

Sustaining Evidence Based Projects in your Clinic

Wendy Romney, PT, DPT, PhD, NCS


1

Session Objectives

- Define the practice and science of knowledge translation and its components
- Integrate knowledge translation framework into a project
- Identify strategies to facilitate knowledge translation
- Create an action plan to implement an evidence-based practice

2

What are your barriers to implementing evidence-based projects in your clinic?



3

What is knowledge translation (KT)?


*“the **dynamic and iterative process** that includes **synthesis, dissemination, exchange and ethically sound application** of knowledge to improve health, provide more effective health services and products, and strengthen the health care system.”*

- Canadian Institutes of Health

4

Why is KT Important?

- 17 years or more for evidence to be used in practice (Morris et al, 2011)
- < 50% of EBPs are routinely used (Mosteller, 1981, Balas and Boren, 2000, Grant et al., 2003, Morris et al., 2011)



5




THE SCIENCE-PRACTICE GAP

1. Morris SA, Boren BA. 2000. Integrating clinical knowledge for health care improvement. In: Yearbook of Medical Informatics 2000. Patient-Centered. 2. Mosteller F. 1981. Research in Health Care. 3. Balas RC. 2000. Translation of research knowledge into practice and administration in the field of child and family social services. Implementation Science. 15. 2010;3:41. doi:10.1186/1745-6215-3-41.

<https://twitter.com/drluanamarques>


6

Who Does KT Involve?



**Interdisciplinary team
Administrators**

(Camden et al, 2015; Kothari et al, 2017; Graham et al. 2018)




**Researchers
Patients
Caregivers**

7

When Should We Use KT?

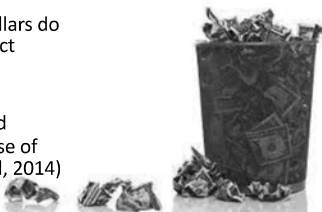
(Straus et al. 2013; Moore and Graham, 2021; and others)



8

Why is KT Important?

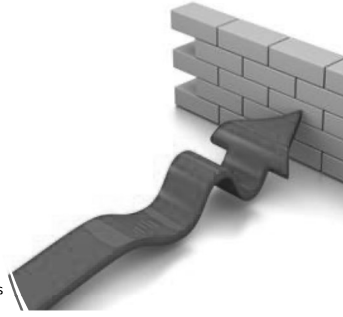
- ~80% of medical research dollars do not make a public health impact (Chalmers and Glasziou, 2009)
- ~\$200 Billion annually wasted globally as a result of lack of use of research results (Macleod et al, 2014)



9

Why is KT Important?


- Many barriers to successful implementation exist
 - Time
 - Knowledge
 - Culture
 - Previous practices
 - And More
- KT aims to increase efficacy and efficiency of implementation efforts



Damschroder et al, 2009, Powell et al, 2015; Powell et al, 2017; and others


10

Why is KT Important?




11

Implementation



Phase 1: Usual Care

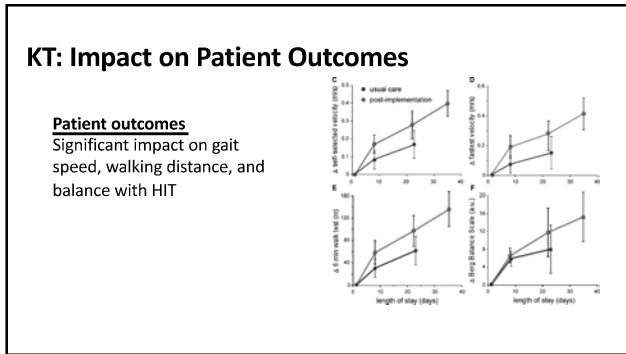
- Implement gait assessment battery
- Determine outcome measurement changes during usual care
- Collect stepping data



Phase 2: Implementation

- Implemented high intensity gait training
- Monitor fidelity of the intervention
- Evaluate effectiveness of intensive gait training program in comparison to usual care

12



13

KT Research vs. KT Practice

<p>KT Research (Implementation Research)</p> <ul style="list-style-type: none"> • Gaps in decision making • Knowledge synthesis and distillation • Determinants of knowledge use • Effectiveness of KT Strategies 	<p>KT Practice (Implementation Practice)</p> <ul style="list-style-type: none"> • Implementing evidence & reducing the know-do gap • Evaluation of the impact of evidence • May require unique skill set (Doherty et al, 2013; Berta et al, 2015)
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Straus, Tetroe, and Graham, 2013

14

Knowledge Users and Stakeholders

- **Knowledge user:** an individual who is likely to be able to use research results to make informed decisions about health policies, programs and/or practices.
- **Stakeholders:** an individual who has something to gain or lose as a result of the outcomes of a project, program, or process.

Canadian Institute of Health Research
Hoviand, 2005

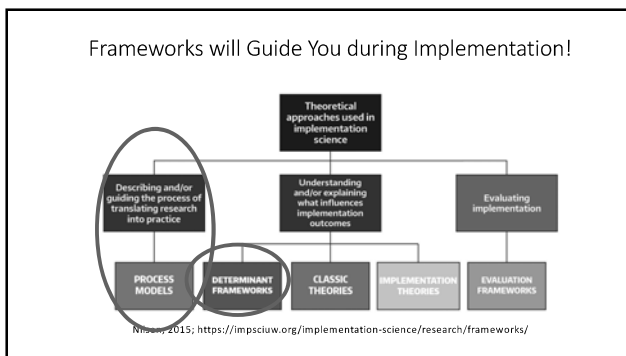
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Integrated Knowledge Translation

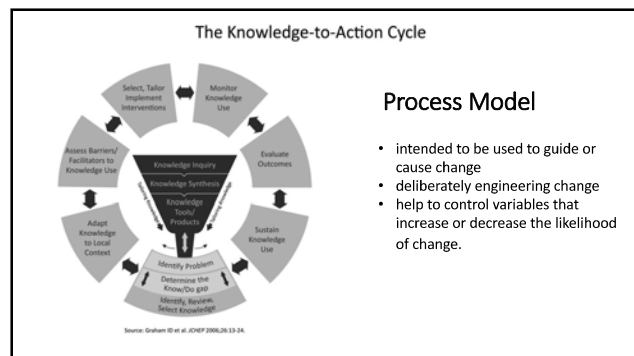
- Scientists, knowledge users, and stakeholders collaborate:
 - Develop research questions
 - Determine methods / conduct research
 - Interpretation of data
 - Implement findings
- **Benefits:**
 - Relevant research
 - Increased confidence in study results
 - Greater impact on practice

Straus, Tetroe, and Graham, 2013

18



19



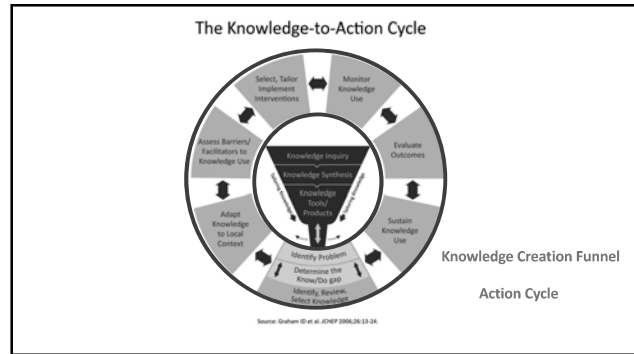
20

Knowledge-to-Action (KTA) Cycle: A Planned Action Model

- Based on a concept analysis of 31 planned action theories
- Developed to make sense of 'knowledge translation' or 'implementation' (previously "black box")
- Offers a holistic view by integrating knowledge creation and application/ action

Graham ID et al. Lost in knowledge translation: time for a map. JCEPH 2006, (1):13-24

21



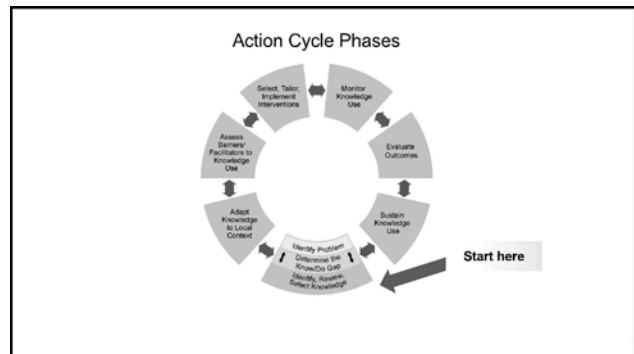
22

Knowledge creation funnel - knowledge needs to be increasingly distilled before it is ready for application

- Knowledge Inquiry: First generation knowledge (e.g., broad base primary studies or information)
- Knowledge Synthesis: Methodologies for determining what is known in a given area or field and what the knowledge gaps are (e.g., Systematic reviews) – 2nd generation knowledge
- Knowledge Tools/Products: Refined knowledge for decision-making (e.g., guidelines, decision aids, algorithms)- 3rd generation knowledge

Source: Graham ID et al. JCEPH 2006;13:24.

