Building Capacity for Knowledge Translation in Rehabilitation

Academy of Neurologic Physical Therapy
Knowledge Translation Summit Overview and Results
Combined Sections Meeting-2019

Speakers
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- T. George Horrory PT, PhD, Indiana University, Indianapolis, IN
- University of Vermont Medical Center, Burlington, VT
- Jon Robinson PT, DPT, NCS
- Lisa Goodwin PT, NCS
- Infinity Rehabilitation, Wilsonville, Oregon
- Patrick Hennessy PT, DPT, NCS
- Patti Scheets PT, NCS
- Shirley Ryan AbilityLab, Chicago, IL
- Jillian MacDonald PT, NCS
- Miriam Rafferty PT, PhD

Learning Objectives
At the conclusion of this session, participants will:
1) Describe the use of the Knowledge-to-Action framework to implement evidence into rehabilitation clinical practice.
2) Discuss potential contributors to success and threats to KT projects
3) Explain strategies to build capacity for KT

Agenda
Overview of Knowledge Translation
Washington University in St. Louis, St. Louis, MO
Beth Crowner PT, DPT, NCS

KT Summit Results
Implementation into Inpatient Stroke Rehabilitation
Implementation into Skilled Nursing Facilities
Multi-Site Implementation of a Parkinson’s Disease Program
Clinical Practice Guidelines (CPG’s) -
The “What”

What are they?
- Systematically developed statements based on the best available evidence designed to assist practitioners about appropriate health care practices for specific clinical circumstances.
- These documents are defined by a stringent methodology and formal process for development.
- Recommendations are made up of both evidence-based and expert-based information to guide clinical practice decision-making. Although variation can exist, all must meet standard criteria.

Clinical Practice Guidelines (CPG’s) -
The “Why” - Benefits to Patients

- Better quality of care
- Improve health outcomes
- Improve consistency of care
- Inform patients/public about what health professionals should be doing
- Empower public to make more informed choices
- Influence public policy

Clinical Practice Guidelines (CPG’s) -
The “Why” - Benefits to Healthcare Professionals and Healthcare Systems

- Improve quality of care
- Reassure healthcare professionals that practice/intervention is appropriate
- Provide explicit recommendations to guide care/public health interventions
- Reduce the use of unnecessary, ineffective, or harmful interventions
- Support quality improvement initiatives
- Inform the research agenda by highlighting gaps in evidence
- Optimize value for money; Demonstrate adherence to guidelines may improve public image
Clinical Practice Guidelines (CPG’s)- The "How”

- A topic is identified by the Board/Committee/Membership
- A guideline development group with expertise in research and practice is selected; an advisory group is part of the work or advisory group
- Scope of the topic is determined
- Critical appraisal of the evidence/levels of evidence
- Data is stored and extracted; information is synthesized to make recommendations
- Strength of recommendations is based on the amount and strength of the available evidence
- CPG is written/reviewed/posted for public comment prior to submission for publication
- A CPG can take 3-5 years to complete!

Once a CPG is Developed, it is Imperative that there is Knowledge Translation (KT)

Canadian Institutes of Health Research’s (CIHR) Definition of KT

- KT is a 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.
- This process takes place within a complex system of interactions between researchers and knowledge users which may vary in intensity, complexity and level of engagement depending on the nature of the research and the findings as well as the needs of the particular knowledge

What is Knowledge Translation?

- Knowledge synthesis: The contextualization and integration of research findings of individual research studies within the larger body of knowledge on the topic. Synthesis is a family of methodologies for determining what is known in a given area or field and what the knowledge gaps are.
- Dissemination: Refers to the identification of the appropriate audience for the research findings, and tailoring the message and medium to the audience.
- Knowledge exchange: The process by which knowledge is actually considered, put into practice or used to improve health and the health system. It encompasses the concept of collaboration in which knowledge users work together as partners to conduct research to solve knowledge users’ problems (integrated KT), and co-production of knowledge (Mode 2).
- Ethically sound application of knowledge: The iterative process by which knowledge is actually considered and the practice is used to improve health and the health system. KT activities must be consistent with ethical principles and norms, social values as well as legal and other regulatory frameworks.
What is Knowledge Translation?

• It comprises the practice of knowledge translation/implementation:
  • Closing the gap between what we know and what we do (the 'reducing the know-do gap')
  • Making users aware of knowledge and facilitating their use of it to improve health and health care systems
  • Transforming evidence into practice (moving knowledge into action)

Today's Focus will be on End of Grant (CPG; Project) Dissemination

• The researcher or KT team develops and implements a plan for making knowledge users aware of the knowledge generated through a research project
• Decisions about the extent and ambitiousness of KT plans should be guided by the:
  • Reliability
  • Validity
  • Strength and significance of the findings

Tool for KT: Knowledge to Action Framework (K2A)

The knowledge creation funnel conveys the idea that 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

The Action Cycle

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

Either

Start with problem/issue concern and look for external research/evidence to solve the problem
OR
Become aware of (typically) external research/systematic reviews/guidelines and assess whether current practice is in keeping with it

Adapt the knowledge to the local context.

