowledge in critical appraisal skills
 - Translate knowledge into evidence based practice



Journal Club Model

- Disseminate case-based/clinical research information/articles and read critically
- Ask key questions relative to practice
- Share current knowledge and discuss the meaning of the information relative to practice
- Collaboratively apply information from articles to current knowledge and practice
- Share information in a way that influences practice
- Identify follow on learning needs





What is the effectiveness of weighted vests for children in school settings?

Therapy Services Meeting Report

Collaborative Learning Team: Evidence for Sensory Processing Practices in School Settings Journal Club: Weighted Vests

Date: June 3, 2013

Present: Karen Devlin, Judy Duprey, Patty Laverdure, Karen McCormack

Item/Action	Discussion	Decision/Outcome
Review all of the literature on alternative seating (therapy balls, cushions)	We searched and located all of the literature published in peer-reviewed journals on the use of alternative seating (therapy balls, cushions) with children	We completed a journal article review matrix addressing the study objectives, level, design and subjects, intervention provided and outcome measures, results of the study, study limitation and implications for our practice. We will compile the results into a practice statement for distribution.
Discussed next topic.	We decided to look at the literature addressing the use of fidgets, sensory diets and sensory readiness	Patty will conduct a literature search and distribute articles to the journal club members for review.



What is the effectiveness of weighted vests for children in school settings?

Clinical Bottom Line for Our Practice

There is no clinically or empirically established treatment protocol (such as weight, wearing time, duration) for the use of weighted vests in clinical practices. The amount of weight (such as 5 – 10% of body weight) and wearing schedules (such 2 hours on/2 hours off) are not empirically based and are considerably variable in the literature.

There is no evidence supporting the use of weighted vests with preschool and elementary school children with ADHD (self-regulation, attention, on task/seat-work behaviors and activity), sensory processing disorders (attention, activity regulation, in-seat behaviors), autism spectrum disorders (self-regulation, stereotyped behaviors, attention and self-injurious behaviors) and cognitive impairment (self-regulation, stereotyped behaviors, attention and self-injurious behaviors). The studies that are available are characterized by weak research design, small convenience samples and non-standardized outcome measurement.

- One study showed an increase in the duration of focused attention and decrease in distractions during the intervention phase but these effects were not sustained when the weighted vest was removed.
- In another study subjects demonstrated a decrease in the duration of self-stimulatory behaviors while wearing a weighted vest but upon removal of the weighted vest, self-stimulatory behaviors increased for all participants.
- An additional study suggests that wearing a weighted vest not only was ineffective but may have had a negative effect in children with autism and stereotypy.
- Several authors suggest that weighted vests, calibrated at 5–10% body weight, may not provide strong enough sensory input for children with significant sensory modulation differences and/or hyperactivity.

We recommend that weighted vests not be used as a primary intervention with children at this time.