23



24

KTA Cycle: Case Example

A knowledge translation intervention designed using audit and feedback and the Theoretical Domains Framework for physical therapists working in inpatient rehabilitation: A case report

Wendy Romney PT, DPT, NCS ^{①*}, Nancy Salbach BSc, BScPT, MSc, PhD ^{②*}, James Scott Parrott PhD ^{③*}, and Judith E Deutsch PT, PhD, FAPTA ^{④*}

A Knowledge Translation Intervention Designed and Implemented by a Knowledge Broker Improved Documented Use of Gait Speed: A Mixed-Methods Study

Wendy Romney, PT, DPT, PhD, NCS¹; Nancy Salbach, PT, PhD²; James Scott Parrott, PhD³; Judith E. Deutsch, PT, PhD⁴

25

Method

- One sub-acute rehabilitation hospital with 12 Full Time PTs
- Intervention Group: n=11 PT
 - Knowledge Broker
 - Designed and Implemented Intervention
 - Collaborated with clinicians
 - Supervisor Support
 - Four-one hours sessions over eight weeks
 - 6 month Follow-up
- Outcomes
 - Quantitative: Chart Audit and Self-reported measure (GAS)
 - Qualitative: Focus Groups
- Post Hoc Control Group
 - Supervisor Trained Per Diem, Traveling and Part Time PTs
 - 4-6 months

26

Action Cycle: Overview



- Identify the problem and research that might address it
- Determine the know-do gaps

Source: Graham ID et al. JGIM 2006;21:1324.

27

Identify, Review, and Select Knowledge:

Outcome Measures
Generalized inpatient population
EDGE Task Forces
NIH Toolbox



28

Know-Do Gap Assessment: Example

Gap analysis of best practice vs current practice (Know do Gap)

Survey – Swinkels et al, 2011

- Use of measures in practice (n=9): integral part of exam: (20%) diagnosis (36%) prognosis(22%)
- Use of outcome measures in the past 8 weeks:
- 0x (33%), 1-2x (33%), 3-4x (22%)
- Positive attitude toward outcome measures



29

Chart Audit

- Documentation
 - Free spaces to write gait speed or other balance measures
 - No formal space for specific measures
- Standardized Assessment Use
 - Elderly Mobility scale: 1%
 - Balance:
 - Initial
 - Timed static stance: 3%
 - Timed Single limb stance: 1%
 - Discharge
 - Timed stance: 1%
 - Timed single limb stance: 4.6%

30

Adapt the knowledge to the local context



Adapting guidelines from other countries or disciplines to fit a local context

Evaluating a recommended practice and making adaptations to improve the practice's "fit" in the clinic

Source: Graham ID et al. JGIM 2009;24:13-24.

31

Adaptations for 10MWT

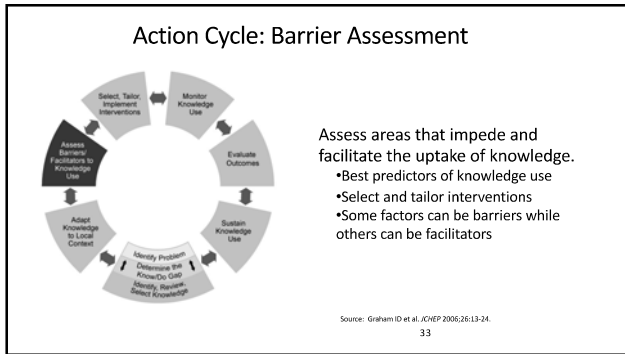
No space for 10 meters in clinic- selected the 4MWT
NIH Recommendation

Assessment timing (admission, discharge)

Use of SEMs, MDCs, Fall risk related to subacute stroke specified



32



33

Assess Barriers and Facilitators: Example

2 levels assessed

- Organizational level
 - Informal discussions with leadership
- Clinician level
 - Adapted survey from Swinkels et al, 2011
 - Focus Group
 - Ongoing barriers discussions throughout implementation process

34

34

Romney, et al 2019

Appendix C: Barriers and facilitators to using outcome measures questionnaire results (n except where indicated)

Domain Item	Disagree*	Agree*
Knowledge		
1. I have sufficient knowledge of standardized outcome measures	3.36(%) 2.13(%)	4.64(%) 2.87(%)
2. I know how to choose valid and reliable assessments (n = 10)	4.00(%) 2.00(%)	2.00(%) 1.00(%)
3. I know how to administer SOM in my practice (n = 10)	3.00(%) 2.00(%)	2.00(%) 1.00(%)
4. I know how to interpret the results when using SOM (n = 10)	3.00(%) 2.00(%)	2.00(%) 1.00(%)
5. I would like to know more about SOM before using them	2.00(%) 1.00(%)	1.00(%) 0.50(%)
Motivation and Goals		
6. Using SOM improves the quality of patient care (n = 8)	0.00(%) 0.00(%)	3.00(%) 3.00(%)
7. The use of SOM helps direct patient care	0.00(%) 0.00(%)	2.00(%) 2.00(%)
8. Using SOM allows me to highlight patient preferences	0.00(%) 0.00(%)	1.00(%) 1.00(%)
9. The use of SOM motivates my patients	0.00(%) 0.00(%)	2.00(%) 2.00(%)
10. Using SOM is too time consuming	2.00(%) 1.00(%)	0.00(%) 0.00(%)
11. In general, I avoid using SOM	2.00(%) 1.00(%)	0.00(%) 0.00(%)
Confidence		
12. I feel confident choosing the SOM for patient care	4.00(%) 4.00(%)	4.00(%) 4.00(%)
13. I feel confident when administering SOM (n = 10)	4.00(%) 4.00(%)	4.00(%) 4.00(%)
14. I feel confident when documenting about the results of SOM (n = 10)	3.00(%) 3.00(%)	3.00(%) 3.00(%)
Skills		
15. I have sufficient skills identifying SOM (n = 10)	4.00(%) 1.00(%)	4.00(%) 2.00(%)
16. I have sufficient skills administering SOM (n = 10)	4.00(%) 2.00(%)	4.00(%) 2.00(%)
17. I have sufficient skills interpreting SOM results to my patients (n = 10)	4.00(%) 2.00(%)	4.00(%) 2.00(%)
Behavior		
18. I use SOM to educate the patient and family (n = 10)	4.00(%) 2.00(%)	4.00(%) 2.00(%)
19. The use of SOM is always an integral part of my organization (n = 10)	2.00(%) 1.00(%)	2.00(%) 1.00(%)
20. I use SOM primarily of program evaluation (n = 10)	2.00(%) 1.00(%)	2.00(%) 1.00(%)
21. I use SOM primarily of program evaluation (n = 10)	2.00(%) 1.00(%)	2.00(%) 1.00(%)
22. I always follow the protocol when administering SOM (n = 8)	2.00(%) 1.00(%)	2.00(%) 1.00(%)
Social Influences		
23. I receive advice on the use of SOM no more than I can handle	2.00(%) 1.00(%)	2.00(%) 1.00(%)
24. Patients find the use of SOM an integral part of my organization (n = 10)	2.00(%) 1.00(%)	2.00(%) 1.00(%)
25. The results of patients' care are not appropriate for the use of SOM	0.00(%) 0.00(%)	0.00(%) 0.00(%)
26. My supervisor supports the use of SOM	0.00(%) 0.00(%)	0.00(%) 0.00(%)
27. SOM are valuable when speaking about the patient to the team (n = 10)	0.00(%) 0.00(%)	0.00(%) 0.00(%)
Empowerment, Expect and Resources		
28. I feel using standardized outcome measures (SOM) will have a beneficial impact on my practice	0.00(%) 0.00(%)	0.00(%) 0.00(%)
29. There are enough standardized assessment tools to use in my daily practice (n = 10)	4.00(%) 1.00(%)	4.00(%) 1.00(%)
30. I don't have enough time to use standardized assessments (n = 10)	4.00(%) 1.00(%)	4.00(%) 1.00(%)

Theoretical Domains Framework (TDF) (Michie et al. 2005)

- Knowledge
- Skills
- Social/professional role and identity
- Beliefs about capabilities (confidence)
- Beliefs about consequences
- Intentions
- Environmental Context and resources
- Social influences
- Behavioral regulation