Assess areas that impede and facilitate the uptake of knowledge.
What are the barriers/supports to uptake related of the knowledge (best practice/guideline), adopters, practice setting/context?

Assess barriers/support to knowledge use

Example - assessment
• Knowledge, attitudes and practice (KAP) surveys of PT’s and other stakeholders (RN’s, MD’s); barriers related to the guideline
• Practitioner/policy maker feedback on adapted care protocol (barriers related to the potential adopters)
• Discussions with providers and managers (barriers in the practice environment)

Findings:
• Knowledge deficits about effective treatment
• Lack of skills to implement the treatment
• Lack of equipment
• Provider staffing
• Lack of time
• Reimbursement

Select and tailor interventions to the identified barriers and facilitators.

Select/Tailor implementation interventions as much as possible, based on the barriers/supports identified to move knowledge into practice.

Examples: Develop tools to facilitate use of the recommendations
- Provider: Provide training for providers
- Practice Setting: Redesign service delivery

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


Action Cycle
- Determine the impact of using the knowledge.
- Measure the pre/post change in the behavior of interest


Action Cycle
- Assess barriers to knowledge sustainability
- Tailor interventions to these barriers
- Monitor ongoing knowledge use
- Evaluate initial and sustained use; Anticipate sustainability issues from the beginning and build into Adaptation, KT interventions, Monitoring and Evaluation phases

Status of CPG’s and KT Groups-ANPT

1. Peripheral Vestibular Hypofunction CPG; published in 2016; KT taskforce is finalizing their work
2. Core Outcome Measures CPG; Published in 2018; KT taskforce developed in 2017; Actively working to create protocols and resources
3. Locomotor Training CPG; Will be published in 2019; KT taskforce recently formed and is beginning their work.
4. Orthotic and Prosthetic CPG and Concussion CPG; Will be published in 2019; KT taskforces to be determined.
5. Health Promotion and Wellness taskforce; created in 2017; actively developing resources for providers and consumers

Agenda

Overview of Knowledge Translation
KT Summit Overview and Results
Institute for Knowledge Translation
Jenni Moore PT, DHS, NCS
Implementation into Inpatient Stroke Rehabilitation
Implementation into Skilled Nursing Facilities
Multi-Site Implementation of a Parkinson’s Disease Program
Shirley Ryan AbilityLab, Chicago, IL
Jillian MacDonald PT, NCS
Miriam Rafferty PT, PhD

2016 KT Summit

CSM Pre-Conference course
• 2-days, CSM 2017
• Competitive application process
• Content
  • In-depth training on the Knowledge-to-Action Framework
  • Implementation plan development
  • Mentoring for 1 year
• Opportunity to submit grant

KT Summit Objectives

After completing the KT Summit and associated activities, participants will be able to:
1. Define the practice and science of knowledge translation and its components
2. Explain his or her role as a leader or facilitator of knowledge translation.
3. Describe the Knowledge-to-Action Framework
4. Create an action plan to implement an evidence-based practice
5. Develop a funding proposal for a knowledge translation project
Application Process

- Submit project proposal
  - Project description and objectives
  - Evidence-based practice to be implemented
- Setting description
- Implementation support
- Letter from leadership team member – “The letter must also state that the organization will support the applicant/team throughout implementation of the practice during the year following the summit.”

Priorities: CPG Implementation and researcher/clinician teams

Summit Expectations

- Create an action plan to implement the EBP
- Implement the action plan/EBP during the year after the summit
- Systematically document the implementation process, including barriers, facilitators, KT interventions used, and outcomes of the project
- Report on project progress during monthly conference calls with a KT mentor and other summit participants
- Agree to mentor future summit participants in KT initiatives
- Present or publish findings from KT project

KT Summit Applicants

- 2017 KT Summit:
  - 24 Applicants
  - 12 Accepted/attended/majority applied for funding (36 attendees)
  - 3 Grants awarded

- Project topics
  - Increasing activities and repetition in inpatient rehabilitation
  - High-intensity gait training (2 groups)
  - Core outcome set for TBI/SCI
  - Cardiovascular exercise for stroke
  - PROMs for community re-integration
  - Vestibular rehabilitation (2 groups)
  - Balance training program
  - Early PT for Parkinsons
  - Early interventions in MS

