Clinical Practice Guideline: **Home-Based Rehabilitation**

Date of Implementation: **March 25, 2021**

Effective Date: **December 18, 2025**

Product: **Specialty**

Related Policies:
CPG 12: Medical Necessity Decision Assist Guideline for Rehabilitative Care
CPG 111: Patient Assessments: Medical Necessity Decision Guideline for Evaluations, Re-evaluations and Consultations
CPG 135: Physical Therapy Medical Policy/Guideline
CPG 155: Occupational Therapy Medical Policy/Guideline
CPG 158: Informed Consent
CPG 166: Speech-Language Pathology Medical Policy/Guideline
CR 8: Homebound Services
QM 7: Patient Safety – The Prevention, Recognition, and Management of Adverse Outcomes

Table of Contents

GUIDELINES

Home-based rehabilitative and habilitative services are considered medically necessary in accordance with American Specialty Health – Specialty (ASH) clinical criteria for corresponding service(s) as applicable to clinic-based services. See *Occupational Therapy Medical Policy/Guidelines (CPG 155 – S), Physical Therapy Medical Policy/Guidelines (CPG 135 – S), and Speech-Language Pathology Medical Policy/Guidelines (CPG 166 – S)* clinical practice guidelines (CPGs), or the specific CPGs for more information. Services that do not require the professional skills of a therapist to perform or supervise are considered not medically necessary even if performed or supervised by a physical therapist, occupational therapist, or speech-language pathologist.

Covered services (services that are eligible for reimbursement) may be limited by state and/or federal regulations, health plan guidelines, and benefit coverage policies. Refer to the applicable Client Summary for covered services.

Not Medically Necessary

Home-based rehabilitative and habilitative services are not considered medically necessary in accordance with ASH clinical criteria for corresponding service(s) as applicable to clinic-based services. See the *Occupational Therapy Medical Policy/Guidelines (CPG 155 – S)*, *Physical Therapy Medical Policy/Guidelines (CPG 135 – S), or the Speech-Language Pathology Medical Policy/Guidelines (CPG 166 – S)* CPGs, or the specific CPG for more information. Services that do not require the professional skills of a therapist to perform or supervise are considered not medically necessary even if performed or supervised by a physical therapist/occupational therapist/speech-language pathologist, physician, or non-physician practitioner (NPP).

Due to the nature of physical/occupational/speech therapy, many but not all modalities and procedures may be appropriate to be delivered in the home setting. Services that are inappropriate for the home-based setting are determined to be not medically necessary.

DESCRIPTION/BACKGROUND

Home-based rehabilitation services are not synonymous with home health care services as defined by CMS. Patients are not required to be homebound or require skilled nursing care. Physician referrals are not needed unless required by state regulations or client contract, which will be communicated to the provider in the Client Summary. For the purpose of this guideline, home-based rehabilitation is the provision of outpatient skilled therapy services delivered in the patient's place of residence rather than in a clinic setting. See the *Occupational Therapy Medical Policy/Guidelines (CPG 155 – S), Physical Therapy Medical Policy/Guidelines (CPG 135 -S) or the Speech-Language Pathology Medical Policy/Guidelines (CPG 166 – S)* CPGs for more information. For patients that are homebound, as defined by CMS, please refer to the *Homebound Services (CR 8 – S)* policy.

American Specialty Health considers home-based rehabilitative or habilitative services to be those that are delivered in the patient's place of residence (place of service code 12) by a licensed therapist acting within the scope of a professional license within applicable federal, state, and local regulations and guidelines. For rehabilitative or habilitative services performed in other appropriate and applicable places of services, please refer to *Mobile Rehabilitation – Physical Therapy, Occupational Therapy and Speech Therapy (CPG 311 – S)*. Home-based rehabilitative services support conservative care first by promoting improved access to care for those who:

- Are concerned about potential risks when leaving their home
- Have limited functional mobility, and difficulty with travel
- Lack adequate access to transportation
- Prefer the convenience
- Would benefit from treatment in their natural environment
- Have obligations that create barriers to clinic-based care

