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Enhanced Medical Rehabilitation: Effectiveness of a Clinical Training Model

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Abstract

Background—Patient engagement in medical rehabilitation can be greatly influenced by their provider during therapy sessions. We developed Enhanced Medical Rehabilitation (EMR), a set of provider skills grounded in theories of behavior change. EMR utilizes 18 motivational techniques focused on providing frequent feedback to patients on their effort and progress and linking these to patient goals.

Objective—To examine the effectiveness of a clinical training protocol for clinicians to do EMR, as measured by clinician adherence.

Methods—A physical therapist, physical therapist assistant, occupational therapist, and certified occupational therapist assistant were trained in EMR. Training consisted of five formal training sessions and individual and group coaching. Adherence to EMR techniques was measured during two phases: Pre-Training and Maintenance, with an a priori target of 90% adherence by clinicians to each EMR technique.

Results—With training and coaching, clinician adherence per therapeutic activity significantly improved in 13 out of 18 items ($p < .05$). The target of 90% adherence was not achieved for many items.

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Declaration of Interest

We certify that no party having a direct interest in the results of the research supporting this article has or will confer a benefit on us or on any organization with which we are associated AND, if applicable, we certify that all financial and material support for this research (eg, NIH or NHS grants) are listed below:

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Conclusions—Our training and coaching program successfully trained clinicians to promote patient engagement during therapeutic service delivery, although not typically to 90% or greater adherence. Ongoing coaching efforts were necessary to increase adherence.

Keywords

therapeutic engagement; skilled nursing facility; rehabilitation

Introduction

Patient engagement has been defined as a “deliberate effort and commitment to working toward the goals of rehabilitation therapy, typically demonstrated through active participation and cooperation with treatment providers” (Lequerica, Donnell, & Tate, 2009). To benefit from medical rehabilitation interventions, patient engagement is critical (Lequerica & Kortte, 2010), and low levels of patient engagement can be associated with decreased functional improvement and longer lengths of stay (Lenze et al., 2004; Lequerica et al., 2009). There are several factors that may impact engagement in rehabilitation: goal setting, therapeutic connection, personalization, patient-centered rehabilitation, autonomy, education, and feedback (Macdonald, Kayes, & Bright, 2013). Many of these factors are influenced by how the therapist delivers their treatment, and the patient-clinician interaction is the foundation for successful engagement in rehabilitation. Thus, achieving high patient engagement depends on a high level of targeted interaction from physical and occupational therapists responsible for providing rehabilitation services.

Improving a therapist’s ability to engage patients during clinical practice is challenging given the changing and competing demands of the rehabilitation environment. Building on models from behavior change as well as rehabilitation research recommendations (Bandura, 1977; Rasmussen, Wrosch, Scheier, & Carver, 2006; Whyte & Hart, 2003), we developed Enhanced Medical Rehabilitation (EMR). EMR is a set of patient engagement skills that physical and occupational therapists can incorporate into their daily sessions (Lenze et al., 2013; Lenze et al., 2012). EMR focuses on an interactive patient-directed approach and frequent feedback to patients on their effort and progress, as well as achieving high intensity of therapy. EMR is patient-centered: personal goal setting, therapeutic connection, and patient autonomy are the foundation. Therapy is centered on the patient’s individualized goals which are established through a Rehabilitation Goals Interview at the start of the course of treatment. For example, individualized goals are patient-selected and have direct meaning to the patient (e.g. going to the ballgame, going out to dinner with a child or spouse). Within a treatment session, in order to work toward a particular individualized goal, a clinician will work with a patient on one or more therapeutic activities. A therapeutic activity is defined as an intervention that is done during a treatment session (e.g. walking, meal preparation, balance). The EMR approach consists of high utilization of each of these specific techniques throughout each therapy session, to better engage the patient, and to hopefully improve patient outcomes.

Hildebrand and colleagues established a structured protocol for training clinicians in EMR in a real-world rehabilitation setting (Hildebrand et al., 2012). A therapist’s ability to deliver

this protocol to increase patient engagement is measured via treatment fidelity: therapist demonstration of carrying out the intervention with adequate levels of adherence to the treatment protocol. The original training protocol was put into place around the pilot project for EMR, and was shown to be effective at improving clinician adherence of EMR techniques and to actively engage patients.

In a subsequent and ongoing large-scale test of EMR in real-world rehabilitation settings, it was found that both the EMR techniques and the training protocol needed to be updated. Specifically, a more formalized training and coaching approach (including a more extensive manual for participating clinicians) needed to be developed. The purpose of this current paper, therefore, is to report the effectiveness of our updated protocol for training clinicians in EMR, as measured by clinician adherence to the EMR intervention. The findings are relevant for any researcher or clinical supervisor interested in implementing training procedures to change clinician behavior.

Methods

This study was part of the “Enhanced Medical Rehabilitation for older adults” clinical trial (NCT02114879), and was approved by Washington University Human Research Protection Office.

Facility

Barnes-Jewish Extended Care is a skilled nursing facility that is part of a large, non-profit medical system located in St. Louis, MO. It has a 60-bed rehabilitation unit with an average of 100 admissions per month and over 88% of patients return home or to a more independent facility. The average length of stay is 18 days.

Participants

Participants were patients at Barnes-Jewish Extended Care. The pre-training phase consisted of naturalistic observations where no patient information was collected. Following the training, patients who presented for rehabilitation and were 65 years or older, non-demented, and had been walking at prior level were recruited to participate in the ongoing clinical trial. Participants had varying levels of medical comorbidities and impairments. A full description of the participants will follow the conclusion of the clinical trial.