KT Summit Project Status

- Status of projects
  - 1 completed project (8%)
  - 5 ongoing projects (42%)
  - 6 discontinued (50%)

- Reasons for discontinuing the project
  - Lack of resources/funding (n = 3)
  - Champion left the facility/department (n = 2)
  - Transitioned to research project (n = 1)
Kt summit progress: 6 Ongoing KT projects

- Pilot Implementation-Effectiveness Study of a Long-Term Physical Therapy Program for Mild Parkinson’s Disease through Regional System of Care (Rafferty, Doyle, MacDonald)*
- High Intensity Gait Training for Patients Following Stroke (Robinson and Goodwin)*
- Implementation of a High Intensity Stepping Program in a Skilled Nursing Center Environment (Patty Scheets, Pat Hantuey, and Mike Billings)
- Multisite Implementation of “Vestibular Rehabilitation for Peripheral Vestibular Hypofunction: An Evidence-Based Clinical Practice Guideline” (Tilson and colleagues)*
- Implementation of Recommended Outcome Measures for TBI and SCI Across a Continuum of Care (Amelia Siles, Jessica Pfister, Carol Peschel Eskay)
- iKNOW-PD (Integrating KNOWledge Translation Tools for Outcome Measurement in Parkinson’s Disease) (new topic; Suzanne Trojanowski, Tams Fritz, Amy Yorke)

*Funded by KT Grant

KT Summit Lessons Learned

- Leadership/organizational support is critical
- Description of collaboration/support of project
- Executive champion
- Commit resources
- Leadership training may be needed
- Contingency plan in place if champion leaves facility
- Time required to complete projects (> 2 years in most cases)
- Amount/level of evidence to support implementation

Agenda

Overview of Knowledge Translation

KT Summit

Implementation into Inpatient Stroke Rehabilitation
University of Vermont Medical Center, Burlington, VT
Jon Robinson PT, DPT, NCS
Lisa Goodwin PT, NCS

Implementation into Skilled Nursing Facilities
Multi-Site Implementation of a Parkinson’s Disease Program
Project title: High Intensity Gait Training for Patients Following Stroke (HIGTPFS)

Objectives: To implement a high intensity gait training program for individuals following stroke using knowledge translation principles

Institution Overview:
- UVM Medical Center:
  - Non-profit
  - 562 beds
  - Level 1 trauma center
  - Rural-serving upstate New York and Vermont
- Acute Level Rehab Unit:
  - 35 beds
  - 10 Physical Therapy FTEs
  - ~200 patients with Stroke/year
  - Average time from onset: 7.69 days
  - Average LOS: 21.5 days

Overview of progress
- Completed KTA phases:
  - Identify Problem
  - Determine the Know/Do gap
  - Identify, review, select knowledge
  - Adapt knowledge to local context
  - Assess barriers/facilitators to knowledge use
  - Select, tailor, implement interventions
  - Monitor knowledge use
  - KTA phases currently underway
  - Evaluate outcomes
- KTA phases planned
  - Sustain knowledge use

The Funnel
- Methods:
  - Comprehensive literature search
  - Identified key research to share with staff
  - Group discussion of articles
  - Identified key components of high intensity gait training
- Results:
  - Group consensus of importance of implementing high intensity gait training principles
**Know-do Gap**

- **Methods:**
  - Medical record audits
  - Direct observation

- **Results:**

**Adapt Knowledge to Local Context**

- **Methods:**
  - Group discussion of key research
  - Identified key components/principles of high intensity gait training
  - Integrated Knowledge Translation
    - Reinforced clinician autonomy through emphasis on principle-based approach vs. protocol-based approach

- **Results:**
  - Improved knowledge user buy-in particularly with the principle-based approach
  - Improved enthusiasm for implementation through knowledge user reading key research and discussing openly in group

**Barriers & Facilitators**

- **Methods:**
  - Organization level
    - Organizational Readiness for Implementing Change (ORIC)
    - Implementation Leadership Scale (ILS)
  - Clinician level
    - Barrier identification
      - Surveys
      - Group discussion
      - Prioritization
    - Self-efficacy

**Barriers & Facilitators**

- **Results:**
  - Implementation Leadership Scale: 43.9/48
  - Organizational Readiness for Implementing Change: 50.4/60

<table>
<thead>
<tr>
<th>Barrier Impact (0 = no impact; 10 = significant impact)</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment: equipment</td>
<td>8</td>
</tr>
<tr>
<td>Environment: space</td>
<td>8</td>
</tr>
<tr>
<td>Environment: personnel</td>
<td>6.4</td>
</tr>
<tr>
<td>Knowledge: medical questions</td>
<td>7.1</td>
</tr>
<tr>
<td>Knowledge: HIGT tools/implementation</td>
<td>7.4</td>
</tr>
<tr>
<td>Knowledge: HIGT principles</td>
<td>6.2</td>
</tr>
<tr>
<td>Hands-on skill</td>
<td>6.3</td>
</tr>
<tr>
<td>Documentation</td>
<td>4.3</td>
</tr>
</tbody>
</table>
Select, Tailor, and Implement Interventions