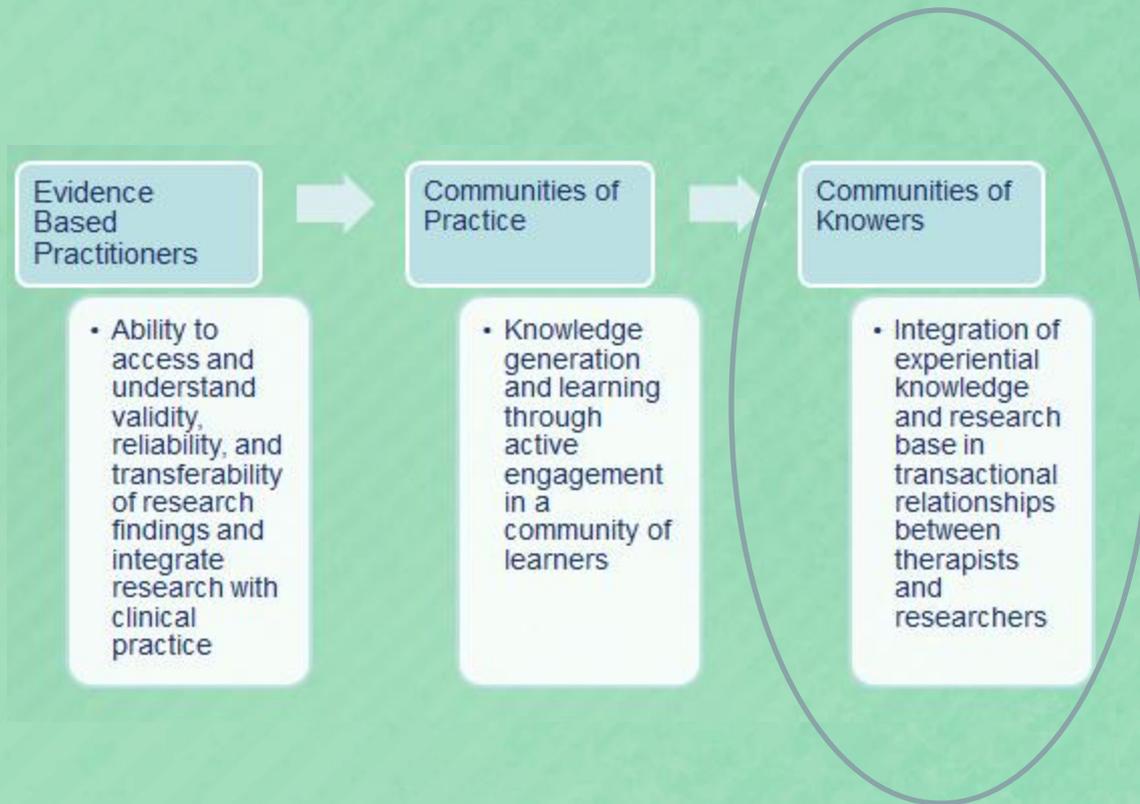
If school teams choose to use them, we recommend that they be used in conjunction with other interventions. If they are used we recommend that school teams:

- Clearly analyze and determine the specific functional behavior that they are targeting,
- Carefully collect baseline data (with at least six to ten data points),
- Clearly defined objectives for the use of the weighted vest,
- Define a wearing schedule (weight, time),
- Systematically collect data on functional behaviors, and
- Frequently analyze the results of the effects so its use can be discontinued if positive effects are not seen. (Some studies suggest that novelty effects discontinue as quickly as three wearings.)



Communities of Knowers

- Integration of experiential knowledge and research base in relationships with each others and with researchers





Practice Change

- “Change, such as voluntarily finding and employing the best evidence, requires not just time and skill but a personal attitude and commitment to change.” (White, 2005, p. 54)