According to the American Physical Therapy Association (APTA) (2014), during home care, there is the ability to have an increased focus on what the patient needs in their own environment. Both APTA and the American Occupational Therapy Association (AOTA) state that the therapist can address additional aspects that lead to dysfunction like home set up and any other socioeconomic barriers identified in the home-based session. The therapist can better understand patient environments, needs, and constraints to improve care and, ultimately, outcomes. According to Hayhurst et al. (2020), rehabilitation professionals can modify what they are doing with the patient, validate what patients do and ensure patients are doing it safely, based on what the therapists see in the home. There is a chance to ensure that people are doing what they need to do to improve. The therapist can identify and work with socioeconomic factors that complicate and affect patient health and recovery.

LICENSURE GUIDELINES FOR APPROPRIATE USE

Practitioners providing home-based rehabilitation services shall be appropriately qualified professionals per best-practice standards. Therapists shall have appropriate licensure as defined by federal, state, and local guidelines. Practice shall comply with any jurisdiction-specific requirements for home health where applicable.

SERVICE DELIVERY

Practitioners who participate in the delivery of home-based rehabilitative services are expected to deliver services that meet the same quality and standards of practice as those who deliver clinic-based services, including standards in infection prevention and control. Practitioners are expected to be aware of and adhere to all relevant federal, state, and local regulations and guidelines and provide only services within the accepted scope of practice. Practitioners should use their best professional judgment regarding the safety of delivering

services in the place of residence for the patient, the patient's family, caregiver(s), and the practitioner.

Environmental safety factors and household-related hazards should also be taken into consideration. The practitioner may choose not to deliver services or enter a home if the practitioner determines the environment to be unsafe (e.g., location, hostile or unrestrained animals). The practitioner should use professional judgement to determine if home-based services can adequately meet the needs of the patient based on factors such as the patient's functional status, fall risk, and ambulatory/transfer needs. The practitioner should also follow a standard procedure to verify patient identification before providing services.

INFORMED CONSENT

Before delivering home-based rehabilitation services, the practitioner must verbally inform the member of the services that may be performed and obtain verbal consent from the member to receive those services. The verbal consent must be documented in the member's medical record and include the member's opportunity to ask questions about the visit/encounter. The consent obtained prior to treatment is consistent with the consent process for in-clinic care. See the *Informed Consent (CPG 158 – S)* clinical practice guideline for more information.

Consent must meet all federal and state laws and regulations and any applicable state board requirements in the state in which the service is provided.

PRACTITIONER-PATIENT RELATIONSHIP

The practitioner-patient relationship is fundamental to the provision of acceptable health care. It is ASH's expectation that practitioners recognize the obligations, responsibilities, and member rights associated with establishing and maintaining a practitioner-patient relationship. The practitioner-patient relationship is typically considered to have been established when the practitioner identifies themselves as a licensed clinician, agrees to undertake diagnosis and/or treatment of the member, and the member agrees to be treated. However, the elements of establishing a patient-practitioner relationship are determined by the relevant healthcare regulatory board of the state where the services are provided.

The practitioner should interact with the member in a culturally competent way and in the language familiar to that member. If the member cannot understand the practitioner because of a language barrier, ASH may provide language assistance. If a language assistance line is not acceptable for the encounter(s), then services should not be rendered, and the patient should be referred to a clinic-based practitioner. It is up to the practitioner to use professional judgment to determine when the delivery of home-based rehabilitative or habilitative services is appropriate.

EVALUATION AND TREATMENT OF MEMBER

A documented clinical evaluation (examination) and collection of relevant clinical history commensurate with the member's presentation is required to establish a diagnosis(es) and identify underlying conditions and/or contra-indications to the treatment recommended/provided. A relevant history and evaluation must be obtained before providing treatment.

Treatment and consultation recommendations made in a home-based setting will be held to the same practice standards as those in clinic-based settings. Practitioners should use professional judgement to determine if home-based rehabilitation services are appropriate for the patient. Following the initial home-based visit, the practitioner will determine whether ongoing home-based services are warranted.