- Methods:
  - Integrated Knowledge Translation
  - Intervention development workgroups

Results:

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Intervention</th>
<th>TDF Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Know/Do Gap</td>
<td>Knowledge Treadmill training skills</td>
<td>Skills/Beliefs about capabilities</td>
</tr>
<tr>
<td>Medical guidelines</td>
<td>Beliefs of consequence Over ground training skills</td>
<td>Skills/Beliefs about capabilities</td>
</tr>
<tr>
<td>HIGT definition/key elements</td>
<td>Knowledge HIGT Tools</td>
<td>Skills/Beliefs about capabilities</td>
</tr>
<tr>
<td>Audit and feedback</td>
<td>Social influence Audit and feedback</td>
<td>Social influence/Beliefs of capabilities</td>
</tr>
<tr>
<td>Change partnering</td>
<td>Social influence Change partnering</td>
<td>Social influence/Beliefs of capabilities</td>
</tr>
<tr>
<td>Supervision</td>
<td>Social influence Supervision</td>
<td>Social influence/Beliefs of capabilities</td>
</tr>
<tr>
<td>Support staff training</td>
<td>Environmental context/Resources Support staff training</td>
<td>Environmental context/Resources</td>
</tr>
<tr>
<td>Variable practice ideas</td>
<td>Knowledge/Social influence Variable practice ideas</td>
<td>Social influence/Knowledge</td>
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<tr>
<td>Treadmill training parameters</td>
<td>Action planning Treadmill training parameters</td>
<td>Action planning/Knowledge</td>
</tr>
<tr>
<td>Patient cases/videos</td>
<td>Social influence Patient cases/videos</td>
<td>Social influence/Knowledge</td>
</tr>
<tr>
<td>Informal discussion/mentoring</td>
<td>Social influence Informal discussion/mentoring</td>
<td>Social influence/Knowledge</td>
</tr>
</tbody>
</table>
| Monitor Knowledge Use

- Methods:
  - Audit and Feedback
  - Medical record audits once documentation template developed
  - Case discussion in monthly meetings

Monitor Knowledge Use: Results

<table>
<thead>
<tr>
<th>Application of the Program</th>
<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients (n)</td>
<td>12</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Sessions (n)</td>
<td>165</td>
<td>89</td>
<td>121</td>
</tr>
<tr>
<td>Patients with HIGT (%)</td>
<td>25%</td>
<td>57%</td>
<td>100%</td>
</tr>
<tr>
<td>Sessions with any gait training (%)</td>
<td>82%</td>
<td>82%</td>
<td>86%</td>
</tr>
<tr>
<td>Gait training sessions with HIGT (%)</td>
<td>18%</td>
<td>48%</td>
<td>67%</td>
</tr>
<tr>
<td>HIGT session time spent walking (%)</td>
<td>13%</td>
<td>27%</td>
<td>23%</td>
</tr>
<tr>
<td>Walking duration/hr (min)</td>
<td>8</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>Walking time spent at target intensity (%)</td>
<td>42%</td>
<td>38%</td>
<td>70%</td>
</tr>
<tr>
<td>Walking duration at target intensity/hr (min)</td>
<td>3</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Adherence to Documentation</td>
<td>Aug</td>
<td>Sept</td>
<td>Oct</td>
</tr>
<tr>
<td>Documentation template use (%)</td>
<td>88%</td>
<td>97%</td>
<td>100%</td>
</tr>
<tr>
<td>BP assessment (%)</td>
<td>95%</td>
<td>57%</td>
<td>87%</td>
</tr>
<tr>
<td>RPE assessment (%)</td>
<td>100%</td>
<td>91%</td>
<td>98%</td>
</tr>
<tr>
<td>HR documentation (%)</td>
<td>88%</td>
<td>94%</td>
<td>96%</td>
</tr>
</tbody>
</table>
Evaluate Outcomes

- Methods:
  - Organization level
    - Organizational Readiness to Implement Change (ORIC)
    - Implementation Leadership Scale (ILS)
  - Clinician level
    - Barrier identification
    - Barrier Impact Survey
    - Self-efficacy
    - Clinician Self-Efficacy Survey
    - Intervention Effectiveness Survey
  - Clinical Measures
    - Gait speed
    - Step counts
    - Berg Balance Scale

Results: (In process):
- Barrier Impact Survey*
- Intervention Effectiveness Survey*
- Clinician Self-Efficacy*