KT Process Approach

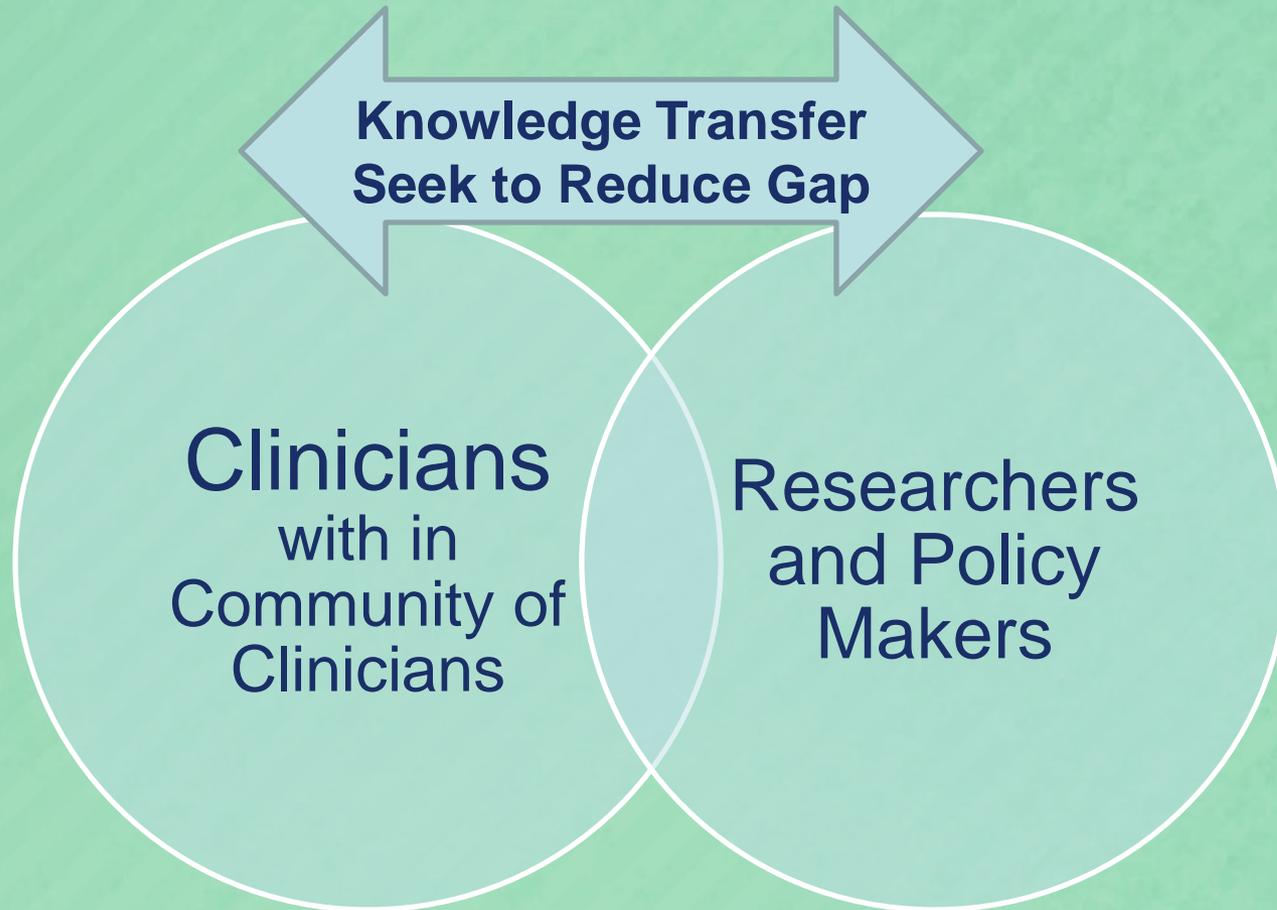
- Linking and exchanging information
 - Link researchers, practitioners, program developers, policy makers
- Information management
 - Information access and saliency and practice consistency
- Capacity development
 - Efficient and effective professional development
 - Continuous case based, peer-to-peer learning

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Ward, V., House, A., & Hamer, S. (2009). Knowledge brokering: The missing link in the evidence to action chain? *Evidence & Policy*, 5, 267-279.



Active Consumers of Research



Clinicians
with in
Community of
Clinicians

Researchers
and Policy
Makers

Knowledge Transfer
Seek to Reduce Gap



Practice Scholarship

Forging New Pathways

Generate practice knowledge

Conserve the narrative and experiential aspects of practice knowledge

Transform and disseminate practice knowledge that supports positive client outcomes

Expert practice capacities:
Guide the preservation and advancement of the profession