REFERRALS FOR EMERGENCY SERVICES

Practitioners are required to have a written plan of action regarding urgent and emergent situations including calling emergency services (e.g., 911). This emergency response plan must be followed by the practitioner when the care provided indicates that a referral to an acute care facility or emergency room for medical or mental health intervention is necessary for the safety of the member. The emergency plan should include a formal, written protocol appropriate to the services being rendered via home-based encounters and the practitioner's scope and training. Examples of indications for emergency action include, but are not limited to:

- Vital signs critically abnormal
- Patient falls at home and incurs an injury
- Very unusual change in patient status

See the *Managing Medical Emergencies (CPG 159 – S)* clinical practice guideline for more information on common signs and symptoms of medical emergencies.

MEDICAL RECORDS

The medical record established during the use of home-based services must be accessible and documented for both the practitioner and the member, consistent with all federal and state laws and regulations governing member medical records; as well as standards for medical documentation established by ASH. See *Medical Record Maintenance and Documentation Practices (CPG 110 – S)* clinical practice guideline for more information.

Practitioners engaging in home-based rehabilitative or habilitative services must comply with all laws, rules, and regulations governing the maintenance of member records, including member confidentiality requirements and duration of retention, regardless of the state where the records of any member within this state are maintained. Informed consent obtained in connection with an encounter involving home-based services should also be filed in the medical record. Patients may request, and practitioners must supply copies of

medical records related to home-based services as per state and federal medical documentation regulations.

HEALTH CARE ETHICS AND INTEGRITY

Practitioners are obligated to abide by the code of ethics and standards of conduct of their profession. The following basic principles make up the code of ethical conduct for the practice of home-based rehabilitation or habilitative services.

Practitioners will:

- Obtain informed consent from the member as required by law;
- Protect the public and the profession by reporting any conduct that they consider unethical, illegal, or incompetent;
- Respect the rights, responsibilities, welfare, and dignity of all members;
- Provide care based on medically necessary needs of the member;
- Be committed to providing competent care consistent with both the requirements and limitations of their profession;
- Refer patients to other facility locations or providers if home-based services may not be appropriate or adequate for the patient's health care needs;
- Comply with the laws and regulations governing the practice of their healthcare profession and home-based services;
- Avoid any activities with patients that fall outside of accepted medical practices;
- Provide appropriate identification when meeting the member in order to assure the member of the practitioner’s identity and credentials;
- Assure equipment used is inspected frequently for safety, cleanliness, and professional appearance.

Practitioners will not:

- Engage in practices that may pose a conflict of interest;
- Assume dual relationships outside of patient-practitioner;
- Engage in conduct that constitutes harassment, verbal or physical abuse, or unlawful discrimination in any actions or practice;
- Practice while impaired such that the practitioner cannot practice with reasonable skill;
- Misrepresent in any manner, either directly or indirectly, their skills, training, professional credentials, title, identity, or services;
- Accept gifts, tips, or other valuables from patients or give gifts to patients.

CONFIDENTIALITY

All federal and state laws regarding the confidentiality of health care information and a member's rights to his or her medical information apply to home-based services in the same manner as clinic-based services. This could include maintaining confidentiality from family members or others in the home during delivery of rehabilitation or habilitative services unless the patient gives appropriate consent.

NON-DISCRIMINATION

ASH does not discriminate against a member, provider, or practitioner for any reason and does not support any discrimination against members for any reason, including but not limited to age, sex, gender identification, transgender person, marital status, religion, ethnic background, national origin, ancestry, race, sexual orientation, patient type (e.g., Medicaid), mental or physical disability, health status, claims experience, medical history, genetic information, evidence of insurability or geographic location within the service area. ASH renders credentialing, clinical performance, and medical necessity decisions in the same manner, in accordance with the same standards, and within the same time availability to all members, providers, practitioners, and applicants

EVIDENCE REVIEW

Available literature comparing home-based rehabilitation programs to clinic-based or inpatient rehabilitation programs have not shown a significant difference in outcomes for some conditions.