Sustain Knowledge Use

- Methods:
  - Medical record audits
  - Reporting on outcomes to group
  - Development and inclusion of HIGT module into new staff orientation

- Results: TBD

Successes

- Integrated Knowledge Translation - engaging knowledge user participation
  - Group discussions identifying barriers
  - Self-selected participation in workgroups
  - Pairing knowledge users to implement with specific/challenging patients
  - Hands-on in-services/practice sessions on treadmill and over ground training with facilitation from hands-on group knowledge users
  - Effective roll out of the research with knowledge users – having them read relevant research prior to know/do gap data discussion – simplify and use examples
  - Knowledge user trust to openly discuss barriers/concerns, particularly those involving beliefs (capabilities and consequences). Knowledge users able to discuss the “yeah, buts”

- Other KT Interventions
  - Strong clinical leadership and champions
  - Audit and feedback
Challenges

- Systems challenges
  - Increased time required to purchase and install equipment
  - Time & staffing issues
- Integrated Knowledge Translation
  - Balancing the need for knowledge user participation and decision-making with the need to begin implementing strategies/interventions to address high priority barriers.
  - Determining critical components that can’t really be altered without seeming to dictate the process and the outcome.
  - Principle-based approach may have led to a feeling that HIGT was a knowledge user choice vs. best practice.
  - Allowed for knowledge users holding onto beliefs about ‘this person isn’t ready’, etc.
  - Knowledge monitoring helped solidify need for goals among knowledge users that led naturally to goal setting.
  - Improving MD understanding of the HIGT principles to allow for modification of parameters rather than ‘No HIGT’.
  - Knowledge user difficulty generalizing the HIGT principles to all patients: seemed to require specific personal experience implementing with specific patient presentations.
  - Some difficulty identifying belief barriers early enough in the process.

Lessons Learned

- Integrated Knowledge Translation – overall more effective in our setting and culture despite the challenges.
  - Engaging knowledge users in process can slow the process down, but resulted in a greater shared commitment to implementation.
  - Greater facilitation of knowledge users generalizing the knowledge to all their patients/interpreting the research.
  - Case studies as implemented did not serve as demonstrative/vicarious learning as much as anticipated.
  - Timing of goal setting – too early feels top down, too late invites too much variability in practice.
  - It truly is an iterative process!

Agenda

Overview of Knowledge Translation
Beth Crowner PT, DPT, NCS

KT Summit
Implementation into Inpatient Stroke Rehabilitation

Implementation into Skilled Nursing Facilities
Infinity Rehabilitation
Patrick Hennessy, PT, MPT, NCS, Clinical Knowledge Broker
Patricia L. Scheets, PT, MHS, DPT, NCS
Director of Quality and Clinical Outcomes

Multi-Site Implementation of a Parkinson’s Disease Program

Implementation of HIT at a Skilled Nursing Facility

- Select, tailor, implement interventions
- Monitor Knowledge Use
- Evaluate outcomes
- Sustain knowledge use.
Implementation of HIT at a Skilled Nursing Facility

• Clinical pilot site
• 45 bed capacity
• Diverse patient census
• 6 initial participants (3 PT/3PTA)
• Anticipated 2-3 month implementation period
• Clinical knowledge broker onsite

Assessing knowledge gaps and barriers

Methods

• Clinical observation
• Formal and informal interviews
• Historic chart review (ineffective)
• Self-report tools
  • Demographics
  • Evidence-based practice attitudes scale (EBPAS)2
  • Implementation/leadership scale3
• Specific practice behaviors

Findings

• Early identification of opinion leaders, staff culture, etc.
• Overall openness to change
• Overall accepting to "manualized" treatment
• Clinicians request hands-on skills practice and equipment lab
• Gap between observed and self-identified behaviors

### Adapt knowledge to local context

<table>
<thead>
<tr>
<th>HIT Component</th>
<th>HIT Research Protocol</th>
<th>SNF Pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency, Time</td>
<td>≤40 sessions</td>
<td>Variable session duration</td>
</tr>
<tr>
<td></td>
<td>40 min per session</td>
<td>Variable frequency</td>
</tr>
<tr>
<td></td>
<td>a 4x/wk</td>
<td>Scheduling issues</td>
</tr>
<tr>
<td>Intensity</td>
<td>60-80% IRMA</td>
<td>Patient’s health status</td>
</tr>
</tbody>
</table>
| Type | Stepping practice | Length of session:
| | Variable task | ≥40min/session or “as much as possible” |
| | Variable environment | ≥4x/week or “as much as possible” |