Join the Community of Knowers

- PALaverdure@verizon.net

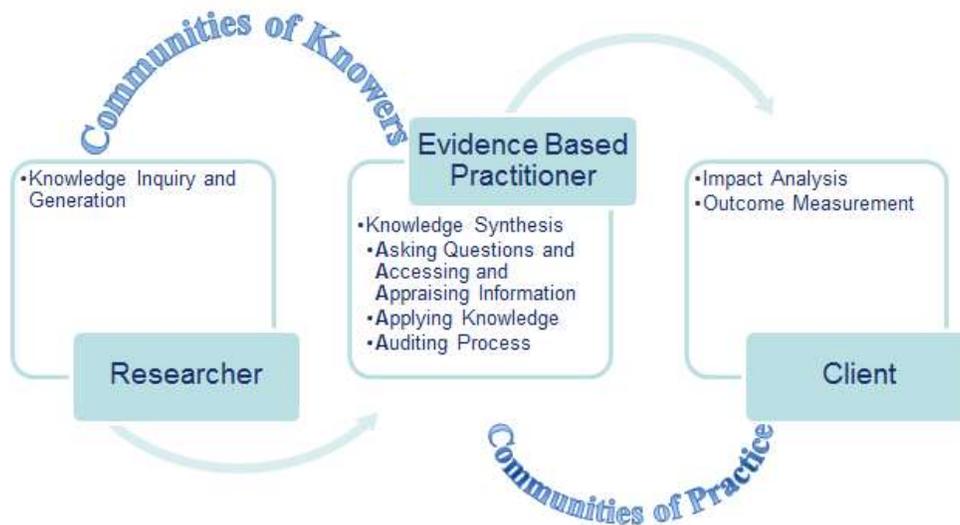


WORKING TOGETHER TO ACHIEVE STUDENT SUCCESS

64TH CONFERENCE ON EXCEPTIONAL CHILDREN

Using the Evidence to Guide Practice in the Educational Setting

Patricia Laverdure, OTD, OTR/L, BCP



EBP: *Why??*

- EBP important paradigm in health care
- “The occupational therapist...utilize[s]...evidence, and clinical reasoning to guide the intervention.” (AOTA, 2002)
- “Physical therapists...will render evidence-based services...” (APTA, 2006)
- “Audiologists and speech-language pathologists incorporate the principles of evidence-based practice in clinical decision making...” (ASHA, 2005)



Transfer Learning/Knowledge

- Engage experiential knowledge with relevant contextual factors
- Validate narrative/qualitative (action) research
- Bring EBP to the systems level
- Bridge research to practice gap

Lencucha, R., Kothari, A., & Rouse, M. (2007). The Issue Is—Knowledge translation: A concept for occupational therapy? *American Journal of Occupational Therapy*, 61, 593–596.

Schreiber, J. & Dole, R. (2012). The effect of knowledge translation procedures on application of information from a continuing education conference. *Pediatric Physical Therapy*, 24, 259-266.

Van Sant, A.F. Translating Research to Practice. *Pediatric Physical Therapy*, 23, 321.

Competency Requirements

- AOTA, APTA and ASHA
 - Standards for Continuing Competence
 - Self Evaluation and Life Long Learning
- IDEA 2004
 - Highly Qualified and Use of Evidence
- ESEA/NCLB
 - Subject matter competency
- CEC Content standard 9
 - Plan and engage in PD that fosters professional competence and evidence based practice

ESEA/ IDEA Guidance

- Elementary and Secondary Education Act (NCLB)
 - Schools are accountable for outcomes
 - Use instructional methodology that demonstrates effectiveness through scientifically-based research
- IDEA
 - Continually assess all student learning
 - Apply research to decision making process

Self Directed Learning Model

Definition: EBP

In a way that influences problem solving

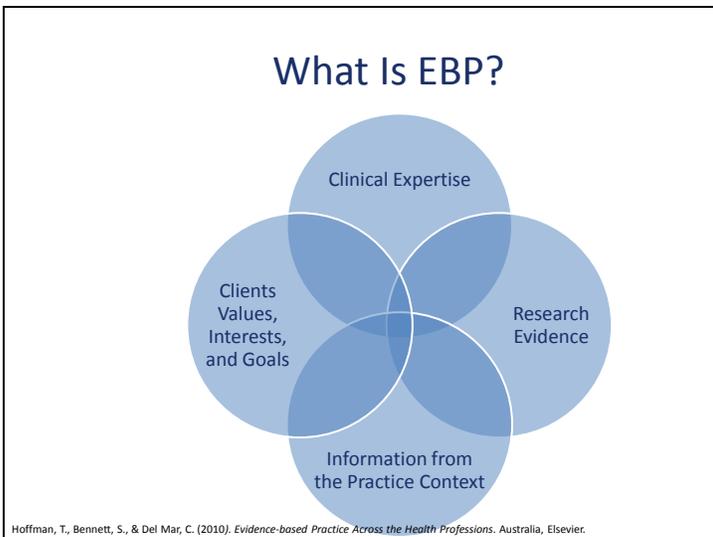
“...the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients.”