Stolee et al. (2011) published a systematic review of evidence comparing outcomes of home-based rehabilitation to inpatient rehabilitation for older patients (mean age over 55) with musculoskeletal conditions. For all studies that measured functional improvement and quality of life, the home group had scores equal to or better than the hospital group. Of significance, four studies found that the functional status of the homegroup was significantly better than the inpatient group after the rehabilitation period. Also, four of the 12 studies found quality of life was significantly better for the home-based rehabilitation group and one found that the rate of delirium was significantly lower for clients receiving rehabilitation at home. Overall, the studies consistently found that home rehabilitation was equal or superior to hospital-based rehabilitation in nearly all patient outcomes assessed.

Li et al. (2017) authored a systematic review and meta-analysis comparing the effects of home-based rehabilitation with those of hospital-based rehabilitation on patients undergoing Total Knee Arthroplasty (TKA). The modified Jadad scale was used to assess the studies. The results from the ten trials involving 1240 patients that were eligible for meta-analysis showed that home-based rehabilitation is not inferior to hospital-based rehabilitation. Outcomes were measured using the total Western Ontario and McMaster Universities Osteoarthritis Index score, physical function, stiffness, walk test, and Oxford Knee Score at 12 or 52 weeks after TKA ($P > 0.05$). Neither pain nor knee flexion range

of motion differed between the groups in the first 12 weeks. The pain score in the hospital-based group was better than that in the home-based group ($P < 0.05$), whereas the knee flexion range of motion in the home-based group was superior to that in the hospital-based group ($P < 0.05$) at 52 weeks. Home-based rehabilitation after primary TKA was comparable to hospital-based rehabilitation.

Anderson et al. (2017) compared the effect of home-based and supervised center-based cardiac rehabilitation on mortality and morbidity, exercise-capacity, health-related quality of life, and modifiable cardiac risk factors in patients with heart disease. They included 6 new studies (624 participants) for this update, which now includes a total of 23 trials that randomized a total of 2,890 participants undergoing cardiac rehabilitation. Participants had an acute myocardial infarction, revascularization, or heart failure. Several studies provided insufficient detail to enable assessment of potential risk of bias, in particular, details of generation and concealment of random allocation sequencing and blinding of outcome assessment were poorly reported. No evidence of a difference was seen between home- and center-based cardiac rehabilitation in clinical primary outcomes up to 12 months of follow up: total mortality, exercise capacity, or health-related quality of life up to 24 months. Trials were generally of short duration, with only three studies reporting outcomes beyond 12 months. However, there was evidence of marginally higher levels of program completion by home-based participants. Authors concluded that this update supports previous conclusions that home- and center-based forms of cardiac rehabilitation seem to be similarly effective in improving clinical and health-related quality of life outcomes in patients after myocardial infarction or revascularization, or with heart failure. This finding supports the continued expansion of evidence-based, home-based cardiac rehabilitation programs. The choice of participating in a more traditional and supervised center-based program or a home-based program may reflect local availability and consider the preference of the individual patient. Further data are needed to determine whether the effects of home- and center-based cardiac rehabilitation reported in the included short-term trials can be confirmed in the longer term and need to consider adequately powered non-inferiority or equivalence study designs.

A systematic review and meta-analysis of randomized controlled trials (RCTs) assessing the effect of home-based rehabilitation for patients with hip fracture was performed by Wu et al. (2018). Primary outcomes were mobility and daily activity. Meta-analysis was performed using the random-effect model. Nine RCTs involving 887 patients were included in the meta-analysis. Compared with control intervention for hip fracture, home-based rehabilitation was found to significantly improve mobility daily activity, instrumental activity, and balance, but resulted in no significant influence on walking outdoors, usual gait speed, fast gait speed, and emergency department visit. The results of the meta-analysis showed that home-based rehabilitation has considerable positive effects on physical functioning after hip fracture.