### Adapt knowledge to local context

<table>
<thead>
<tr>
<th>HIT Component</th>
<th>HIT Research Protocol</th>
<th>SNF Pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing Task Demands</td>
<td>Minimized task and lost weight bearing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assist or challenge subcomponents &amp; challenge after 3-5 unsuccessful attempts</td>
<td></td>
</tr>
</tbody>
</table>
| Training structure | Task time on treadmill vs. over ground:
|                        | ↓ challenge after 3-5 unsuccessful attempts |
|                        | ≥25% of session |
| Equipment and Resources | Treadmill and over-ground training |
|                        | Additional support staff usually available |
## Diagnosis Group

<table>
<thead>
<tr>
<th>Diagnosis Group</th>
<th>Potential for adverse response or inconsistent with practice standards</th>
<th>Staff Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Joint Replacement</td>
<td>• Exclude</td>
<td></td>
</tr>
<tr>
<td>Orthopedic – trauma</td>
<td>• Include</td>
<td></td>
</tr>
<tr>
<td>Progressive neurologic</td>
<td>• Include</td>
<td></td>
</tr>
<tr>
<td>Cancer and other complex medical</td>
<td>• Exclude (active or malignant)</td>
<td></td>
</tr>
<tr>
<td>Dementia</td>
<td>• Include</td>
<td></td>
</tr>
</tbody>
</table>

### Inclusion criteria

All patients with goals for ambulation EXCEPT:
- Conflicting MD orders
- Orthopedic - LE weight bearing restrictions, TJR, amputation
- Med complex
  - Malignant cancer, in radiation or dialysis,
  - Unhealed wounds preventing use of harness/shoes/etc.
  - Active systemic infection (e.g. sepsis, untreated UTI)
- Progressive neurologic disorders
- Acute cardiac admissions
- Cardiac history
- Decompensated or stage IV CHF
- ICD or similar devices
- <90 days post MI or similar event
- <90 days post revascularization procedures

~35% of total census on start date

### KT Interventions

#### Therapist training

**Week 1: Repetition & Intensity**
- 90 minutes didactic
  - Define process and expectations
  - Familiarization with resources
- 90 minutes skills lab
  - Equipment training
  - POC monitoring and recording
- Therapist action plan

**Week 2: Variability & decision-making**
- 60 minute didactic
  - Reinforce process, resources, and expectations
- 30 minutes skills lab
  - Clinical decision-making
  - Video review and practice
- Therapist action plan

- Start immediately!

#### KT Interventions

**Mentoring**

- Individual mentorship and feedback
  - 1:1 co-treats
  - Pre/post session feedback
  - Weaning schedule
- Group meetings
  - Case discussions
  - Process and knowledge tool development
  - Formal/informal interviewing
  - Updates and feedback
- Additional mentorship to clinical champion ("train the trainer")

*Let's try it without the parachute.*
Knowledge translation interventions

- Clinical handouts
- Quick reference guide
- Skill appraisal and self-assessment forms
- Safety monitoring materials
- Electronic resources
- HR intensity calculator
- Documentation template
- MD communications template
- Therapy staff included as stakeholders
- Consensus during adaptation process
- Refinement of knowledge tools
- Didactic training
- Documentation template
- Operational procedures
- Education and messaging

Monitoring knowledge use - Adherence

<table>
<thead>
<tr>
<th>Process item</th>
<th>Data source</th>
<th>Feedback schedule</th>
<th>Feedback setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workflow, enrollment, scheduling</td>
<td>EMR</td>
<td>Weekly</td>
<td>Group</td>
</tr>
<tr>
<td>FITT training parameters &quot;dosage&quot;</td>
<td>EMR</td>
<td>Weekly</td>
<td>Group and individual</td>
</tr>
<tr>
<td>Additional measures of treatment fidelity</td>
<td>-Skills appraisal -Observation</td>
<td>Daily, weaning schedule</td>
<td>Individual</td>
</tr>
</tbody>
</table>

Monitoring Knowledge Use – Clinical Outcome Measures

- Primary clinical outcome measures
  - Six-minute walk test (6MWT)\[^23\]
  - Short physical performance battery (SPPB)\[^4\]
  - Gait speed\[^6\]
  - Within-session training parameters ("dosage")
    - Max HR-RPE
    - Time spent in target training zone
    - Time spent walking
    - Number of tasks practiced
- Patient characteristics
  - Demographics
  - Diagnosis categories
  - Baseline cognition – St Louis University Mental Status (SLUMS) examination\[^23\]
  - Length of admission
  - Discharge disposition
  - Adverse events

Balancing measures

- Productivity
- Protected time used
- General indicators of therapist/patient satisfaction
Week 2:
- Training completed
- Start enrollment
- PTAs immediately on medical leave