“The practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research.”

And changes our behavior

Access right information at the right time

Law, M. & MacDermid, J. (2008). Introduction to evidence-based practice. In M. Law & J. MacDermid (Eds) Evidence-based rehabilitation: A guide to practice (2nd Ed), pp. 3-14. Thorofare, NJ: SLACK, Inc.



Myths of EBP

<p>Myths</p> <ul style="list-style-type: none"> • EBP already exists • EBP is impossible to put into practice • EBP is cookie cutter practice • EBP is a cost cutting mechanism 	<p>Reality</p> <ul style="list-style-type: none"> ■ Many practitioners take little or no time to review current literature ■ Even very busy practitioners can advance EBP in their work ■ EBP requires advanced clinical expertise/ mentorship ■ EBP emphasizes the best available evidence for each unique circumstance
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Law, M. & MacDermid, J. (2008). *Evidence-Based Rehabilitation: A Guide to Practice*. Thorofare, NJ: Slack.

Process of EBP

Step	Action
1	Convert information needs into an answerable question
2	Find the best evidence to answer question
3	Critically appraise the evidence for its validity, impact and applicability
4	Integrate evidence with clinical expertise, client values, interest, and goals, and contextual demands
5	Evaluate the effectiveness of the process

Hoffman, T., Bennett, S., & Del Mar, C. (2010). *Evidence-based Practice Across the Health Professions*. Australia, Elsevier.

Process of EBP

Step	Five As	Action
1	ASK a question	Convert you information needs into an answerable question
2	ACCESS the info	Find the best evidence to answer your question
3	APPRAISE the articles	Critically appraise the evidence for its validity, impact and applicability
4	APPLY the info	Integrate evidence with clinical expertise, client values, interest, and goals, and contextual demands
5	AUDIT the process	Evaluate the effectiveness of this process

Hoffman, T., Bennett, S., & Del Mar, C. (2010). *Evidence-based Practice Across the Health Professions*. Australia, Elsevier.

Lou, J. & Durando, P. (2008). Asking clinical questions and searching for the evidence. In M. Law & J. MacDermid (Eds) *Evidence-based rehabilitation: A guide to practice* (2nd Ed), pp. 95-117. Thorofare, NJ: SLACK, Inc.

Ask an Answerable Question

Answerable Question	Examples
Etiology/Frequency	What causes this condition and how often does it occur in the population?
Prognosis	What is the likely outcome?
Diagnosis	What are the considerations, symptoms, assessments that can detect this condition?
Treatment/Intervention	What are the outcomes of specific interventions used with this condition? Are there any adverse effects of this intervention?
Client's experiences	How does the client's experiences effect the outcomes?

Key Words and Search Phrases

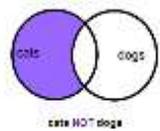
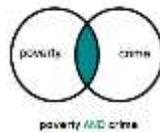
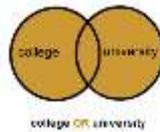
Broader or narrower terms	Developmental disability, Downs syndrome
Synonyms	Stretching, range of motion
Acronyms	CIMT
Alternative spellings	Behavior, behaviour
Singular/Pleural forms	Woman, Women
Consult articles, textbooks and colleagues	Visual perception, convergence insufficiency
Use dictionaries to check spelling and find synonyms	Grasp, hold, grip
Regional/historic variations	Indian, Native American