Buhagiar et al. (2019) did a meta-analysis to determine whether inpatient or clinic-based rehabilitation is associated with superior function and pain outcomes after TKA compared with any home-based program. Published randomized clinical trials of adults who underwent primary unilateral TKA and began rehabilitation within six postoperative weeks, in which those receiving post-acute inpatient or clinic-based rehabilitation were compared with those receiving a home-based program. Primary outcomes were mobility (6-minute walk test [6MWT]) and patient-reported pain and function (Oxford knee score or Western Ontario and McMaster Universities Osteoarthritis Index) reported at 10 to 12 postoperative weeks. The GRADE assessment (Grading of Recommendations, Assessment, Development, and Evaluation) was applied to the primary outcomes. Five unique studies involving 752 unique participants (451 [60%] female; mean age, 68.3 years) compared clinic- and home-based rehabilitation, and one study involving 165 participants (112 [68%] female; mean age, 66.9 years) compared inpatient and home-based rehabilitation. Low-quality evidence showed no clinically important difference between clinic- and home-based programs for mobility at 10 weeks (6MWT favoring home program). Moderate-quality evidence showed no clinically important difference between clinic- and home-based programs for patient-reported pain and function at 10 weeks and 52 weeks. Based on low- to moderate-quality evidence, no superiority of clinic-based or inpatient programs compared with home-based programs was found in the early subacute period after TKA. This evidence suggests that home-based rehabilitation is an appropriate first line of therapy after uncomplicated TKA for patients with adequate social support.

Imran et al. (2019) performed a meta-analysis to compare functional capacity and health-related quality of life outcomes in heart failure for one home-based cardiac rehabilitation and usual care, two hybrid cardiac rehabilitation and usual care, and three home-based and center-based cardiac rehabilitation. Authors identified 31 randomized controlled trials with a total of 1,791 heart failure participants. Among 18 studies that compared home-based cardiac rehabilitation and usual care, participants in home-based programs had improvement of peak oxygen uptake and health-related quality of life. Nine RCTs that compared hybrid cardiac rehabilitation with usual care showed that hybrid cardiac rehabilitation had greater improvements in peak oxygen uptake but not in health-related quality of life. Five studies comparing home-based cardiac rehabilitation with center-based cardiac rehabilitation showed similar improvements in functional capacity and health-related quality of life. Authors concluded that home-based cardiac rehabilitation and hybrid cardiac rehabilitation significantly improved functional capacity, but only home-based cardiac rehabilitation improved health-related quality of life over usual care. However, both are potential alternatives for patients who are not suitable for center-based cardiac rehabilitation.

Gelaw et al. (2020) were interested in determining if home-based rehabilitation is effective in improving physical function of people with physical disabilities. They performed a systematic review of randomized controlled trials. Selected randomized controlled trials

were critically appraised with 11 items. Physiotherapy Evidence Database scale scores extracted from the Physiotherapy Evidence Database, and studies were included if the cutoff of 5 points was reached on Physiotherapy Evidence Database scale score. Nine randomized controlled trials met the preset eligibility criteria. This systematic review found the consistency of findings among the included studies, which showed that home-based rehabilitation is an effective option for people with physical disabilities. Home-based rehabilitation is not superior to hospital-based rehabilitation in improving nearly all patient outcomes assessed. However, home-based exercise programs require patient enthusiasm and regular follow-up to yield positive outcomes.

Chi et al. (2020) evaluated the effects of home-based rehabilitation on improving physical function in home-dwelling patients after a stroke. In total, 49 articles in English (*n*=23) and Chinese (*n*=26) met the inclusion criteria during their systematic review**.** A random effects model with a sensitivity analysis showed that home-based rehabilitation exerted moderate improvements on physical function in home-dwelling patients with a stroke. Moderator analyses revealed that those patients with stroke of a younger age, of male sex, with a first-ever stroke episode, in the acute stage, and receiving rehabilitation training from their caregiver showed greater improvements in physical function. They concluded that home rehabilitation can improve functional outcome in survivors of stroke and should be considered appropriate during discharge planning if continuation care is required.