Clinicians

Four rehabilitation clinicians working at Barnes Jewish Extended Care underwent training in the structured clinical training protocol. The four rehabilitation clinicians were a physical therapist (PT), a physical therapist assistant (PTA), an occupational therapist (OT), and a certified occupational therapy assistant (COTA). The clinicians were an average age of 39.3 years old, included one male, and had a mean 11.9 years of experience. The four clinicians were selected for training mainly for logistical and organizational reasons. The therapy staff at Barnes-Jewish Extended Care was already divided into three teams consisting of one PT, one PTA, one OT, and one COTA. The rehabilitation director advised that a team be selected that consisted of four full-time clinicians to ensure adequate coverage. Since a PTA on a

team had been trained previously in our pilot study (Lenze et al., 2012), it was decided to utilize that team. One of the clinicians on the team declined to participate due to concerns on time commitment, and switched teams. The therapists selected did not differ demographically from the group of clinicians at BJEC as a whole.

Research Team

PT (MDB) and OT (RLB, PB) members of the research team trained and coached the clinicians in the EMR approach. The PT and OT trainers were licensed therapists with over 30 years combined experience. Their role was to revise and implement the structured clinical training protocol; with a goal of high levels of clinician adherence to EMR techniques for the duration of the clinical trial.

Five non-clinician research staff members served as raters; they observed the clinicians during their therapy sessions and documented clinician adherence to the EMR techniques which were utilized for analyses throughout the course of the study. Clinician adherence was measured at two main time points:

1. Pre-training of EMR: to gather baseline information on the use/lack of EMR techniques (March 2014 – May 2014).
2. Maintenance of EMR: to gather adherence ratings on the use/lack of EMR techniques once the clinicians were trained (July 2014 – mid-October 2015).

During the training, clinician adherence was assessed to monitor and improve treatment fidelity; however this information was not used in the analysis. Inter-rater reliability has been previously reported (Hildebrand et al., 2012). As in the previous publication, all raters were trained in the EMR intervention by reading the study materials including the Adherence Rating Form (Appendix A) and Rating Guide (Appendix B), rating videotaped and live sessions, and through comparison and consensus of scores. Throughout the clinical trial and as new raters were trained, scores were compared and discussed in one-on-one and group meetings.

Adherence Rating Form

The Adherence Rating Form lists each of the 18 EMR techniques that are expected from the clinician per therapeutic activity (Appendix A). Based on the prior form from the pilot study (Hildebrand et al., 2012), this version decreased the number of items and words used to describe each behavioral skill to streamline the material and to make it easier for the clinicians to remember. Adherence to each of the 18 items on the form was rated as “did” or “missed”. In accordance with conventions from psychotherapy research, a goal of 90% adherence was set, as this would suggest that the clinicians delivered the protocol with a high degree of treatment fidelity. The Rating Guide served as a reference document to achieve consistent scoring. Over the course of the study each clinician was assessed during multiple treatment sessions, and because the clinical trial was taking place during every day clinical practice, each participant may have been treated by one or more of the EMR therapists on multiple occasions. However, each activity done during a treatment session was scored independently on all 18 EMR techniques.

Training

The updated EMR training protocol consisted of formal training sessions, and individual and group coaching sessions. In an additional change from the initial protocol, the duration of therapy was not increased for patients receiving EMR, but rather was part of the regular patient treatment time.

Formal Training—Formal Training sessions included five structured sessions which were done in a group format (Figure 1).

The sessions were led by the PT/OT trainers and all four clinicians attended. Training materials included presentations on slides and a binder provided to each clinician. The binder included information on EMR principles and techniques. The first training session was a brief 30 minute welcome session that allowed for introductions between the clinicians and research team. In addition, a brief overview and purpose of EMR were provided. Training sessions two through five were each 60 minutes in duration. These sessions introduced the three principles of Enhanced Medical Rehabilitation (Patient as Boss, Link Activities to Goals, and Optimize Intensity) and a review that linked all of the EMR principles together (Hildebrand et al., 2012). Related to the principles are specific behavioral techniques for the clinicians to incorporate into their therapeutic activities with the patient. Training sessions focused on specific techniques related to goal setting, patient-clinician communication (e.g. decreasing jargon words such as gait, minimum assist, adaptive equipment), and tracking and reviewing progress (Hildebrand et al., 2012). In addition to the video-taped sessions used in the pilot study, the clinicians also had the opportunity to work on phrasing and delivery through active case scenarios. Use of mixed training methods (didactic and interactive) have shown to be more effective than a single method alone (Forsetlund et al., 2009; Matthews et al., 2015). Throughout the training sessions, the clinicians were encouraged to begin trying the techniques.

Individual Coaching Sessions—Once the five formal training sessions were completed, the PT and OT trainers had multiple one-on-one coaching sessions with each of the clinicians. In these coaching sessions, the trainer watched the clinician's treatment session while recording the clinician's adherence to EMR techniques, and then provided brief feedback, typically for 2–3 minutes after the end of the session. This brief feedback used techniques such as providing timely, specific and actionable information and asking the clinician for a self-assessment of their strengths and challenges with respect to using EMR techniques (Kilminster, Cottrell, Grant, & Jolly, 2007).

Group Coaching Sessions—Supplementing the formal training and the individual coaching sessions were bi-monthly/monthly group meetings which were 30 minutes in duration. In these, the clinicians and PT/OT trainers discussed barriers, questions, and provided group feedback. Techniques such as current patient discussion and working through scenarios were employed. In addition, the PT/OT trainers reviewed videotaped sessions prior to group meetings to prompt clinician-specific and techniques specific discussions.

The trial progressed to the next phase, the Maintenance of EMR phase, once the clinicians stated they felt comfortable delivering EMR, the PT and OT trainers had observed each of the clinicians on multiple occasions and provided feedback, and when the site logistics for subject recruitment were in place. Although 90% adherence was the goal, this did not have to be achieved for every technique for each clinician, prior to the start of the Maintenance phase. In addition, because EMR training was part of a larger clinical trial, the Maintenance phase of EMR phase continued to utilize weekly individual and bi-monthly/monthly group coaching sessions to assess, maintain, and improve treatment fidelity.