35

35

Open Ended Questions/ Focus Group

- What factors may increase the use of outcome measures?
 - Training to increase familiarity
 - Space on documentation, forms to document
 - Availability of measures, readily available for use
 - Therapists' discussion on use of OM, research, etc.
- What outcome measures do you want to use more frequently?
 - Gait speed
 - Walkie-talkie
 - TUG
 - Tinetti
 - Functional reach & Multi-directional functional reach
 - Berg Balance Scale

36

36

Assess Barriers and Facilitators:

Barriers

- Lack of time
- Lack of search skills
- Lack of generalizability
- Inability to apply research to individual patients with unique characteristics
- Lack of knowledge of what to choose
- Lack of confidence with choice and administration

Facilitators

- Co-worker and supervisor support
- Belief that it's not too time consuming to conduct standardized assessments
- Belief that patients don't find it time consuming
- Belief that patients are appropriate
- Belief that they are useful to communicate to the health care team
- Access to literature at home
- Adequate space

37

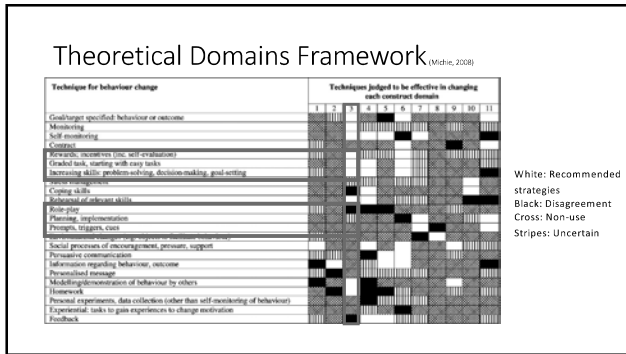
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Action Cycle: Select and tailor KT interventions

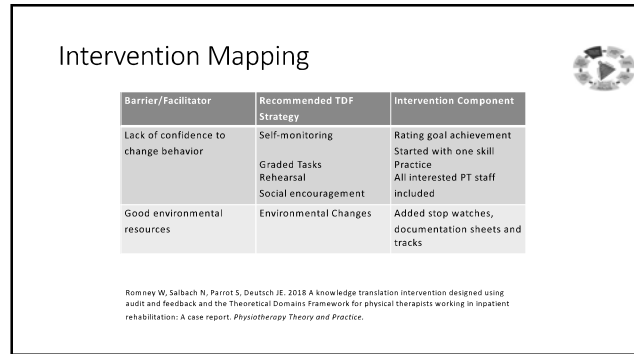
Select and tailor interventions *as much as possible* to the identified barriers and facilitators.

Source: Graham ID et al. JGHEP 2006;26:13-24.
38

38



39



40

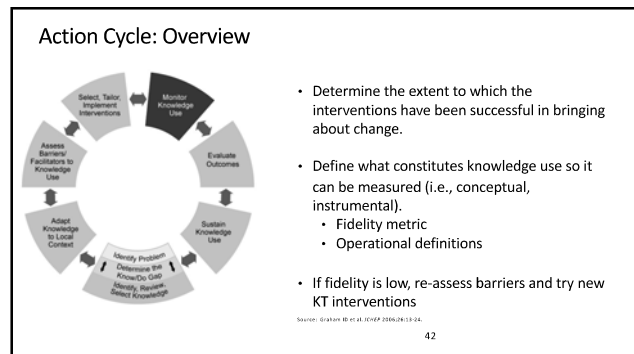
Table 3. Intervention mapping and design using Theoretical Domains Framework.

Barrier/facilitator	TDF Term	Recommended TDF Strategies	Intervention Component
Lack of knowledge of suboptimal assessment behavior	Lack of knowledge	Provide information regarding behavior	Report of current outcome measure use from chart reviews*
Lack of confidence to change behavior	Belief about capabilities	Self-monitoring Graded Tasks Behavior of Relevant Skills Social process of encouragement, persuasion, support	Rating goal achievement** Starting with one skill* Practice skill on each other* Multiple participants in the study*
Positive intention to improve assessment practice	Motivations and goals	Goal Targeted Behavior Graded tasks Information Regarding Behavior Social Process	Goal setting* Starting with one skill* Report of current use from chart review* Multiple participants in the study*
Positive Attitude regarding outcome measures	Beliefs about consequences	Self-monitoring Information Regarding Behavior Feedback	Rating goal achievement** Report of current use from chart review* Process evaluated through focus group*
Good environmental resources	Environmental context and resources	Environmental Changes	Add stop watches, documentation sheet and tracks in PT gym**
Positive Social Influences	Positive Social Influences	Social process of encouragement Goal Targeted Behavior Self-monitoring	Seeing other PTs use the OMF* Set goals for outcome measure use* Rating their goals achievement**
Lack of Skill in selecting, administering and interpreting outcome measures	Lack of Skill	Monitoring Rehearsal, incentives Behavior of Relevant Skills Graded tasks Modeling and demonstration by others Prompts, triggers, cues	Supervisor to create incentives** Practice skill on each participants* Practice skill with patients* See others practice skills with other participants and patients* Set goals for outcome measure use* Environmental changes** Add stop watches, documentation sheet and tracks in PT gym**
Lack of Behavior Change	Action Planning		

* indicates investigator facilitated; ** indicates organizational support from staff; *** indicates PT identified through questionnaires and audit and feedback

Romney et al 2018

41



42

Example - Monitoring

- Set adherence goal of > 50%
- Instrumental:
 - Formally: Chart Audit over 6 months
 - Goal Attainment Scale

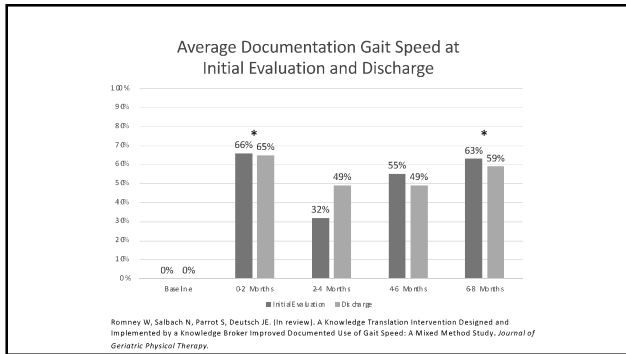
43

Documentation of Gait Speed

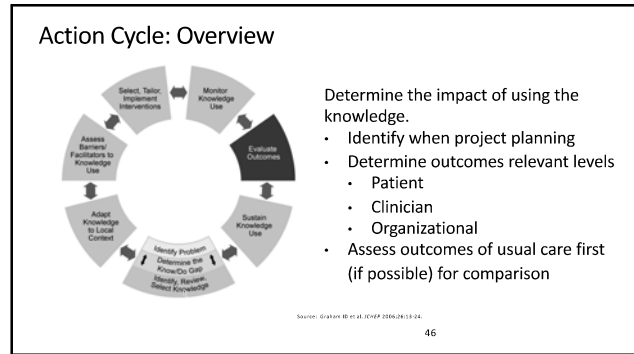
	Baseline		Post-Intervention	
Initial evaluation	Charts		Charts	
Experimental (charts)	0/50	0%	64/98	68.4%*
Control (charts)	0/64	0%	3/56	5.4%
Discharge summaries	Charts		Charts	
Experimental (charts)	0/51	0%	105/155	67.7%*
Control (charts)	0/35	0%	1/46	2%

* p<0.01

44



45



46

Outcomes Clinician Level

- Clinician Input
 - Barriers and facilitators
 - Outcome measure selection
 - Intervention design
 - Follow-up
- Organizational Support
 - Documentation changes
 - Incentives
 - Training other PTs
- Knowledge Broker
 - Trusted
 - Enthusiastic
 - Evaluation

Outcomes Patient Level

Source: Graham B et al. JGIM 2006;21:124. 47

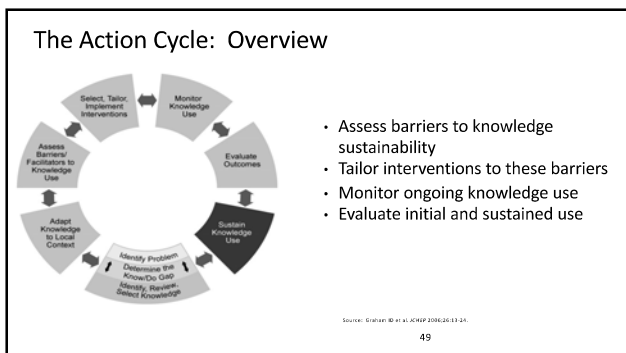
47

Outcomes: Organizational

- Organizational outcomes:
 - Implementing assessments for all PTs

Source: Graham B et al. JGIM 2006;21:124. 48

48



49


Sustain Knowledge Use

Anticipate sustainability issues from the beginning and build into Adaptation, KT interventions, Monitoring and Evaluation phases

Source: Graham B et al. JGIM 2006;21:124. 50

50

Case Example: Sustainability Interventions



Processes:

- Weekly monitoring of adherence
- Modification of EMR fields
- Added reporting to team conference

Staff:

- Continued training
- Integrated into new hire orientation
- Leadership incorporated into performance appraisal goals

*Organization: Incorporated into the organizational goals/vision

51


Developing your project



- Is there an evidence-based practice you want to implement?
- Who identified the problem?
 - Clinicians, Manager, Researcher?
- What evidence do you have?
- How would you measure the know-do gap?