Nutarelli et al. (2021) compared outcomes associated with home-based rehabilitation programs versus standard inpatient and/or outpatient supervised physical therapy (IOP) following arthroscopic isolated meniscectomy (AM). Randomized clinical trials of patients treated with home-based rehabilitation programs vs IOP after AM were included. The primary outcome was the Lysholm score (scale of 0-100 with higher scores indicating better knee function) and secondary outcomes were subjective International Knee Documentation Committee score, knee extension and flexion, thigh girth, horizontal and vertical hop test, and days to return to work, as indicated in the PROSPERO registration. Outcomes were measured in the short-term (ranging from 28 to 50 days) and the midterm (6 months). In this meta-analysis of eight RCTs including 434 patients, IOP was associated with a greater short-term improvement in Lysholm score compared with home-based rehabilitation programs, with a mean difference of -8.64 points between the two approached, but the sensitivity analysis showed no difference. Similarly, no statistically significant difference was detected at midterm for Lysholm score, with a mean difference between groups of -4.78 points. Home-based rehabilitation programs were associated with a greater short-term improvement in thigh girth, with a mean difference between groups of 1.38 cm, whereas IOP was associated with a better short-term vertical hop score, with a mean difference between groups of -3.25 cm. No differences were found for all the other secondary outcomes. Authors concluded that no intervention was found to be superior in terms of physical and functional outcomes as well as work-related and patient-reported outcomes, both at short-term and midterm follow-up. Overall, these results suggest that

home-based rehabilitation programs may be an effective management approach after arthroscopic isolated meniscectomy in the general population.

Nascimento et al. (2022) examined the effects of home-based exercises in comparison with center-based exercises for improving the paretic upper limb after stroke. Eight trials, involving 488 participants, were included. Most trials (63%) delivered semi-supervised interventions (amount of supervision 3-43%), and three trials provided full supervision. Random-effects meta-analyses provided moderate- to high-quality evidence that home- and center-based exercises provide similar effects on motor recovery, dexterity, upper limb activity performance, and quality of movement. Effects on strength were also similar but the quality of the evidence was rated as low. Authors concluded that effects of home-based prescribed exercises on upper limb motor recovery, dexterity, and activity are likely to be similar to improvements obtained by center-based exercises after stroke.

Nkonde-Price et al. (2022) compared hospitalizations, medication adherence, and cardiovascular risk factor control between participants in home-based cardiac rehabilitation vs center-based cardiac rehabilitation. The primary outcome was 12-month all-cause hospitalization. Secondary outcomes included all-cause hospitalizations at 30 and 90 days; 30-day, 90-day, and 12-month cardiovascular hospitalizations; and medication adherence and cardiovascular risk factor control at 12 months. Logistic regression was used to compare hospitalization, medication adherence, and cardiovascular risk factor control, with inverse probability treatment weighting (IPTW) to adjust for demographic and clinical characteristics. Of 2,556 patients who participated in cardiac rehabilitation (mean age, 66.7 years; 754 [29.5%] women; 1,196 participants [46.8%] with Charlson Comorbidity Index ≥4), there were 289 Asian or Pacific Islander patients (11.3%), 193 Black patients (7.6%), 611 Hispanic patients (23.9%), and 1419 White patients (55.5%). A total of 1241 participants (48.5%) received home-based cardiac rehabilitation, and 1,315 participants (51.5%) received center-based cardiac rehabilitation. After IPTW, patients who received home-based cardiac rehabilitation had lower odds of hospitalization at 12 months but similar odds of adherence to β-blockers and statins and of control of blood pressure, low-density lipoprotein cholesterol, and hemoglobin A1c at 12 months compared with patients who received center-based cardiac rehabilitation. These findings suggest that home-based cardiac rehabilitation in a demographically diverse population, including patients with high risk who are medically complex, was associated with fewer hospitalizations at 12 months compared with patients who participated in center-based cardiac rehabilitation. This study strengthens the evidence supporting home-based cardiac rehabilitation in previously understudied patient populations.

Liu et al. (2022) evaluated the effectiveness of home-based exercise to treat nonspecific shoulder pain. Twelve studies were included in the review, and 10 studies were included in the meta-analysis. Low to moderate quality of evidence indicated that home-based exercise alone and other conservative treatments showed equal improvements in pain

intensity reduction, function, flexion ROM, and abduction ROM. Very low quality of evidence indicated that home-based exercise alone was more effective than no treatment for pain intensity reduction and function improvement. Authors concluded home-based exercise alone may be equally effective as other conservative treatments and superior to no treatment for the treatment of nonspecific shoulder pain. To draw firmer conclusions, further research is required to validate these findings.