Statistical Analysis

All data was stored within a Research Electronic Data Capture (REDCap) database (Harris et al., 2009). SPSS version 23 (IBM Corporation; Armonk, New York) was used for all analyses. A Pearson Chi-Square analysis was run to compare clinician's uptake of EMR, measured as change in their percent adherence (completion of each of the 18 items per activity), from the Pre-Training to the Maintenance phases. The criterion for significance was $p < 0.05$. Of the 18 EMR items, five (four related to patient distress and one following-up on patient feedback) were observed infrequently (<40 counts) in both phases, as might be expected by the nature of these items. The low number of counts for the Chi-Square test made the test less likely to detect small changes in adherence. In addition, to provide information about the level of adherence obtained prior to the start of the Maintenance phase, the mean adherence across the four clinicians during each of their last training treatment sessions was included (Final Session During Training). Finally, clinician adherence over time for each item was graphed to examine potential patterns of change or trends. Adherence is displayed over equal intervals time, as number of observations depended on clinician and patient availability.

Results

During the Pre-Training phase (March 2014 – May 2014), we measured adherence to EMR by the four therapists in a total of 23 participants and 67 therapeutic activities (median of 3 (interquartile range July 2014 – mid-October 2015), for the Maintenance phase 235 activities were observed across 25 participants (median of 2 (interquartile range ± 2 , range 1–7) activities completed per therapy session). The Final Session During Training is the average of the six activities done by the clinicians just prior to the start of the Maintenance Phase.

Adherence

Clinician adherence improved or remained the same across the two phases (Table 1) for the 18 items expected to be observed for each activity.

Thirteen of the 18 items had statistically significant increases (from Pre-Training to Maintenance of EMR) in the percent of the time they were performed by the clinicians. Note that one of the items, *Depicted progress using therapy tracker*, incorporated the use of new study materials and therefore it was done 0% of the time during the Pre-Training phase. Two of the contingent items, 'Acknowledged distress' and 'Followed up on patient's feedback', increased in percent adherence, but were not significant, and the remaining three of 18 items

did not change over time. One of these three, 'Following patient's lead in continuing', was already at 100% at Pre-Training and therefore could not improve. As the table shows, prior to the start of the Maintenance phase, six of the 18 items had 100% adherence, while the rest of the items were below the 90% criterion or did not occur during the last sessions. Similarly, the average adherence during the Maintenance phase did not reach the 90% criterion for many items, with some having adherence rates under 65%.

We further explored the rate and pattern of changes of individual items using visual inspection of their graphs. Figure 2 shows two examples of EMR techniques and how therapist adherence to these techniques changed during the Maintenance phase, which continued individual and group coaching sessions.

For example, the EMR technique, "*Asked what goal to work on*" was done in less than 5% of activities prior to training. At the start of the Maintenance phase, this technique was done in the majority of therapy activities (70%), but then adherence dropped over the ensuing months. In general, it appears the clinicians had the greatest difficulty implementing items at the end of each activity as opposed to at the beginning.

Discussion

This study investigated the effectiveness of a clinical training program of formal training and coaching, designed to change clinician's in-session interactions with patients to improve patient engagement. Overall, the training resulted in improved adherence to the EMR protocol. The range of adherence to each EMR technique after formal training but with ongoing individual and group coaching sessions was broad (30% to 100%), and the 90% goal for adherence to individual items was infrequently met.

This study suggests that with structured training, clinicians can implement techniques designed to increase patient engagement, into everyday clinical practice. Despite the organized and intensive initial training, maintenance of clinician adherence required continuous monitoring and effort. The on-going coaching was a necessary part of the clinical trial for monitoring and maintenance of treatment fidelity, but we are unable to draw conclusions about the long-term impact of the training alone. These results add to the literature that suggests didactic or one-time education alone may not be enough to change behavior among health professionals (Scott et al., 2012). Moreover, factors such as actively monitoring and supplying feedback, which have been shown to be necessary in both models of behavior change (Kilminster et al., 2007) and knowledge translation (Graham et al., 2006), were incorporated into this clinician training. The amount of on-going monitoring was greater than originally anticipated and levels of adherence were variable.

While the training and coaching clearly resulted in uptake of the EMR protocol by clinicians, variability existed and the goal of 90% adherence was rarely achieved or maintained. A possible explanation for this is that the intervention was only implemented by one team of clinicians at BJEC, and only in study-eligible patients who were randomized to get the EMR condition. If the entire staff had participated and were taught to use EMR techniques with all patients, it is possible that higher levels of adherence may have been seen

as staff would be able to consult or seek advice from each other, exhibit role-modeling of the behavior, and have positive reinforcement for greater periods of time. This was not possible due to the on-going clinical trial, which limits the generalizability of these findings somewhat. Additionally, although feedback was provided to the clinicians about their adherence to the protocol, the clinical trial (NCT02114879) is on-going and has yet to demonstrate that the protocol utilized actually improves patient outcomes. This may have decreased levels of adherence, as there is currently only pilot evidence to support this intervention (Lenze et al., 2012). Future analyses will examine if EMR leads to better affective and functional outcomes. Finally, the goal of 90% adherence for each EMR technique was purposely set as a high bar for clinicians to attempt to achieve; as such, it may be too stringent. Future examination may show that only some of the techniques may be necessary and are the drivers for patient engagement. Additionally, there may be barriers in everyday clinical practice that may limit 90% adherence from being achieved, and different quantifications of adherence should be used (i.e. redefining 90% adherence as a range within each of the three principles of EMR). Future research is needed to determine the necessary level of adherence for optimal patient outcomes.