Defining Your Key Words

Population	Intervention	Comparison	Outcome

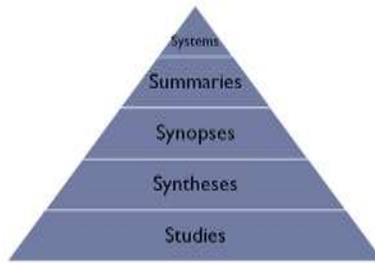
Searching for Literature

- Boolean Logic
 - OR – Synonymous terms
 - AND – Two or more terms
 - NOT – Eliminate a term



Using Boolean Logic to Conduct a Literature Search in Pub Med - You Tube Resource:

<http://www.youtube.com/watch?v=fNLWGuiQGeo>



Systems	Electronic decision support systems	
Summaries	Regularly updated data bases of evidence	<ul style="list-style-type: none"> • Clinical Evidence: http://clinicalevidence.bmj.com/x/index.html • Up to Date: http://www.uptodate.com/home • Physician's Information and Education Resource: http://pier.acponline.org/index.html • First Consult: http://www.firstconsult.com/php/387925712-149/home.html
Synopses	Structured abstracts of studies and meta-analyses screened for methodological rigor	<ul style="list-style-type: none"> • APC Journal Club: http://acpjc.acponline.org/ • EBM for Primary Care and Internal Medicine: http://ebm.bmj.com/ • Bandolier: http://www.medicine.ox.ac.uk/bandolier/ • Journals and Associations (Practice guidelines)
Synthesis	Systematic reviews and Critically Appraised Topics	<ul style="list-style-type: none"> • American Occupational Therapy Association – www.aota.org • American Physical Therapy Association – www.apta.org • Beach Center on Disabilities: http://www.beachcenter.org/default.aspx • Case-focused critical appraisals of evidence: http://www.cebm.utoronto.ca/syllabi/physio • CATS: http://www.cebm.utoronto.ca/ • CATs in Pediatric Medicine: http://www.urmc.rochester.edu/medicine/res/CATS/ • CanChild: http://www.canchild.ca/en/ • UNC CAT Index (CATs developed by medical doctors, clinicians) • www.med.unc.edu/medicine/edursrc/catlist.htmCincinnati Children's Hospital Evidence Based Medicine: http://www.cincinnatichildrens.org/service/jj/anderson-center/evidence-based-care/legend/ • Cochrane Database of Systematic Reviews: www.cochrane.org • Creighton University CATs: http://ot.creighton.edu/community/EvidenceReviews.htmCampbell Collection: http://www.campbellcollaboration.org/ • Critically Appraised Topics (Fetters, et al.): http://www.usc.edu/projects/rehab/private/2004_Fetters_critically.pdf • Database of Abstracts and Reviews of Effects: http://www.library.ucsf.edu/db/database-abstracts-reviews-effects-dare • The Early Childhood Technical Assistance Center EBP Center: http://ectacenter.org/topics/evbased/evbased.asp • Medline plus: http://www.nlm.nih.gov/medlineplus/ • Pacific University: http://commons.pacificu.edu/otcats/

		<ul style="list-style-type: none"> • OT CATs: http://www.otcats.com/ • OT Evidence: www.otevidence.info • OT Seeker: http://www.otseeker.com/links.aspx • UNC CAT Index: <ul style="list-style-type: none"> • www.med.unc.edu/medicine/edursrc/catlist.htm • University Of Nevada Las Vegas PT CATs: http://pt.unlv.edu/ebpt/cats.html • University of British Columbia Rehab Science CATs: http://www.mrsc.ubc.ca/site_page.asp?pageid=98 • What Works Clearing House: http://ies.ed.gov/ncee/wwc/ • Speech Language Pathology CAPs and CATs: http://www.ciap.health.nsw.gov.au/specialties/ebp_sp_path/cap
<p>Studies</p>	<p>Individual studies</p> <p>Critical Review Forms:</p> <p>Quantitative Studies: http://www.canchild.ca/en/canchildresources/resources/quantguide.pdf</p> <p>Qualitative Studies: http://www.canchild.ca/en/canchildresources/resources/quantform.pdf</p>	<ul style="list-style-type: none"> • ERIC - http://www.eric.ed.gov/Discipline specific databases (See Resources) • National Guideline Clearinghouse http://guideline.gov/ • OT Search - http://www.aotf.org/resources/wl/library/otsearch.aspx • OTseeker – www.otseeker.com • OT Web Portal – www.otevidence.info • PubMed: www.pubmed.org • ProQuest Through NBCOT (Free): http://www.nbcot.org/index.php?option=com_content&view=article&id=285&Itemid=212