Soukkio et al. (2022) studied the effects of a 12-month home-based supervised, progressive exercise program on functioning, physical performance, and physical activity. Participants' (*n* = 121) mean age was 81 years (SD 7), and 75% were women. The mean IADL score at baseline was 17.1 (SD 4.5) in the exercise group, and 17.4 (5.1) in the usual care group. The mean Short Physical Performance Battery (SPPB) scores were 3.9 (1.6) and 4.2 (1.8), and handgrip strength was 17.7 (8.9) kg and 20.8 (8.0) kg, respectively. The age- and sex-adjusted mean changes in Lawton's Instrumental Activities of Daily Living (IADL) over 12 months were 3.7 in the exercise and 2.0 in the usual care group; changes in SPPB 4.3 and 2.1; and changes in handgrip strength 1.2 kg and 1.0 kg, respectively. We found no between-group differences in changes in the frequency of leisure-time activity sessions. Authors concluded a 12-month home-based supervised, progressive exercise program improved functioning and physical performance more than usual care among patients with hip fractures. However, the training did not increase leisure-time physical activity.

Chen et al. (2023) completed a study that focused on the integrated post-acute care (PAC) stage of stroke patients and employed a retrospective study to examine the satisfaction with life quality in two groups, one that received home-based rehabilitation and one that received hospital-based rehabilitation. A secondary purpose was to analyze the correlations among the index and components concerning their quality of life (QOL) and compare the advantages and disadvantages of these two approaches to PAC. This research was a retrospective study of 112 post-acute stroke patients. The home-based group received rehabilitation for one to two weeks, and two to four sessions per week. The hospital-based group received the rehabilitation for three to six weeks, and 15 sessions per week. The home-based group mainly received the training and guidance of daily activities at the patients' residence. The hospital-based group mainly received physical facilitation and functional training in the hospital setting. The mean scores of QOL assessment for both groups were found to be significantly improved after intervention. Between-group comparisons showed that the hospital-based group had better improvement than the home-based group in mobility, self-care, pain/discomfort and depression/anxiety. In the home-based group, the MRS score and the participant's age can explain 39.4% of the variance of QOL scores. Authors concluded that the home-based rehabilitation was of lower intensity and duration than the hospital-based one, but it still achieved a significant improvement in QOL for the PAC stroke patients. The hospital-based rehabilitation offered more time and treatment sessions. Therefore hospital-based patients responded with better QOL outcomes than the home-based patients.

Zhao et al. (2023) investigated the relative effectiveness and safety of outpatient versus home-based rehabilitation persists. Authors' analysis identified no significant differences in primary outcomes, including Range of Motion, Western Ontario and McMaster Universities Arthritis Index, Knee Injury and Osteoarthritis Outcome Score, Oxford Knee Score, and the Knee Society Score, between home-based and outpatient rehabilitation across different follow-up points. Adverse reactions, readmission rates, the need for manipulation under anesthesia, reoperation rate, and post-surgery complications were also similar between both groups. Home-based rehabilitation demonstrated cost-effectiveness, resulting in substantial annual savings. Furthermore, quality of life and patient satisfaction were found to be comparable in both rehabilitation methods. Authors concluded that home-based rehabilitation post-knee arthroplasty appears as an effective, safe, and cost-efficient alternative to outpatient rehabilitation. Despite these findings, further multicenter, long-term randomized controlled trials are required to validate these findings and provide robust evidence to inform early rehabilitation choices post-knee arthroplasty.