Week 3:
- 1/6 staff independent
- "As needed" mentorship with random observation

Week 4:
- New PTA begins training
- 5/6 staff request supervision

Week 5:
- 3/6 staff independent
- Clinical champion identified
- 2nd PTA resigns

Week 6:
- 5/6 staff independent
- Clinical champion initiatives shared across staff

Week 7:
- 6/6 staff independent
- "As needed" mentorship with random observation

Week 8:
- Random observations
- 1st PTA resigns
- PTA returns from medical leave

Week 9:
- 3/3 staff independent
- "As needed" observation

Week 10:
- Clinical champion initiates shared oversight of students and new staff

Week 11:
- 3/3 staff independent
- "As needed" observation
- Plans for sustainability

Week 12:
- Pilot completed
- Staff debriefing
- Plans for sustainability

---

**Evaluate Outcomes**

**Practice Behaviors and Beliefs**

**Survey**
- Only 3/7 with pre-post data
- Improved metrics in all item domains
- EBPAS (requirements, appeal, openness, divergence)
- Confidence in leadership
- Confidence and skills in gait training behaviors

**Interviews**
- 7/7 actively participated
- Link patient outcomes to HIT
- 5/7 report improved satisfaction with care
- Importance of knowledge tools
- Common barriers to care identified (pain, "pushing the pt")
- Importance of being observed

---

**Sustain Knowledge Use**

**Insight and limitations**

**Evaluation Outcomes**

**Balance and Process measures**

**Protected time use**
- Didactic/lab training
  - 2.5 – 4 hrs per clinician
- Individual and group feedback
  - Avg 4.88 hrs (3.75 – 6.25)
- Time outside of co-treats

**Adherence and skill acquisition**
- By week 1 and ≥2 1:1 contacts, all but 1 clinician demonstrated independence with workflow process, use of knowledge tools, and documentation adherence

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Sustain knowledge use

- Initiatives to “scale up” model vs oversee sustainability at one site
- Online education module
- Indirect supervision
- Peer mentorship and local champions
- Broad applications to the older adult population
  - FITT principles
  - Safety monitoring and screening

References


Agenda

Overview of Knowledge Translation
- KT Summit Results
- Implementation into Inpatient Stroke Rehabilitation
- Implementation into Skilled Nursing Facilities
- Multi-Site Implementation of a Parkinson's Disease Program

Shirley Ryan AbilityLab, Chicago, IL
Jillian MacDonald PT, NCS
Miriam Raftery PT, PhD

BackGround Cycle 1 (2016)

- The Funnel
- Clinical practice guidelines recommend early PT for PD for physical activity advice and monitoring.
- RCTs have been completed showing effect of long term delivery model of exercise (Aerobic & Strengthening).

- Adaptation to Local Context & Barriers & Facilitators
- Plan to implement at 1 location, OPPT at Shirley Ryan AbilityLab

- Implementation
- 2 Therapists trained at 1 location
Background:
Cycle 1 (2016)

- Monitor Knowledge Use & Evaluate Outcomes
- Reach - 28 patients
- Effectiveness - Increased time and types of exercise performed
- Adoption - 3 neurologists, 3 physiatrists, 2 physical therapists
- Implementation - Developed Carepath (next slide)
- Maintenance - continued at single site

2016 Program Evaluation
People with PD increased frequency, intensity, time and type of exercise 6-12 months following proactive PT (PAPT).

Cycle 2 (2018): Spread and sustainment of early PD program through system of care

- Objectives:
  - Aim 1 (Process Outcome): To improve access to individualized exercise prescription and monitoring in people with mild PD using a long-term PT approach.
  - # PT referrals and # of patients utilizing therapy
  - Improve adherence of goals setting to increase physical activity and exercise
  - Aim 2 (Clinical Outcome): To improve participation in physical activity, including moderate to vigorous intensity exercise, in people with early PD.
  - Increase patient-reported physical activity (GLTEQ) and exercise (PAVS)
  - If needed, improvements in walking and balance

Care Path

Overview of progress Cycle 2 (2018)

- Completed KTA phases
- The funnel
- Problem, Know-Do Gap, Identify, Review, Select Knowledge
- Adapt Knowledge to Local Context
- Assess Barriers and Facilitators to Knowledge Use
- KTA phases currently underway
  - Select, Tailor, Implement Interventions
  - Monitor Knowledge Use
  - Evaluate Outcomes
- KTA phases planned
- Evaluate Outcomes
- Sustain Knowledge Use
**The Funnel Cycle 2 (2018)**

- **The Funnel**
  - Clinical practice guidelines recommend early PT for PD for physical activity advice and monitoring.
  - RCTs have been completed showing effect of long term delivery model of exercise (Aerobic & strengthening).
  - Using institutional processes to update evidence.