52

Adapting knowledge



- What does the protocol say?
- What is feasible for your clinic?
- What CPG recommendations will you implement?
 - Consider strength of evidence

53


Adapting Knowledge: HIT for an Inpatient Brain Injury Program

Active Ingredients	Chronic Locomotor CPG ¹	Primary studies on HIT ^{2,5}	Adapting evidence to BI
Population	>6 months post stroke, TBI or I-SCI	<6 months post stroke, acute inpatient rehab setting	<ul style="list-style-type: none"> Inclusion: adult inpatients with ABI, MD orders Exclusion: WB restrictions, DOC, LOS>7 days Considerations: cardiac history (moderate intensity program), pain, behavior
Frequency, Time	Not specified	60 minute sessions >50% of the session 4x/ week	<ul style="list-style-type: none"> 45 minutes session 3-4x/ week (5 session) Exclude family training days and testing days
Intensity	moderate to high intensity 60-80% HR reserve or 70-85% HR max	<ul style="list-style-type: none"> high intensity <ul style="list-style-type: none"> 70-85% age predicted HR max RPE<14 (somewhat hard) Prioritized stepping 	<ul style="list-style-type: none"> high intensity <ul style="list-style-type: none"> 70-85% age predicted HR max RPE<14 (somewhat hard) Prioritized stepping in each session
Type	walking training	<ul style="list-style-type: none"> variable task variable env 	No adaptations

Hornby 2020³ and 2015⁴, Holleran 2014⁵, Moore 2020⁶, Henderson 2022⁵

54

Action Cycle: Barrier Assessment



Assess areas that impede and facilitate the uptake of knowledge.

- Best predictors of knowledge use
- Select and tailor interventions
- Some factors can be barriers while others can be facilitators

Source: Graham ID et al. JGIM 2008;26:13-24. 55

55

Barrier Assessment/Context Assessment

Individual	Organizational	Evidence
<ul style="list-style-type: none"> Attitude Commitment to change Value Belief 	<ul style="list-style-type: none"> Culture Climate Readiness Leadership Resources/Support Staff Engagement 	<ul style="list-style-type: none"> Complex/simple Fit Goals are clear

Nilsen & Bernhardsson 2019 CBM Health Services Research Context matters in Implementation Science

56

Individual Barriers and Facilitators

Barriers	Facilitators
<ul style="list-style-type: none"> Negative attitudes and beliefs Lack capacity to influence change Lack confidence Lack awareness Colleagues don't value Concerns evidence isn't relevant Guidelines will reduce autonomy 	<ul style="list-style-type: none"> Positive attitudes, beliefs High commitment to change Staff is knowledgeable about evidence and skills to carry out change Colleagues value evidence Belief that evidence improves practice, decision making and communicate with colleagues Evidence is accessible: fast and easy to access at the point of care and integrated into the workflow

Examples of Common Barriers and Facilitators Toolkit.
<https://nap.ca/leading-change-toolkit/examples-of-common-barriers-and-facilitators>
 Nilsen & Bernhardsson 2019 *CBM Health Services Research* Context matters in implementation Science

57

Organizational Barriers and Facilitators (Li, 2018)

Organizational Culture	Barriers	Facilitators
Climate Readiness Structure	<ul style="list-style-type: none"> Resistant to change Risk-Averse "This is how it's always been done" Major changes overwhelm staff 	<ul style="list-style-type: none"> Open to innovation Priority for evidence informed practice and continuous quality improvement Collaborative workplace + learning culture
Leadership	<ul style="list-style-type: none"> Hierarchical, authoritarian Lack of effective communication 	<ul style="list-style-type: none"> Support risk taking and share decision making Providers of new knowledge Key Influencers High staff morale Present, shows visible support Allow staff to be part of implement team Transformational, authentic, supportive Ensure new processes remain

58

Organizational Barriers and Facilitators (Li, 2018)

Resources/ Support	Barriers	Facilitators
	<ul style="list-style-type: none"> Lack of time, supplies, technology, equipment, staffing, computer access 	<ul style="list-style-type: none"> Time, multi-disciplinary collaboration Financial and human resources Education, Training, Mentorship
Staff Engagement	<ul style="list-style-type: none"> Not engaged in change initiative, perception that one group has all the knowledge 	<ul style="list-style-type: none"> Feels "ownership" Involved in designing practice and policy Discussion and open comm Champions to motivate peers, role model

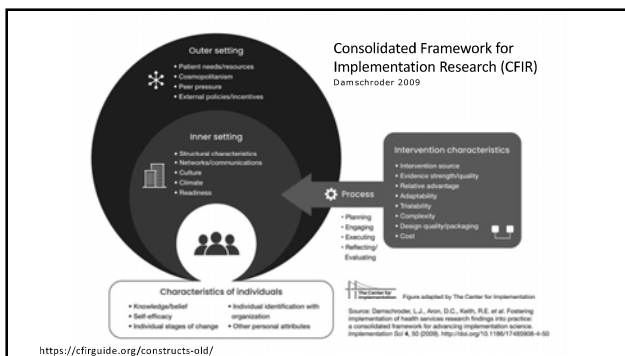
Li 2018. Organizational contextual features that influence the implementation of EBPs across healthcare setting: a systematic integrative review. *Systematic Reviews* 7,72

59

Policy and Innovation Characteristic Barriers

Macro System Factors	Barriers	Facilitators
Policy	<ul style="list-style-type: none"> Lack policies to mandate change Lack policies to support implementation Policy prohibit Local attitudes don't support innovation 	<ul style="list-style-type: none"> Support implementation Government recognizes the need for change
Characteristics of the Change/intervention	<ul style="list-style-type: none"> Change initiative is complex, costly, not acceptable to org, staff, patients Goals are unclear 	<ul style="list-style-type: none"> Initiative fits well in the context or culture of org Goals and methods are clear The change can adapt to the setting

60



61

CFIR 2.0

Innovation Recipients	Individuals who are directly or indirectly receiving the innovation
Capability, Opportunity, Motivation	Individual characteristics subdomain
Structural Characteristics	Space, IT
Innovation Evidence Base	Robust evidence supporting its effectiveness
Individuals (Leaders)	High vs Mid Level, Opinion Leaders, Facilitators, Leads, Team members, Support and Deliverers

Damschroder, 2022 The updated CFIR based on user feedback. *Imp SCI*
<https://implementationscience.biomedcentral.com/articles/10.1186/s13012-022-01245-0>

62

Theoretical Domains Framework (TDF) (Michie et al 2005)

- Knowledge
- Skills
- Social/professional role and identity
- Beliefs about capabilities (confidence)
- Optimism
- Beliefs about consequences
- Reinforcement
- Intentions
- Goals
- Memory, attention and decision making
- Environmental Context and resources*
- Social influences
- Emotion
- Behavioral regulation

63

Who? Potential Adopters/ Stakeholders

- A person with an interest or concern in something
- Directly or indirectly involved
- *“any group or individual who can affect or is affected by the achievement of the organization’s objectives”* (Freeman, 1984)
- *“those groups who are vital to the survival and success of the corporation”* (Freeman, 2004)
- Micro, meso, macro levels

64

Stakeholder analysis

•Assess:

- Characteristics (e.g. knowledge, perspectives, vested interests, experience with teams, decision making abilities)
- Potential influence based on their position
- Ways to engage stakeholder interests to ensure as much support as possible

•Plan

- Maximize congruence between stakeholder interests and goals of the knowledge use project
- Manage and/or minimize risks associated with stakeholder non-support

Ongoing reassessment (RNAO 2012)

65

Analyze stakeholder power, interest, & attitude

High influence Low support (need a lot of attention get them on board)	High support High influence (Positive influence, keep informed)
Low support Low influence (engage group to minimize negative effects)	High support Low influence (count on them to provide assistance)

Bernstein 2020. Visualizing Implementation: contextual and organizational support mapping of stakeholders. JS Comm <https://implementationsciencecomms.biomedcentral.com/articles/10.1186/s43058-020-00030-8>

66

Romney, et al 2019

Appendix C: Barriers and facilitators to using outcome measures questionnaire results (n=10) except where indicated