When examining change of healthcare professionals' behavior, training has a relatively low impact on behavior (Forsetlund et al., 2009). The clinicians delivering EMR in this study are likely typical of clinicians in any United States skilled nursing facility. Although the training was part of a clinical trial and steps were taken to minimize barriers, the protocol is still being conducted within everyday clinical practice and there may be additional, unknown challenges or conflicts that decreased adherence, and these should continue to be explored.

Limitations

There are a few limitations to consider when interpreting the results of this study. First, selection of the clinicians to undergo training and administer EMR included a PTA who was trained in a previous version of EMR. It was suspected that because the PTA was trained prior that she would have higher levels of adherence during Pre-Training. Upon examination however, the majority of the Pre-Training items were completed less than 50% of the time, so it is unlikely that her previous training was impacting her current practice. A second limitation is that participation in EMR training was voluntary, and one clinician opted out. Although clinicians in this study may be similar to clinicians in other nursing facilities found around the United States, it is likely that because these clinicians agreed to participate that their level of adherence may in fact be higher than if all clinicians were mandated to participate. In addition, the generalizability of these findings are limited to the population studied. The participants in this study were not demented and had been walking prior. It is possible that these participants may be higher functioning than an average patient in a skilled nursing facility. Finally, the data violate the assumption of independent observations in that the same group of clinicians provided treatment (one or multiple activities) on one or more occasions to the same group of patients. There was no way to avoid this violation, as the study is occurring in everyday clinical practice where treatment is typically provided daily by the same clinicians.

Conclusions

This study trained clinicians and examined adherence to a protocol designed to improve patient engagement. An initial training followed by continuous coaching and feedback was effective at getting clinicians to increase their use of engagement strategies during therapy sessions. Some of the strategies were more effectively implemented and maintained than others. Future studies should further examine techniques for therapists to effectively engage patients and how therapists can receive training and coaching that result in their using such techniques at a high frequency.

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Appendix A

Entry ID: _____
ID_Session#_Activity#

**Enhanced Medical Rehabilitation
Adherence Rating Form**

Subject ID: _____ Obs / Dry Run / Rando _____ Site: _____ Session #: _____ Activity#: _____ Last activity? ☐
Therapist: _____ PT / OT / Co-treat: _____ Activity description: _____
Date: _____ Session Duration(M:S) → (M:xx)
Rater: _____ Total Patient Active Time (M:S) → (M:xx)
Session Start: _____ End: (H:M:S) Percent Active [(Working/ Duration)*100] = _____

BEFORE: GOAL AND PLAN

	Yes	No	NA
1. Asked what goal to work on	☐	☐	☐
2. Asked what activity to do (or decided together)	☐	☐	☐
3. Linked activity to goal	☐	☐	☐
4. Aimed for a challenge	☐	☐	☐
5. Got buy-in	☐	☐	☐

DURING: EVALUATE INTENSITY

	Yes	No	NA
1. Asked about effort level (or commented on physiological observation)	☐	☐	☐
2. Linked progress to goal	☐	☐	☐
3. Linked benefits of effort to goal	☐	☐	☐
4. Pushed towards more challenge	☐	☐	☐
5. Explained the push	☐	☐	☐

AFTER: CHECK-IN, PROGRESS

	Yes	No	NA
1. Asked for feedback after activity	☐	☐	☐
2. Followed up on patient's feedback	☐	☐	☐
3. Linked progress to goal	☐	☐	☐
4. Depicted progress using therapy tracker (twice a week at the end of the session)	☐	☐	☐

WHEN NEEDED: RESPOND TO DISTRESS

Did the patient express emotional distress that disrupts therapy? Or demonstrate that there is a barrier to them participating? If yes, therapist...

	Yes	No	NA
1. Asked about distress	☐	☐	☐
2. Acknowledged distress	☐	☐	☐
3. Followed patient's lead in continuing therapy	☐	☐	☐
4. If necessary: resolved concerns or tried new activity	☐	☐	☐

Comments

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Appendix B Rating Guide for ENHANCED MEDICAL REHABILITATION

Adherence and Competence

<u>Adherence Conventions:</u>	Treatment adherence should be monitored for each activity or exercise during the session. In other words, each activity or exercise counts as a single opportunity for each behavior to be applied.
<u>Start session:</u>	When therapist approaches patient and initiates therapy.
<u>New activity:</u>	<p>Begin rating a new activity when it is clear that the patient and therapist know they will be doing something different than previous activity, either by it being verbalized or by them starting to do something different.</p> <ul style="list-style-type: none"> Getting positioned for an activity: Patients may need to do certain things in order to be positioned to do the activity that is planned (examples include walking or wheeling to the kitchen, transferring from wheelchair to mat to work on bed mobility). These preparatory actions can be included in the main activity as long as it is clearly stated that it is part of it. <ul style="list-style-type: none"> Example: “Can you walk over to the mat so we can work on bed mobility?”; walking is part of the main activity, bed mobility Example: “First I want you to walk downstairs”; walking is its own activity because another activity is not mentioned. Guidance on transfers as an activity: <ul style="list-style-type: none"> Transfer definition: Patient moves between the following: bed/mat <-> chair; sit <-> stand; bathroom transfers. Sometimes therapists may treat transfers as a therapeutic activity by giving specific instructions and guidance. Transfers are not considered an activity when they are initiated or done independently by the patient. Rating “Filler” activities: <ul style="list-style-type: none"> Therapists may have patient do activities that they can perform independently during times where the patient would otherwise be inactive; such as setup times or equipment gathering, waiting time, or transition time. Examples include seated leg exercises, trying to maintain midline (for neuro patients), fine motor tasks like buttons, pill bottles, or taking shoes on and off. These “filler” tasks should still be adherent to EMR and counted as a separate activity. If they return to the same activity (e.g., seated leg exercises) a few times over the course of treatment, they could split up the before-during-after throughout the session <ul style="list-style-type: none"> Example of Before: “While we are waiting for the other patient to finish on the stairs, how about trying some leg exercises? We want your legs to be as strong as possible so you can get to your seat at Bush stadium.” Activity circuits: Same logic would apply with a “circuit” structured session where the therapist guides the patient through a repeated series of activities. The separate activities are rated separately, and each adherence item should be addressed for each one at some point during the session.
<u>Patient Active Time:</u>	<p>Patient active time (i.e., working time) is defined as time that the patient is actively, physically engaged in a therapeutic activity or exercise.</p> <p>Guidance on patient active time for specific activities:</p> <ul style="list-style-type: none"> Sitting unsupported is only considered patient active time if the therapist indicates that’s what they are working on. If sitting is difficult enough for the patient that the therapist has to stay right next to the patient to guard them or ensure safety, this would be considered active time. Toileting: This is often a part of therapy, whether it is planned or not by the therapist. There are many components of this activity where the patient is active, however it is unlikely that the rater would observe this activity directly. Follow this rule for rating active time during toileting:

- Therapist is with patient = active time (i.e., working)
- Therapist steps out while patient voids = inactive time (i.e., resting)
- **Stretching:** This is sometimes done to increase flexibility and range of motion. It counts as active time regardless of whether the patient or therapist initiates the movements.

Record patient active time as accurately as possible. If you notice that you've forgotten to start your stopwatch, just push it as soon as you notice. If the delay was longer than 30 seconds, make a note of the approximate difference.

End session:

When patient is handed off to another staff member or returns to their room (coming and going from gym is included in session time). The session is not considered over until the therapist leaves the patient.

If therapy is interrupted by an accident (e.g., fall, incontinence) rate the remaining items as N/A and make a Note in the Notes tab.

BEFORE: GOAL AND PLAN

1. Asked what goal to work on. (*Goal = personal goal*)

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
Reminds patient of the goals selected during the Personal Goals Interview. “Do you remember what your goals are (show folder)? Which one of those would you like to work on?”	“What do you want to work on today?” (too vague, no connection to goals)	Patient volunteers their choice for next activity or goal without prompting . “Hi Mrs M, are you ready for therapy?” “I really need to get dressed today so that I can go to the doctor”
Lists goals out, asks patient to select one. “You told me you wanted to get back to __, __, and __. Which of those should we focus on next?”	If asks about what exercises to work on but not the goals from the interview. “What do you want to do next, stairs or walking?”	
After completing an activity, asks which goal patient would like to work on next: “Would you like to choose another activity to help you with your goal of __? Or would you like to move on to a different goal?”		
Note: Goals may need to be re-evaluated in some circumstances: if patient demonstrates resistance or frustration with goals selected during Rehab Goals Interview; if patient's circumstances change and some goals no longer seem relevant or appropriate. “It seems like with you feeling so badly today that something like going to church isn't your top priority. What would you say is your number one priority today?”		

2. Asked what activity to do (or decided together)

Note: Therapist does not have to ask about goals in order to decide with patient on the activity.

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
Helps patient generate a list of possible activities related to the goal. “What will you need to be able to do so that you can go back to church?” “For you to go to church, you’ll probably need to be able to bathe yourself, get dressed, comb your hair, and brush your teeth. Which of those sounds good today?”	Therapist decides what activity to perform without patient input. “Next let’s do some leg exercises to get you stronger.”	Would not typically be rated as N/A.
Therapist allows patient to choose an activity. “What should we work on today to make sure you’re up for going to church?” “What do you want to do next, stairs or walking?”		
Patient chooses the activity without prompting and therapist goes along with it. Patient: “I really want to get dressed to go to the doctor” Therapist: “Ok, that sounds great!”		
If therapist needs patient to perform a specific activity, therapist discusses this collaboratively with the patient. “One of the things we need to do to get you ready to go home is make sure you can get to the bathroom by yourself. Can we practice that before we work on your goal of getting dressed today?”		

3. **Linked** activity to goal: Therapist ensured patient understood the link between activity and personal goal.

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
This should be done explicitly when switching activities, or if time passes, or interruption occur after G&P 1–3. Therapist will clearly explain <u>what</u> the activity is, <u>why</u> they are doing it, <u>how</u> it relates to their selected goal. “Walking (<i>what</i>) is helping to strengthen these muscles (point to muscle) in your legs (<i>why</i>), which is going to help you get into the pew at church (<i>how</i>).”	If any part of the what, why, or how is not verbalized or clarified (by therapist or patient). Patient: “So we’re going to get dressed?” Therapist: Yep.	If G&P 1–3 are done thoroughly and close in time, it is likely that the patient understands and this need not be explicitly re-stated.
It is still possible to do this even if #1 was not done because the therapist can still explain the activity’s relation to one or more of the patient’s goals.		
If patient conveys lack of understanding, therapist clarifies. If patient verbalizes understanding of the what, why, or how; therapist clarifies or fills in as needed. Patient: “So we are going to get dressed today?” Therapist: “Yes, you’ll need to do that to get ready to go to the doctor today and when you go home you will need less help from someone else.”		
Alternately, therapist explains how the activity (or setup of activity) is personalized to the patient’s home environment.		

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
"If we can make it from here to the doorway, that's probably about the distance you'll need to walk to answer the door when you have company."		

4. Aimed for a challenge: Guided patient towards more rigorous activities/exercises.

Note: this refers to the initial setup or explanation of the activity.