**Know-do Gap Cycle 2 (2018)**

- **Methods**
  - Survey staff about current practice
  - Internal chart audit on therapists who treat individuals with H & Y 1 & 2
  - Looking at institutional and current referral practices.
- **Results**
  - Survey results
  - Audit findings

**Adapt Knowledge to Local Context Cycle 2 (2018)**

- **Methods**
  - Adapting to 2 suburban sites.
  - Clinic environment & culture
  - Size of the clinics
- **Results**
  - Tailored processes
  - Communication with research team
  - Patient care work-flow
  - Leadership strategies

**Barriers & Facilitators Cycle 2 (2018)**

- **Methods**
  - Interviews with directors, managers and clinicians
  - Meetings between MR, JM, and LD to discuss barriers identified and potential solutions, discuss with management and champions.
- **Results**
  - Facilitators
  - Internal academy
  - Program manager position created
  - Upper & mid-level leader
  - Able to make EMR changes
**Barriers & KT Interventions**  
Cycle 2 (2018)

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Implementation Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty performing in the allotted time (prep &amp; performance)</td>
<td>Allow for longer sessions for evaluation &amp; treatment; provide resources for clinicians and those to give to patients.</td>
</tr>
<tr>
<td>Concerned about fidelity, standardization</td>
<td>Create a standardized training process and materials to reference, provide mentorship.</td>
</tr>
<tr>
<td>Clinicians commonly use traditional, restorative model of care</td>
<td>Educate in care path, tools &amp; plan for long term engagement. Leader visits to the clinic.</td>
</tr>
<tr>
<td>High staff turn-over</td>
<td>Create a succession plan early, create a standardized training materials that can be used off site.</td>
</tr>
<tr>
<td>Complicated scheduling</td>
<td>Work to standardize referrals from frequent referral sources, work to centralize process.</td>
</tr>
<tr>
<td>Lacking marketing materials</td>
<td>Created flyer for marketing, plan for regular updates.</td>
</tr>
</tbody>
</table>

**Select, Tailor, and Implement Interventions**  
Cycle 2 (2018)

- **Methods/Results:**  
  - Process developed for both satellite clinics by stakeholders  
  - Standardized training process  
  - Webinar training  
  - Observation  
  - Mentorship and feedback  
  - Monthly meetings for updates and case discussion.  
  - Resources to support clinicians and patients  
  - Educational resources  
  - Tools to increase adherence  
  - Documentation support  
  - EMR changes to improve efficiency of documentation, standardizations and data collection.

**Monitor Knowledge Use**  
Cycle 2 (2018)

- **Methods:**  
  - Auditing medical records  
  - Audit of the first evaluation/treatment session of 3 unique patients seen.  
  - Criteria  
  - Adherence to documentation standards  
  - Fidelity of program prescription  
  - Long term plan to provide audit & feedback at least 2 times/year for each clinicians.  

- **Results:**  
  - Audit findings

**Evaluate Outcomes**  
Cycle 2 (2018)

- **Organizational:**  
  - Grew from 1-3 locations  
  - Grew from 2-7+ therapists  
  - EMR changes for improved data extraction  

- **Clinician:**  
  - Adherence, beliefs in the program, knowledge & skill  
  - Patient  
  - Grew from 28-40+  
  - Retrospective Quality Improvement review  
  - Survey patients  
  - Adherence to program recommendations  
  - Satisfaction of the program  
  - Clinical functional outcomes & patient reported outcomes  
  - Long term adherence to this model of care
Sustain Knowledge Use
Cycle 2 (2018)

- Organizational
  - Training materials through the Internal Academy
  - Improved scheduling
  - Addition of proactive OT and ST care paths
- Clinician
  - Audit & feedback 2 times/year.
  - Monthly meetings help with fidelity of the program.
  - Shared materials
- Patient
  - Developed educational resources
  - Provided easy access to external resources.
  - Provide better access to clinicians for long term adherence to this model.
  - Plans to create dissemination materials*

Successes
Cycle 2 (2018)

- Reaching more patients
- Trained more staff
- Modifications to EMR
- Managerial & institutional support
- Webinar created
- Addition of proactive OT and ST

Challenges
Cycle 2 (2018)

- High turnover/staffing changes
- Three Champions leaving their positions.
- Manager changes (direct clinical manager - lower middle manager)
- Timing of our program
- All 3 clinics changed location in the past 2 years
- EMR change process
- Complex scheduling systems
- Long term follow up

Lessons Learned
Cycle 2 (2018)

- Be aware of cycles in the clinic and best time to begin implementation of a new program.
- Consider clinic volume needs and budget concerns.
- Initiate succession planning early
- Prepare for staff changes, planned and unplanned leaves
- Institutionalize & simplify processes when able