Domain Item	Disagree	Agree
Knowledge		
I have sufficient knowledge of standardized outcome measures	1 (0.0%)	2 (20.0%)
I know how to administer DSM (n = 10)	2 (20.0%)	4 (40.0%)
I know how to interpret DSM using MDC, MCC, or CI (n = 10)	2 (20.0%)	3 (30.0%)
I know how to document the results when using DSM (n = 10)	2 (20.0%)	2 (20.0%)
I would like to know more about DSM before using them	0 (0.0%)	0 (0.0%)
Motivation and Goals		
Using DSM improves the quality of patient care (n = 9)	0 (0.0%)	2 (22.2%)
Using DSM allows me to include patient preferences	1 (11.1%)	1 (11.1%)
The use of DSM motivates my patients	1 (11.1%)	2 (22.2%)
Using DSM has been rewarding	2 (22.2%)	4 (44.4%)
Confidence		
I feel confident choosing the DSM for patient care	0 (0.0%)	1 (11.1%)
I feel confident when administering DSM (n = 10)	0 (0.0%)	4 (40.0%)
I feel confident when interpreting DSM (n = 10)	0 (0.0%)	4 (40.0%)
Skills		
I have sufficient skills identifying DSM (n = 10)	0 (0.0%)	1 (10.0%)
I have sufficient skills administering DSM (n = 10)	0 (0.0%)	2 (20.0%)
I have sufficient skills interpreting DSM results to my patients (n = 10)	0 (0.0%)	0 (0.0%)
Beliefs		
The use of DSM is an integral part of my examination (n = 10)	2 (20.0%)	2 (20.0%)
I use DSM primarily of patients' parents (n = 10)	2 (20.0%)	2 (20.0%)
I use DSM primarily of patients' patients (n = 10)	2 (20.0%)	2 (20.0%)
I always follow the protocol when administering DSM (n = 9)	2 (22.2%)	2 (22.2%)
Social Influences		
My co-workers support the use of DSM	2 (22.2%)	2 (22.2%)
My supervisor supports the use of DSM	2 (22.2%)	2 (22.2%)
My patients support the use of DSM	2 (22.2%)	2 (22.2%)
Environmental Context and Resources		
I feel using standardized assessment tools is not an integral part of my practice	0 (0.0%)	0 (0.0%)
There are enough standardized assessment tools to use in my daily practice (n = 10)	4 (40.0%)	2 (20.0%)
I don't have enough time to use standardized assessments (n = 10)	0 (0.0%)	0 (0.0%)

67

Organizational Readiness for Implementing Change

Shea et al, 2014

Additional file 1: Organizational Readiness for Implementing Change (ORIC)

	1	2	3	4	5
	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree
1. People who work here feel confident that the organization can get people invested in implementing this change.	1	2	3	4	5
2. People who work here are committed to implementing this change.	1	2	3	4	5
3. People who work here feel confident that they can keep track of progress in implementing this change.	1	2	3	4	5
4. People who work here will do whatever it takes to implement this change, as they adjust to this change.	1	2	3	4	5
5. People who work here feel confident that the organization can support people as they adjust to this change.	1	2	3	4	5
6. People who work here want to implement this change.	1	2	3	4	5
7. People who work here feel confident that they can keep the momentum going in implementing this change.	1	2	3	4	5
8. People who work here feel confident that they can handle the challenges that might arise in implementing this change.	1	2	3	4	5
9. People who work here are determined to implement this change.	1	2	3	4	5
10. People who work here feel confident that they can coordinate tasks so that implementation goes smoothly.	1	2	3	4	5
11. People who work here are motivated to implement this change.	1	2	3	4	5
12. People who work here feel confident that they can manage the politics of implementing this change.	1	2	3	4	5

68

TDF (Michie, 2005)

- Sample interview questions based on each domain
- How difficult is it for you to do x?
- Does evidence suggest doing x is a good thing?
- Are there competing tasks or time constraints to do x?

Domains*	Constructs	Interview questions
(1) Knowledge	Knowledge about condition/scientific rationale Schemas+mindsets+belief representations Procedural knowledge	Do they know about the guideline? What do they think the guideline says? What do they think the evidence is? Do they know they should be doing x? Do they know why they should be doing x?

69

CFIR Inner Context Survey

- 38 questions, Strongly Disagree to Strongly Agree
- Culture
- Culture Stress
- Culture Efforts
- Implementation Climate
- Learning Climate
- Leadership Engagement
- Available Resources

<https://cfirguide.org/wp-content/uploads/2018/08/Fernandez-et-al2018-CFIR-InnerSetting-Measures-Qx.pdf>
Fernandez 2018... *Implementation Science*. 2018;13(1):52.

70

CFIR Inner Context Survey

- It is hard to change in our clinic
- I can rely on the other people in this clinic
- Most of the people who work in our clinic seem to enjoy their work
- I am under too many pressures to do my job effectively
- People are enthusiastic about their work
- Clinic staff gets the support they need to implement <EBA>

71

Barrier Assessment



Who are the key stakeholders?
What are some of your expected barriers?
How will you assess barriers?

Source: Graham ID et al. *JGIM* 2006;21:13-24.
72

72

KT Intervention Effectiveness

- Passive strategies are generally ineffective
- Active (Interactive) multi-component interventions
- No consensus on which multi-component interventions are more effective
- More isn't always better
- Tailored to address barriers
- Intervention mapping
- Tailored to end users
- Highly accessible
- High or positive status of individual/group delivering the strategy

(Dizon, 2012, Hakkens, 2008, Jones, 2014; Menon, 2009; Scott, 2012; van de Wees, 2009, Colquhoun 2017)

73

Improving the Selection and Tailoring of Implementation Strategies (Powell, 2017; Colquhoun, 2017)

- Methods
 - Systematic, Transparent, Replicable Process
- 1. Local Barrier Assessment
- 2. Intervention Mapping
- 3. Use of Determinant Framework
- 4. Engage diverse group of stakeholders
 - Common goals and create consensus regarding implementation approach
 - Multifaceted and Multi-level

Powell, 2017 Methods to improve the selection and tailoring of implementation strategies.
Colquhoun, 2017; Methods for designing intervention to change healthcare professionals' behavior: a systematic review

74

Unfortunately, we far too often...

"Train and Pray" Approach "Kitchen Sink" Approach "One Size Fits All" Approach "ISLAGIATT" Approach

Grimshaw et al. (2004); Henggeler et al. (2002); Michie et al. (2016); Squires et al. (2014)

75

Intervention mapping

	Intervention 1	Intervention 2	Intervention 3
Barrier 1			
Barrier 2			

76

IMPLEMENTATION STRATEGY SELECTION TOOL

CFIR Mapping Tool
CFIR-ERIC

<https://cfirguide.org/choosing-strategies/>

77

ERIC Interventions (n=73)
(Powell 2015, Expert recommendations for implementing change, Perry 2019)

- Develop implementation tools, educational materials
- Implementation Facilitation
- Prepare Champions
- Identify early adopters
- Inform Local Opinion Leaders
- Shadow experts
- Provide ongoing consultations
- Stage implementation scale up
- Intervene with patients/consumers
- Make training dynamic
- Mandate Change
- Audit and Provide Feedback

<https://implementationscience.nlm.nih.gov/eric/c10-11860/1012-015-0293/>

<https://cfirguide.org/choosing-strategies/>

78

CFIR Mapping Tool

CPG Barriers	
Social-political context Absence of leader Difficulties with teamwork	<ul style="list-style-type: none"> • Correa, et al (2020) Individual, health system, and contextual barriers and facilitators for the implementations of CPG: a systematic metareview. <i>Health</i>
Health System Financials problems Lack of specialized personnel	
CPG Lack of clarity Lack of credibility of the	
Health Care individuals Lack of knowledge Lack of Confidence	
Patients Neg attitudes Lack of knowledge Sociocultural beliefs	

79

CFIR Mapping Tool

CPG Barriers (Correa, 2020)	CFIR Domains
Social-political context Absence of leader Difficulties with teamwork	Inner Setting Leadership Engagement Culture Available Resources
Health System Financials problems Lack of specialized personnel	Innovation Characteristics Evidence Base
CPG Lack of clarity Lack of credibility of the	Characteristics of Individuals Knowledge and beliefs Self-efficacy
Health Care Lack of knowledge Confidence	Outer Setting Patient needs and resources
Patients Neg attitudes Lack of knowledge Sociocultural beliefs	

80

CFIR Mapping tool

ERIC Strategies	Cumulative Percent
Identify and prepare champions	243%
Conduct educational meetings	166%
Assess for readiness and identify barriers and facilitators	164%
Conduct local consensus discussions	153%
Facilitation	148%
Conduct local needs assessment	139%
Capture and share local knowledge	138%
Inform local opinion leaders	129%
Create a learning collaborative	120%
Alter incentive/allowance structures	119%
Involve patients/consumers and family members	119%
Obtain and use patients/consumers and family feedback	119%
Build a coalition	110%
Use advisory boards and workgroups	110%