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
Guiding towards more rigorous activities can only be done if therapist "Did" Goal & Plan #2.	Patient selects an activity that clearly is not challenging and therapist does not suggest any alternative activities or modifications. Patient: "Can I just lay down to get dressed? It was much easier like that." Therapist: "ok."	Different activities are NOT discussed and patient selects an activity that appears to be at least somewhat rigorous.
If patient selects an activity that does not seem rigorous, therapist suggests alternate activities or modifications to make it more challenging. "Great we will work on getting dressed. Yesterday you did this while laying down because of your blood pressure. Let's check your blood pressure and see if we can get dressed sitting on the edge of your bed, since that's probably how you'll do it at home."		Therapist decides what activity to perform without patient input. (Goal & Plan #2 should be missed in this case).
Examples: <ul style="list-style-type: none"> Reminding patient what they were able to do previously with the goal of exceeding it. "Yesterday you walked for about 18 ft. Let's see if we can beat that today." <ul style="list-style-type: none"> Planned increase in weight, number of repetitions, distance, or time. "Can you make it to the end of the hall?" Note: Once the patient begins to perform the activity, these types of phrases would be rated under Do 1a: making activity harder.		
If different activities are discussed therapist asks which would be the most difficult to do. "Let's start off with a challenging activity. Which one of those activities we just discussed would you like to try first?"		

5. **Buy-in:** Asked patient if they agree with and understand why they are doing the activity.

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
Therapist checks to see if the plan makes sense to the patient.	If therapist does not ask and patient does not volunteer.	If patient voices their understanding and agreement without being asked.
“Before we get started, how does this sound to you?” “Does that all sound ok?” “Does that sound like a good plan?” “Does that all make sense?” “Are you on board with that plan?”		If G&P 1–3 are done thoroughly and close in time, and the patient is engaged in the discussion, it is likely that the patient understands and this need not be explicitly asked.

EMR – Example of Goal & Plan conversation with Mrs. S

Therapist: **We’ve been talking a lot about the goals you want to get back to doing. I know that you have changed your priorities and more concerned with getting home. What would be your top priority to work on today?**

Mrs. S: **I need to look nice for when I go to the doctor today.**

Therapist: **Well, you will need to get dressed and comb your hair to go to the doctor. Would you like to work on dressing and grooming today?**

Mrs. S: **Yes.**

Therapist: **Do you want to work on dressing or grooming first today?**

Mrs. S: **Let’s get dressed first.**

Therapist: **Yesterday, I had to help you with half of getting dressed. Today, let’s see if you can get dressed without as much help from me. The more you can do on your own will get you closer to going home and being able to go to doctor’s appointments without help. Does that make sense?**

DURING: EVALUATE INTENSITY

1. **Asked patient about effort level (and/or commented on physiological observation)."**

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
Asked patient effort level with or without exertion scale. “How hard are you working?” “How difficult is this for you?” “How challenging was that for you?” (Question should clearly be about effort; synonyms such as difficult, challenging, etc. are fine)	Did not use exertion scale or comment on physiological observation. Ex: No exertion scale used and therapist measured and recorded patient’s pulse without explanation.	Patient volunteers effort scale rating or specific wording (i.e., moderate, vigorous). “Whew, well that time it was a 10 for sure.”
Measured heart rate and/or oxygen saturation and <u>explained</u> the meaning of it to the patient. “You’re pulse is 92, which tells me that you’re working hard, and your oxygen level is 97%,	After therapist asks about effort level patient gives vague response and therapist doesn’t ask for clarification. Therapist: How hard was that for you? Patient: It was ok	Patient makes a clear comment on their exertion level without prompting. “That wore me out, I don’t think I can do any more of those right now.”

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
which tells me that your body is able to handle it.”	Therapists question or comment is vague “That seemed easy” “Are you feeling tired?”	
Therapist clearly explains a physiological observation to patient. “I can tell by how hard you are breathing that this activity is challenging you more than you think it is.”		
While it is helpful to do this between repetitions or variations of the same exercise, rate as “Did” even if only done once per activity.		
Yes or no questions are acceptable but not ideal. “Was that difficult?” “Did that wear you out?”		

2. Linked **progress** to goal.

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
Therapist frames effort or progress in therapy as progress towards <i>patient’s goals</i> .	Commending patient for achievement (i.e. walking 15 feet) without relating to patient goal. (note: commending patients is good but therapists should be encouraged to connect progress to the patient’s goals; the below phrases are only half of what we are trying to achieve) “Great job!” “Way to go!” “You did it!” “You walked 15 feet today, that’s twice as far as yesterday.”	If patient volunteers such a statement on their own.
Effort/achievements include: <ul style="list-style-type: none"> Progress in patients reported exertion level. “Yesterday that was a 4, today you said it was a 3 (effort/progress). It is getting easier for you to lift heavy items, and you’re getting closer to your goal of grocery shopping on your own (patient goal).” Completing the task at all (e.g., taking first steps). “Taking your first steps today (achievement) is a huge accomplishment, and will help you achieve your goal of going to (patient goal).” Measurable achievements (e.g., gains in walking distance, time spent standing). “Today, you were able to walk 15 feet more than yesterday without assistance (achievement). You’re closer to your goal of (patient goal).” Observed achievements (e.g., completing a task safely). “You were able to move yourself from the bed to the chair today without my help (achievement). You’re one step closer to (patient goal).” 		

3. Linked benefits of **effort** to goal

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
If patient is working at 3–5 effort level and therapist explains the benefits of it. “Right now you are increasing your stamina. Your heart and lungs are getting stronger” “The hard work that you’re doing today is improving your leg strength.”	If patient reports high effort level, or therapist asks or comments on exertion level, but therapist does not explain why patient’s high exertion is beneficial. “A 3? Ok, thanks.” “A 4? That’s great.”	If effort level was not asked or commented on.
If patient has not achieved a moderate or vigorous exertion level, therapist explains what the benefits would be of doing so. “We want to be sure and challenge you because that’s how you build up strength.”	If therapist explains what an exercise is for but not in relation to the patient’s effort. “These heel slides work your leg muscles.”	