Resource

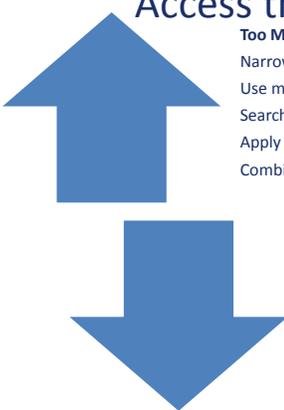
- New York Universities Libraries - <http://nyu.libguides.com>

CLICK ON A SEGMENT OF THE PYRAMID BELOW TO ACCESS LINKED RESOURCES @ NYU



New York University Libraries » Research Guides » Physical Therapy Research Guide

Access the Information



Too Many Articles
Narrow question
Use more specific search terms
Search using subject headings
Apply subheadings
Combine terms using AND

Too Few Articles
Broaden question
Find more search terms
Try different combinations of terms
Use truncation (*)
Add synonyms and related terms
Use both heading and keywords

Appraise the Information

What is Critical Appraisal?

Critical appraisal is the process of carefully and systematically examining research to judge its trustworthiness, value and relevance in a particular context.

Critical Appraisal of the Evidence YouTube Resource:
<http://www.youtube.com/watch?v=AsDgLp-q45Y>
Friedland, D. (1998) Guide for assessing the validity of a study. In Friedland et. al. Evidence-based medicine: A framework for clinical practice. Stamford , CT : Appleton & Lange. (pp. 103-128)

Is the Study Finding Believable?

- Do the subjects and variables match my PICO question?
- Is the finding contributable to other factors?
- Is the finding believable in the context of other knowledge
- What is clinically relevant?

Appraise the Information

Levels of Evidence	Characteristic
Level I	Systematic reviews, meta-analyses, randomized controlled trials
Level II	Two groups, nonrandomized studies (e.g., cohort, case-control)
Level III	One group, nonrandomized (e.g., before and after, pretest and posttest)
Level IV	Descriptive studies that include analysis of outcomes (single subject design, case series)
Level V	Case reports and expert opinion that include narrative literature reviews and consensus statements

Law, M. & MacDermid, J. (2008). *Evidence-Based Rehabilitation: A Guide to Practice*. Thorofare, NJ: Slack.

Research Objectives

- What were the objectives of the study?
- What research questions are being asked?
- Does it match the PICO question?

Sample Selection

- Who is the study about? (Population/sample)
 - Inclusion
 - Exclusion
 - How were participants recruited
 - Sample characteristics
 - Did the study have enough participants to minimize the power of chance

Intervention & Control Groups

- What was the intervention?
 - Is there a description of the intervention?
 - Setting
 - Who delivered?
 - What was the frequency and duration?
 - If there was a comparison group and was that intervention described?

Intervention & Control Groups

- Intervention biases
 - Contamination
 - Co-intervention
 - Timing
 - Site
 - Use of different therapists to provide intervention

Measures and Outcomes

- How was the outcome measured?
 - Was it appropriate for the question?
 - Was it reliable?
 - Was it valid?
 - Was the assessment blind?
 - Was there recall or memory bias?