81

KT Interventions

- Education
- Organizational Support and Leadership (CFIR)
- Audit and feedback (Colquhoun, 2017)
 - Adherence goal
- Local opinion leaders (Russell 2010, Perry 2014, Schreiber 2015, Romney 2018, Moore 2018)
 - Knowledge brokers, facilitators, champions
- Local consensus and group engagement (EPOC) (Leehman, 2014)
 - Inclusion of participating providers to ensure agreement on clinical problem and approach to managing problem was appropriate
- Environmental Change (Michie, 2008)
- De-implementation

82

Education



- Discussion, feedback, role play, interactive groups, reflection
- Online webinars
- Clinical Vignettes
- Videos
- Printed guidelines

83

Leadership

Leaders can positively or negatively impact adoption (Hartlos et al., 2012; Gifford et al., 2007)

- ONLY significant predictor of use of guidelines (Davies et al., 2002)
- Significant associations with improved patient outcomes, increased patient satisfaction, reduced adverse events (Stang & Cummings, 2007)
- Significant associations between adoption and a leader's:
 - Involvement in the project (Domenechour, 1992; Greenhalgh et al., 2004)
 - Attitude and commitment to change (Domenechour, 1992; Greenhalgh et al., 2004)
 - Style of leadership (Eisenov & Manev, 2005)
 - Vision (Greenhalgh et al., 2004)

84

Leadership

Actions that facilitate adoption

- Articulate the importance of the KT initiative
- Visibility in the clinical practice setting
- Provide direction, resources and support
- Monitor performance and outcomes
- Revise policies/processes to include the practice

(Gifford et al., 2006; Gifford et al., 2007; Gifford, 2018; Davies et al., 2006; and others)

85

Audit and Feedback

- Summary of clinical performance
 - Individual and/or group
- Over a specified period
 - More than once
- Intended to change performance, as indexed by an objectively measured practice
- May include recommendations for clinical action
- Information obtained from medical records, databases, observation
- Used with other interventions
- Effective when health care professionals aren't performing well at baseline (Ivers 2012, Colquhoun, 2017)

86





Audit and Feedback Considerations

- **Feasibility:** Identify processes currently in place to support audit
 - Chart audits
 - Peer review
- **Feedback provided in context** may be helpful
 - Target goal
 - Comparison information
- **Identify the person providing feedback**
 - Manager
 - Peer
 - Research team
- **Timing** with other intervention(s)
- **Potential for negative impact on outcomes**

ivers 2012, Colquhoun, 2017

87


Local Opinion Leader

 Local Opinion Leader	Individuals perceived as credible and trustworthy, who disseminate and implement best evidence. (Fleghem, 2019)
 Champions	Drive dissemination and implementation of EBPs (Moore 2017)
 Facilitator	Support, Implement, Tailor Strategies, Evaluate Outcomes
 Knowledge Broker	Expert researcher and clinician

88

Knowledge Brokers

- **Knowledge manager**
 - Make evidence more accessible
 - Create, translate, diffuse and apply knowledge
- **Linkage agent**
 - Develop positive relationships between researchers, clinicians and decision makers
- **Capacity Builder**
 - Build knowledge users' understanding and skills
 - Enhance capacity for evidence informed practice
- **Facilitators**
- **Evaluators**



(Bornbaum, 2015; Glegg, 2016; Ward, 2009)

89

Benefits

- **Clinician**
 - Involved in research, up-to-date, build knowledge and skills
- **Decision Makers**
 - Facilitate staff motivation and involvement in evidence based practice
 - Aligns with organizational values
- **Researchers**
 - Improved ability to obtain grant funding
 - Increase impact on research findings

(Bornbaum, 2015; Chew, 2013; Lighthowler, 2013)

90

Challenges

- **Lack of definition of role and scope**
 - Perform many and varied tasks
 - Consider outlining in clinical ladder or promotion
- **Effectiveness is unclear (Cross, 2023)**
 - Individual and contextual factors influence effectiveness
- **Lack of access to training**
- **Lack of clear career pathway**
- **Funding**
 - Release time from clinical practice (Russell 2010, Willems, 2016)

(Bornbaum, 2015; Chew, 2013; Lighthowler, 2013)

91

Determinants that influence knowledge brokers' and opinion leaders' role to close knowledge practice gaps in rehabilitation: A realist review

- Embedded within the organization
- Clinical experience
- Adequate interpersonal and communication skills
- Perform roles
- Use KT interventions adapted to the local context

Gaid et al, 2020

92

Roles and effectiveness of KB for translating CPGs in health-related settings: A systematic review (Cross, 2023 BMJ Qual Saf)

- 16 studies, 6 RCTs
- Guideline adherence increased 10 studies (63%)
- Mixed impact (13%)
- No impact (25%); Includes 3 of the RCTs
- Knowledge managers (94%)
- Linkage Agents (69%)
- Capacity Builders (100%)

93

Facilitation: A Role & Process

- Facilitators support individuals and groups through the change process
- Process or technique in which facilitators:
 - provide support to identify needed changes
 - support implementation of evidence
 - tailor to the local context
 - outcomes are linked to action
- Facilitation can be performed by an individual or a group
- In primary care, practice supported by a facilitator was 2.67 times more likely to adopt
 - Tailoring, intensity, number of practices per facilitator

Dogherty et al, 2010, Bakersville, 2012

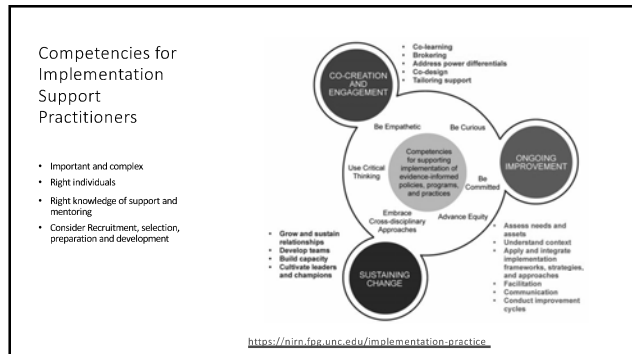
94

Facilitator Characteristics

<p>Personal traits</p> <ul style="list-style-type: none"> • Visionary • Audacity • Tenacious • Passion • Resilient / “thick-skinned” • Political savvy • Open-minded • Flexible 	<p>Skills</p> <ul style="list-style-type: none"> • Clinical & process expert • Strong interpersonal skills • Marketing • Project management • Leadership • Negotiation • Mediation • Critical research consumption
--	---

Dogherty et al, 2010 and 2016

95



96

KB or Opinion Leaders in PT

- Use of Pediatric Assessments (Russell, 2010; Rivard, 2010, Schrieber 2012)
- Encouraging patients post-stroke to become physically active (Willems, 2016)
- KB in respiratory care (Hoens, 2013)
- Outcome measure use
 - Acute care (McDonell, 2018)
 - Rehab Romney, 2019, Moore, 2018
- Champions in best EBP rehabilitation practices (Moore 2014)
- Non supported gait training (Perry 2014)-Opinion leaders
- Stroke CPG (Bayley, 2012, Salbach, 2017, Sibley 2018)

97

Environmental Changes

- Environmental Context and Resources (Lack of Time, Lack of Space)
- Serves as a reminder
- Memory, Attention, Decision Making (Forgot)
 - Environmental Changes
 - Prompts, Triggers, Cues
- Examples:
 - Lay out track based on workflow
 - Add blue paper to eval sheet
 - Laminate interpretation info
 - Buy and place stop watches

98

De-Implementation

- Discontinuation of interventions that should be stopped
- Understanding when and how it is appropriate to decrease or end interventions
- More effective or efficient interventions are available (McKay, 2018, Harris 1996)

Montini and Graham, 2015, Prasad and Oannidis, 2014, van Bodegom-Vos et al 2017

99

Inherent Challenges to De-Implementing Low-Value Care

- Changes and issues with evidence
- Issues with continuing education (Peterson, 2022)
- Entrenched practices
- Patient expectations
- Clinicians' cognitive bias (Psychological Reactance)

Uppwell MS, Borenstein AM. Nurs Forum. 2010;10:1111-1117. doi:10.1111/j.1225-0135.2010.01225.x. Scott JA, Intern Med. 2017;147(9):1079-81. Heffrich CD, et al. J Eval Clin Pract. 2018;24(1):188-205. Peterson S, et al. Phys Ther. 2022;102(6):gou032.