4. Pushed towards more challenge: Made activity/exercise harder. (In response to information obtained in #1)

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
<p>IF—the activity has already started AND—effort was asked or commented on (Do#1) AND—effort was low (1 or 2), therapist makes the activity harder by:</p> <ul style="list-style-type: none"> Reminding patients what they were able to do previously and pushing them to do more. “Last time you were able to stand for 1 minute and 15 seconds. Let’s see if we can beat that today.” Increasing the weight, number of repetitions, distance, or time. “Let’s try making the step higher to see if this works you harder.” Pushing patient to continue: “Do as many as you can. Do you feel that yet? No, then let’s keep going until you can feel it.” Having patient do task with less assistance than was previously given. “This time, let’s see how you do by yourself. I’m right here if you need me.” 	If reported effort level is low (1 or 2) and therapist does not offer a more challenging activity or a modification to make the current one more challenging.	If effort level was high (3–5), it would not be appropriate to make activity harder.
		If the activity cannot reasonably be made harder. Ex. Patient stands for the first time.
		If effort level is undetermined (i.e. Do#1 is Missed), mark N/A.

5. **Explained** the push: why they made it harder.

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
Therapist explains: <ul style="list-style-type: none"> What makes the activity more challenging. 	Therapist makes activity harder but doesn’t explain it to the patient.	Therapist didn’t make activity harder.(i.e., During #2= missed or N/A)

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
<p>“This extra step is higher and harder to step up on so it should work your leg muscles more.”</p> <p>OR</p> <ul style="list-style-type: none"> Why they are making it more challenging. <p>“We want you to keep getting stronger.”</p> <p>“I want to make sure we are challenging you.”</p>		

EMR – Example of Do conversation with Mr. S

Therapist: **How hard is it to do those leg exercises?**

Mr. S: **It’s not too bad.**

Therapist: **Let’s make this step a little taller to make these exercises harder and let’s keep going until you feel fatigued?**

Mr. S: **My legs are starting to burn and this leg is getting tired.**

Therapist: **Ok. Let’s stop with this leg and switch to the other.**

Mr. S: **Ok.**

Therapist: **By doing these exercises until you are tired, you will build up the strength in your legs so that when you go home you will be strong enough to go back to the barber shop to get your hair cut.**

AFTER: CHECK-IN, PROGRESS

1. **Asked for feedback** after activity.

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
<p>After each activity or exercise is completed therapist asks patient for feedback.</p> <p>“How did that go for you?”</p> <p>“How did you feel doing that?”</p> <p>“How’d you feel walking so far by yourself?”</p> <p>“How do you think that went? What could have been done differently?”</p> <p>“How do you think you did with all of the arm exercises you did just now?”</p> <p>“How do you feel you did with those stairs?”</p> <p>“What do you think about your progress on walking?”</p> <p>“How do you think you’re doing getting ready in the morning?”</p> <p>“Was this activity similar to what you will be doing at home?”</p> <p>“What part of that activity was the most challenging?”</p>	<p>Therapist moves on to another activity without asking for patient feedback.</p>	<p>Patient provides feedback without solicitation.</p>

2. **Followed up** on patient’s feedback: Elicited strategies and solutions if a problem was identified

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
Therapist asks patient for strategies or solutions: “How can you make (activity) easier or safer?”	Patient identifies a problem but therapist does not address it. Patient: “I just feel like my legs are really weak today.”	Patient or therapist does not identify a problem.
Therapist discusses strategies and solutions with patient: “I know you said this was difficult. Do you feel like this is getting any easier with practice? We can make sure we work on this some more.” “Since you said you’re really worn out this afternoon, for tomorrow, would it help to do your therapy earlier in the day?”		

3. Linked progress to (personal) goal.

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
Therapist comments on any progress made by the patient and relates it to their goal. “Today, you were able to walk 25 feet, without much assistance. You’re closer to your goal of walking from the entrance to the back pew at church.” “Today, you walked around for 15 minutes. That tells me that you’re getting closer to your goal of cooking.” What if the patient is not progressing? “Today, walking seemed really challenging/more difficult than yesterday. You will have good and bad days. We are going to keep working on walking though, to get you back to your goal of walking from the entrance to the back pew at church.”	Therapist comments on patient’s progress but does not make any mention of patient’s goals. “You did much better getting dressed on your own today.” Therapist does not comment on patient’s progress or patient’s goals.	Would not typically be rated as N/A.

4. Depicted progress using therapy tracker (twice a week at end of session)

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
Therapist sits down next to patient and reviews progress using binder.	At end of session therapist does not review patient progress.	It is not the end of the session (many instances will be marked as N/A). Facility rule: Progress to be reviewed on Tuesdays and Thursdays.

EMR – Example of Check Conversation

Therapist: **How do you feel you did with those stairs?**

Patient: **I’d rate it a 7.**

Therapist: **Great. I can tell by how your legs are shaking that you are working hard. I would like to know though, how you felt you did on those stairs, what do you think about your progress?**

Mr. S: **Oh, it is tough, but I think I am getting better at it and I feel a little more confident.**

Therapist: **I agree. Today you were able to go up and down the stairs twice, on Friday you went up and down only one time. You're closer to your goals of getting up and down a flight of stairs a your daughter's apartment.**

WHEN NEEDED: RESPOND TO DISTRESS

Did the patient express emotional distress that disrupts therapy? Or demonstrate that there is a barrier to them participating?