Results: Role of Chance

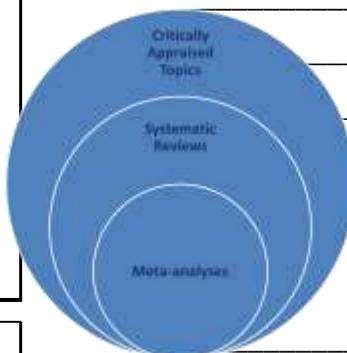
- How were the results represented and what is the main result (relative to answering the focused question)?
 - Were p-values or confidence intervals reported?
 - Were effect sizes reported, if appropriate?
 - Was the study adequately powered? Was the statistical analysis appropriate?
 - Were the conclusions of the article justified?

Graph Pad Prisms Guide to Statistics:
<http://www.graphpad.com/guides/prism/6/statistics>

Reviews

- Systematic reviews have clear description of:
 - Research question
 - Inclusion/exclusion criteria
 - Process used to identify studies
 - Methods used to assess quality
 - Methods use to abstract and summarize data
 - May or may not combine data quantitatively (meta-analysis)

How to Critically Appraise a Systematic Review YouTube:
<http://www.youtube.com/watch?v=NSUk5FLbJoY>

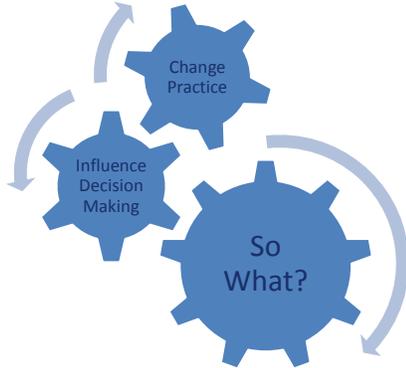


Critically Appraised Topics

- Pacific University: Common Knowledge
 - <http://commons.pacificu.edu/ptcats/>
- University of Nevada, Las Vegas
 - <http://www.unlv.edu/pt/research/appraised-topics>
- OTCATs
 - <http://www.otcats.com/topics/>
- Creighton University
 - <http://ot.creighton.edu/community/EvidenceReviews/CATS>

Applying the Information

- What do the results of information mean for teaching methodology and practice?



Applying the Information

- Shared Decision Making: Translating Information
 - Understand student's, family's, and school team's experiences and expectations
 - Build partnerships
 - Discuss the evidence using non-technical language (tailoring amount and pace according to audience)
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 - Check for understanding

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Rivard, L., Russell, D., Roxborough, L., Ketelaar, M., Bartlett, D., & Rosenbaum, P. (2010). Promoting the use of measurement tools in practice: A mixed methods study of activities and experiences of physical therapist knowledge brokers. *Physical therapy, 90*, 1580-1590.

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Dingle, J. & Hooper, L. (2000). Establishing a Journal Club in an occupational therapy service: One service's experience. *British Journal of Occupational Therapy, 63*, 554-556; Sherratt, C. (2005). The Journal Club: A method for occupational therapists to bridge the theory-practice gap. *British Journal of Occupational Therapy, 68*, 302-306.

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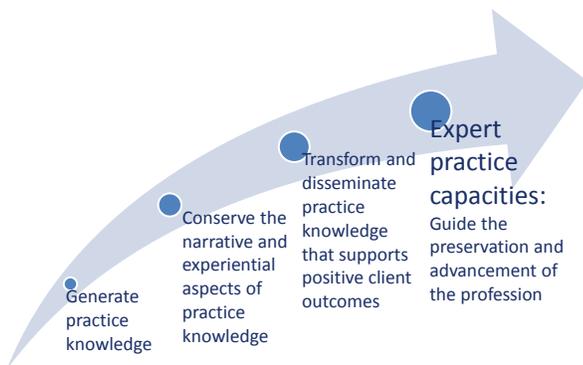
Active Consumers of Research



Banks-Wallace, J., Despins, L., Adams-Leander, S., McBroom, L., & Tandy, L. (2008). Re/Affirming and Re/Conceptualizing Disciplinary Knowledge as the Foundation for Doctoral Education. *Advances in Nursing Science*, 31(1), 67-78.

Practice Scholarship

Forging New Pathways



Patricia Laverdure: palaverdure@verizon.net