100

Replace (Behavioral Substitution) Replace

- Common strategy to de-implementing
- Potentially more acceptable to clinicians (positive reinforcement)
- How to select the appropriate substitution?
 - Strong evidence-base or clinical rationale
 - Should serve clinical and practical objectives
 - Easily explainable to patients
 - Takes no more time than the undesired behavior
 - Good fit with clinician's existing skills
 - No more expensive than the undesired behavior

Patry AM, Grimshaw JM, Francis JJ. The big six: key principles for effective use of behavior substitution in interventions to de-implement low-value care [published online ahead of print, 2022 Oct 12]. BMJ Eval Implement.

101

KT intervention take home

- Map out barriers to intervention strategies
- Co-create/engage stakeholders in the intervention
- Leadership Support/Involvement
- Active education- role model, practice
- Facilitator/Local Opinion Leader/Champion/KB support
 - Consider who this person is
- De-Implementation and cognitive dissonance

102

Action Cycle: Select and tailor KT interventions

CFIR and TDF?
What interventions?

Source: Graham ID et al. JGIM 2006;21:3-14. 103

103

Action Cycle: Overview

- Determine the extent to which the interventions have been successful in bringing about change.
- Define what constitutes knowledge use so it can be measured (i.e., conceptual, instrumental).
 - Fidelity metric
 - Operational definitions

Source: Graham ID et al. JGIM 2006;21:3-14. 104

104

Monitor Knowledge Use

Several iterations required

- Adherence < desired
- Reassess barriers
- Select new KT interventions
- Monitor
- Repeat until adherence obtained

105

Action Cycle: Evaluate Outcomes

Determine the impact of using the knowledge.

- Identify when project planning
- Determine outcomes relevant levels
 - Patient
 - Clinician
 - Organizational
- Assess outcomes of usual care first (if possible) for comparison

Source: Graham B et al. JGIM 2006;21:124. 106

106

The Action Cycle: Sustaining Knowledge Use

- Assess barriers to knowledge sustainability
- Tailor interventions to these barriers
- Monitor ongoing knowledge use
- Evaluate initial and sustained use

Source: Graham B et al. JGIM 2006;21:124. 107

107

Knowledge Translation Research to Promote Behavior Changes in Rehabilitation: Use of Theoretical Frameworks and Tailored Interventions: A Scoping Review

Wendy Romney, PT, DPT, PhD,^{1,2} Danielle M. Bellows, PT, DHS,³ Jake P. Tavernite, BS,⁴ Nancy Salbach, BScPT, MSc, PhD,^{1,2} Judith E. Deutsch, PT, PhD, FAPTA⁵

- 56 studies
- 38 (68%) were pre-post design
- Stroke exam and treatment in 15 (27%)
- KTA used most frequently
- Measurement at individual healthcare provider

Romney 2022. Scoping Review of Theoretical Frameworks and Tailored Interventions in Rehabilitation. Archives

108

Tailored Interventions in Rehab

- Mapped 22 studies to ERIC Interventions
- Ranged from 3-11 strategies
- Education (n=22)
- Ongoing training (n=15)
- Barrier Assessment (n=14)
- 4/22 followed all 4 recommendations
 - Local barrier assessment
 - Stakeholder involvement
 - Intervention Mapping
 - Theoretical Approach

Romney 2022

109

Scoping Review of KT in Rehab

Stroke CPG: <ul style="list-style-type: none"> • Bayley 2017, Munce 2017, Salbach 2017, Willems 2016 	Peds and Outcome Measures: <ul style="list-style-type: none"> • Russell 2010, Schriber and Dole, Schriber • Campbell 2013, Ketelaar 2008 	HIGT: <ul style="list-style-type: none"> • Moore 2020, 2021
LBP: <ul style="list-style-type: none"> • Bekkering 2005, Demmelair 2012, Kramer 2013, Stevenson 2006, Murray 2015, VanDulmen 2014, Willett 2011 	Neck: <ul style="list-style-type: none"> • Chipchase 2016, Cleland 2009, Karas 2016, Rebeck 2006, Bernhardsson 2014, Maas 2015 	OM: <ul style="list-style-type: none"> • Kall 2016, Romney 2019, 2022, Swinkels 2015, VanPeppen 2009, Moore 2022

110

Monitoring Use and Evaluating Outcomes

- Chart Audit or Survey
 - What is feasible?
 - Consider criteria
 - Consider goal
- What levels do you want to evaluate?
 - Patient, Clinicians, Organization
 - Did the patients change?
 - Discussion with clinicians what changed?

111

Original Research Article

CLINICAL REHABILITATION

Clinical Rehabilitation
1-18
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DOI: 10.1177/09631502211046460
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SAGE

A knowledge broker facilitated intervention to improve the use of standardized assessment tools by physical therapists: A cluster randomized trial

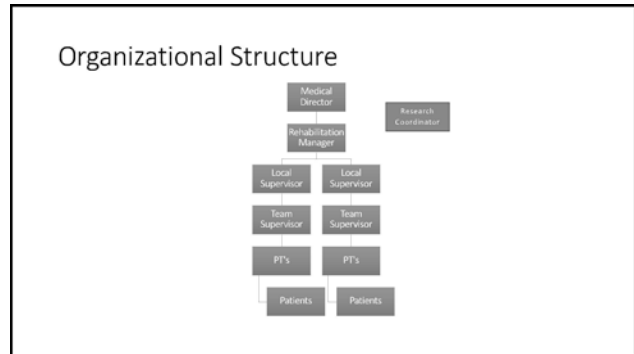
W. Romney^{1,2}, N.M. Salbach¹, J.S. Parrott⁴, I.G. Ward³ and J.E. Deutsch²

112

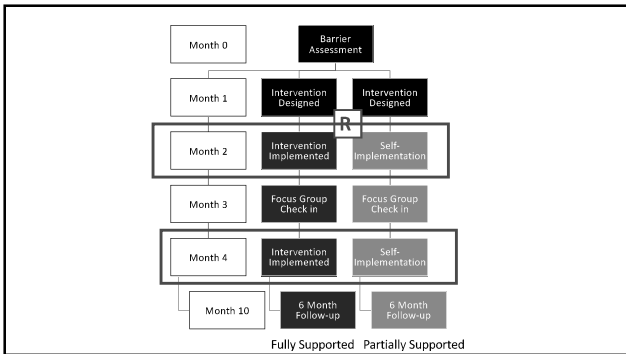
Randomized Cluster Trail Method

- Two acute rehabilitation hospitals within the same organization
 - External Knowledge Broker
 - Implementation of a selected outcome measure
 - Collaboration with PTs
 - Organizational support
- Fully supported group
 - KB met with 6 times over 10 months
- Partially supported group
 - KB met 4 times over 10 months
- Outcomes
 - Quantitative: Chart Audit and Self-reported measure
 - Qualitative: Focus Group with PTs and patients

113



114



115

Intervention Design

- Barrier assessment
 - Chart Audit
 - Barriers and Facilitators to EBP and Use of Standardized Assessments Questionnaire (85 questions, TDF)
- Focus Group
 - Confirmed barriers and facilitators
 - Identify standardized assessment
 - Discuss intervention strategies (TDF)
 - Select Goal for use (GAS)

Fully Supported Group	Partially Supported Group
Timed up and go	10 Meter Walk Test
Amb >20 ft	Amb > 50ft
CGA or better	Min A or better

116

Intervention

Fully Supported Group	Partially Supported Group
6 meetings with KB	4 meetings with KB
Engagement to select OM	Engagement to select OM
Selection of strategies to overcome barriers	Selection of strategies to overcome barriers
Selection of goal for use	Selection of goal for use
Audit with feedback	Audit with feedback
KB Created Handouts	Created Handouts
Reminders	Reminders
Selection of a local champion	Selection of a local champion
Education	Environmental Changes
	Education

117

	Fully Supported (n=9)	Partially Supported (n=8)
Age	31.8 (27-49)	28 (25-35)
Gender: Female	6 (67%)	7 (100%)
Years of Experience	6.8 (2-27)	3.6 (0-14)
Degree		
Bachelors	1 (11%)	0 (0%)
Masters	1 (11%)	1 (14.3%)
Doctorate	7 (78%)	6 (85.7%)
Supervised students	8 (91%)	3 (43%)
Certifications	4 (44.4%)	0 (0%)
NCS	3 (33%)	0 (0%)
GCS	1 (11%)	0 (0%)