- Rate emotional distress or perceived barriers that interrupt therapy right at that moment and cannot be addressed quickly.
- Emotional distress= Examples: sadness, frustration, discouragement.
- Barrier= Any statement or action from the patient indicating they either can't or won't continue participation in therapy.

Ex. "I can't do any of this today." "My hips are too sore to walk. I don't want to practice walking today."

If yes, therapist...

1. **Asked** about distress (or any perceived barrier to participating or continuing activity.)

Did	Missed Opportunity	N/A
Patient comments on a perceived barrier and therapist asks at least one follow-up question about it. "You sat down all of a sudden. What's going on?" <ul style="list-style-type: none"> Asking pain scale is ok but asking an open-ended question is better. 	Patient comments on a perceived barrier and therapist does not ask any questions or give patient opportunity to elaborate.	Patient does not comment on any perceived barrier. Patient does not convey any emotional distress that is severe or prolonged enough to interfere with treatment. Patient: "My back is bothering me today, but I'm just going to do the best I can." Patient: "I'm a little concerned about my sister making it home ok but I guess I'll just call to check on her when we're done."
Therapist notes/observes a perceived barrier and asks patient for more information. "I can tell you are having difficulty (and it sounds like you do not want to continue with therapy). Can you help me understand why that is?" "You seemed pretty upset. How are you feeling?"	Therapist notes a barrier but does not ask patient what they thought about it. "I guess you're not in the mood for this." Therapist attempts to resume treatment without addressing emotional distress. "Just try and keep going."	Therapist does not note/observe any emotional distress or perceived barrier.
Patient conveys emotional distress and therapist asks at least one follow-up question about it. Patient: "I just feel sort of low today."	Therapist ends treatment without addressing emotional distress. "Ok well I guess I'll just come back later."	Activity went well and there does not appear to be any perceived barrier.

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
Therapist: "I'm sorry to hear that. What's going on?"		

2. **Acknowledged** distress (or if activity seemed hard)

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
Emotional distress conveyed/patient appears frustrated with activity and therapist acknowledges this (i.e., uses a reflection). "I can sense that you aren't feeling too interested in therapy right now." "It must be pretty tough to be away from home for so long." "It sounds like you're worried that you might never get back home." "It's no wonder you're feeling frustrated, getting out of bed for the first time is really hard."	Emotional distress conveyed/patient appears frustrated with activity and therapist does not acknowledge. Patient: (crying) "I just don't think I can do this anymore." Therapist: "Don't worry about it, we'll try it again tomorrow."	There is no perceived barrier/emotional distress

3. **Followed patient's lead** in continuing therapy (or take a brief break)

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
Therapist asks patient if they would like to continue with therapy or take a short break. "Is it ok with you if we keep going? Or do you need to take a break?"	There is a perceived barrier and therapist does not offer opportunity for a break.	There is no perceived barrier/emotional distress
Therapist allows patient to decide whether to continue or take a break. "I guess I'm hearing you say you need a short break. Is that right?"		

4. If necessary (refusal or poor participation), **resolved concerns** or tried alternative activity.

<u>Did</u>	<u>Missed Opportunity</u>	<u>N/A</u>
This could encompass a very large variety of things but should be related to the patient's response to #2. Examples include: moving to new location, modifying activity, selecting new activity, providing more support/assistance during activity. "Would you feel better finishing therapy in your room?" "How about we move on to something different?" "This time I'll keep my hand on your belt the whole time that you're standing."	Patient refuses to participate or participates poorly and therapist makes no attempt to resolve the barrier or find an alternate activity.	Patient is participating well and not refusing. Therapist does not need to resolve barrier or find alternate activity (most instances will be marked N/A).
	Patient refuses to participate or participates poorly and therapist takes a directive approach instead of trying to resolve the barrier "Just keep going, we're almost done"

Figure 1. Study design of training clinicians in EMR

An outline of the five initial training sessions held with the rehabilitation clinicians.

Figure 2. Mean clinician adherence of two Enhanced Medical Rehabilitation techniques over time, from Pre-Training throughout Maintenance

The mean clinician completion of Enhanced Medical Rehabilitation items from Pre-Training through the 15 months of Maintenance. Two items with different patterns of adherence across the timeframe were selected.

Table 1

Mean clinician adherence to the EMR intervention per activity

Items	Pre-Training	Final Session During Training [‡]	Maintenance	Significance (Pre-Training versus Maintenance)
Goal and Plan				
Asked what goal to work on	2%	75%	50%	< .001
Asked what activity to do	3%	100%	79%	< .001
Aimed for a challenge	40%	100%	81%	.004
Linked activity to goal	0%	100%	53%	< .001
Got buy-in	2%	80%	61%	< .001
During				
Asked effort	17%	100%	81%	< .001
Pushed towards more challenge	61%	100%	90%	.001
Explained the push	16%	0%	41%	.039
Linked benefits to effort to goal	2%	67%	47%	< .001
Linked progress to goal (during)	0%	67%	49%	< .001
Asked about distress *	71%	.	78%	.739
Acknowledged distress *	14%	.	56%	.062
Followed patient's lead in continuing *	100%	.	100%	-
If necessary: resolved concerns or tried new activity *	80%	.	100%	.251
Check-In				
Asked for feedback	10%	80%	53%	< .001
Followed up on patient's feedback *	40%	100%	79%	.060
Linked progress to goal (check)	0%	67%	30%	< .001
Depicted progress using therapy tracker [†]	0%	56%	56%	< .001

* For items where the overall number of observations at both time points was small (less than 40).

[†] The therapy tracker was new material introduced as part of the Enhanced Medical Rehabilitation Study; thus clinicians could not use it during Pre-Training.

[‡] The Final Session During Training is the average adherence of the four clinicians during their last session prior to the start of the Maintenance phase. The average is across a maximum of six activities.