Results:
Characteristics
of PTs

118

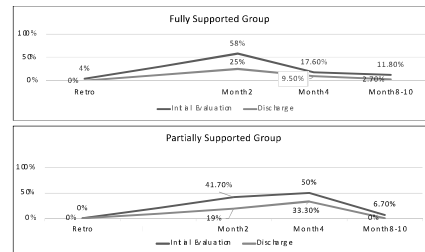
Chart Audit

	Baseline (IE/DC)	Month 2 (IE/DC)	Month 4 (IE/DC)	Month 8-10 (IE/DC)
Fully Supported Group				
Final chart count*	76/79	12/16	17/21	12/37
Range of patient charts per PT	4-16/0-14	0-4/0-3	0-5/0-6	0-8/0-10
Partially Supported Group				
Final chart count*	81/81	13/31	18/21	35/52
Range of patient charts per PT	0-18/2-26	0-2/0-3	0-8/0-8	0-8/0-14

*Count excluded patients not appropriate and PTs not involved in study

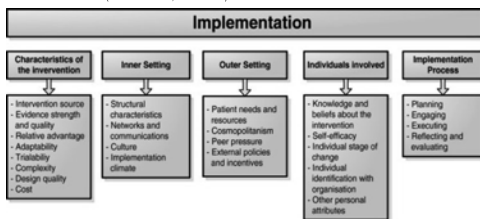
119

Data analysis



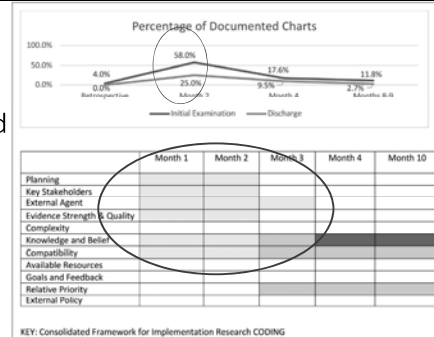
120

Consolidated Framework for Implementation Research (Damschroder, et al 2009)



121

Fully Supported Group



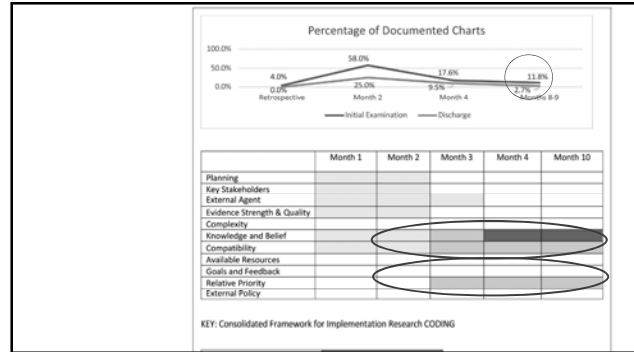
122

Fully Supported Group

Early Implementation (Month 2)

- **Compatibility (Context) and Engagement (Mechanism)**
 - Positive +
 - "I think that that TUG would be good with all the people we have had lately. We have had so many falls. I looked at the caseload I picked up one day and almost every single person was here because they had a fall." (P4 (Participant 4), Month 1)

123

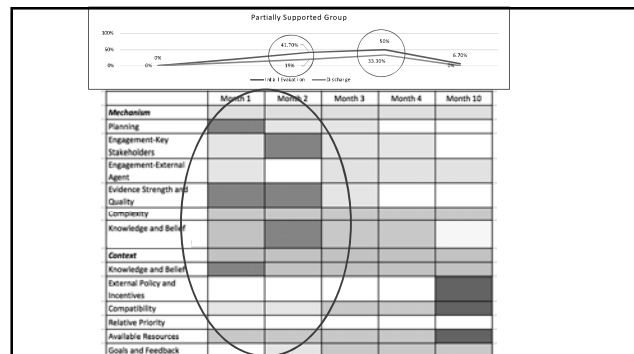


124

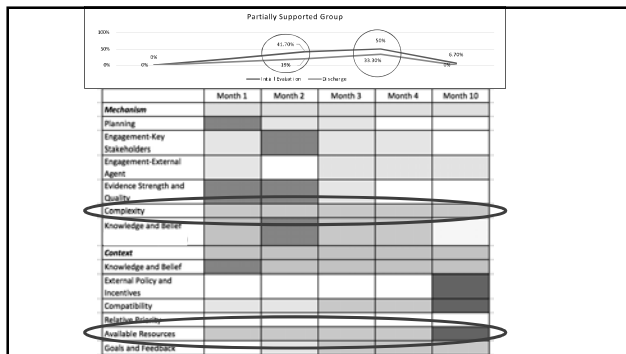
Late Implementation (Month 3-10)

- **Knowledge and Belief (Mechanism) Strong Negative --**
 - "I don't feel like I used it as an education tool either. I felt that we had the [13.5 second] cutoff [which represented fall risk] and it was telling us this person is at risk for falls when we already knew that. Most of my people are at risk for falls already and it was so strict of using one outcome measure for people that are here for different things." (P4, Month 10)
- **External Agent and Knowledge and Belief (Mechanisms) Negative -**
 - "I think our numbers would jump after we had a meeting because we were like 'oh shoot we have to do this for the research person' and then it would be full out this not helping us right now." (P13, Month 10)
- **Compatibility (Context -) Negative -**
 - "We also had a big shift over the past couple months of their patient clientele as well. So I think that also kind of like altered who was appropriate and who wasn't" (P1, Month 10).

125



126

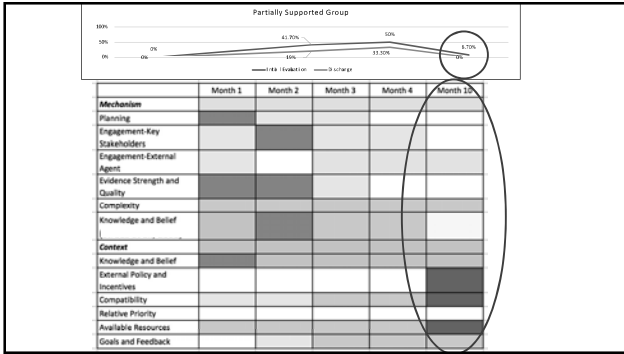


127

Early Implementation (Month 1-4)

- **Evidence Strength and Quality (Mechanism) Positive +**
 - "I think another reason we should pick the 10 meter one is because that they are allowed to use an assistive device. And our patients definitely need the assistive device. By discharge maybe not, but at the eval they definitely do." (P3, Month 1)

128

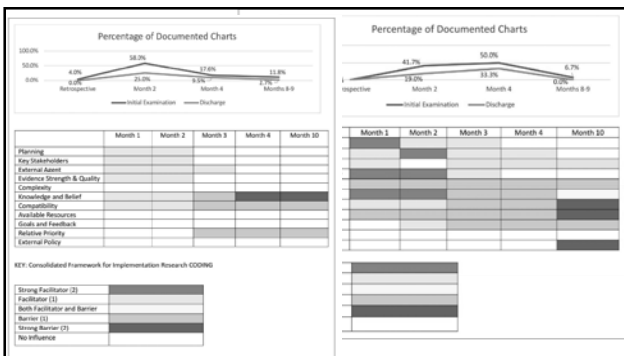


129

Sustainability (Month 10)

- **Compatibility (Mechanism) Negative** -
 - "I just think that we have been getting a lot more complicated patients and they just might not be appropriate for the test itself" (P2, Month 10)
- **External Policy (Context) Strong Negative** --
 - "We are getting more into that bundling, where patients are coming in and they have 5 days. Do you really want to take the time to do this test, when you could be working on something else that is probably going to benefit them more." (P2, Month 10)
- **Knowledge and Belief (Mechanism) Mixed**
 - "I think it's harder for patients to translate-- yes there is an improvement, but even if you tell them that are at low risk for falls, I don't think they can understand concept of an objective number. Or an objective number can quantify X. Being able to ambulate home safely, being able to decrease falls because they don't really think about it that way." (P5, Month 10)

130

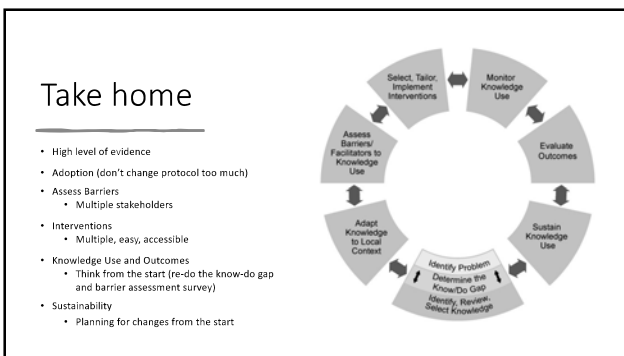


131

Discussion

Controlled Trial maybe Pragmatic could have been better	No organizational barrier assessment (TDF)	No organizational influence over use
No trialability (couldn't switch to another measure)	Capacity building for local champions	Education on interpretation of the test to PT and to patient

132



133

Thank you!

134