Schick et al. (2023) compared the functional and patient-reported outcomes (PROs) of a formal physical therapy (F-PT) program vs. a home therapy program after reverse total shoulder arthroplasty. One hundred patients were prospectively randomized into 2 groups: F-PT and home-based physical therapy (H-PT). Patient demographic variables, range of motion (ROM) and strength measurements, and outcomes (Simple Shoulder Test, American Shoulder and Elbow Surgeons, Single Assessment Numeric Evaluation, visual analog scale, and Patient Health Questionnaire-2 scores) were collected preoperatively and at 6 weeks, 3 months, 6 months, 1 year, and 2 years postoperatively. Patient perceptions regarding their group assignment, F-PT vs. H-PT, were also assessed. Seventy patients were included for analysis, with 37 in the H-PT group and 33 in the F-PT group. Thirty patients in both groups had a minimum of 6 months' follow-up. The average length of follow-up was 20.8 months. Forward flexion, abduction, internal rotation, and external rotation ROM did not differ between groups at final follow-up. Strength did not differ between groups with the exception of external rotation, which was greater by 0.8 kilograms-force (kgf) with F-PT (P = .04). PROs at final follow-up did not differ between therapy groups. Patients receiving home-based therapy appreciated the convenience and cost savings, and the majority believed home therapy was less burdensome. Authors concluded that physical therapy and home-based physical therapy programs after reverse total shoulder arthroplasty result in similar improvements in ROM, strength, and PRO scores.

McDonagh et al. (2023) compared the effect of home-based (which may include digital/telehealth interventions) and supervised center-based cardiac rehabilitation on mortality and morbidity, exercise-capacity, health-related quality of life, and modifiable cardiac risk factors in patients with heart disease. Traditionally, center-based cardiac rehabilitation programs are offered to individuals after cardiac events to aid recovery and prevent further cardiac illness. Home-based and technology-supported cardiac

rehabilitation programs have been introduced in an attempt to widen access and participation, especially during the SARS-CoV-2 pandemic. This is an update of a review previously published in 2009, 2015, and 2017. Authors included randomized controlled trials that compared center-based cardiac rehabilitation (e.g. hospital, sports/community center) with home-based programs (± digital/telehealth platforms) in adults with myocardial infarction, angina, heart failure, or who had undergone revascularization. They included three new trials in this update, bringing a total of 24 trials that have randomized a total of 3,046 participants undergoing cardiac rehabilitation. Participants had a history of acute myocardial infarction, revascularization, or heart failure. Although there was little evidence of high risk of bias, a number of studies provided insufficient detail to enable assessment of potential risk of bias; in particular, details of generation and concealment of random allocation sequencing and blinding of outcome assessment were poorly reported. No evidence of a difference was seen between home- and center-based cardiac rehabilitation in our primary outcomes up to 12 months of follow-up: total mortality (participants = 1,647; low-certainty evidence) or exercise capacity (participants = 2,343; low-certainty evidence). The majority of evidence (N=71 / 77 comparisons of either total or domain scores) showed no significant difference in health-related quality of life up to 24 months follow-up between home- and center-based cardiac rehabilitation. Trials were generally of short duration, with only three studies reporting outcomes beyond 12 months (participants = 1,074; moderate-certainty evidence). There was a similar level of trial completion (participants = 2,638; low-certainty evidence) between home-based and center-based participants. The cost per patient of center- and home-based programs was similar. Authors concluded that this update supports previous conclusions that home- (± digital/telehealth platforms) and center-based forms of cardiac rehabilitation formally supported by healthcare staff seem to be similarly effective in improving clinical and health-related quality of life outcomes in patients after myocardial infarction, or revascularization, or with heart failure. This finding supports the continued expansion of healthcare professional supervised home-based cardiac rehabilitation programs (± digital/telehealth platforms), especially important in the context of the ongoing global SARS-CoV-2 pandemic that has much limited patients in face-to-face access of hospital and community health services. Where settings are able to provide both supervised center- and home-based programs, consideration of the preference of the individual patient would seem appropriate. Further data are needed to determine: (1) whether the short-term effects of home/digital-telehealth and center-based cardiac rehabilitation models of delivery can be confirmed in the longer term; (2) the relative clinical effectiveness and safety of home-based programs for other heart patients, e.g. post-valve surgery and atrial fibrillation.

Hong et al. (2023) evaluated the effects of home-based exercise and health education in patients with PFP. Patients who had PFP were randomly allocated to an intervention group (IG) or control group (CG). Patients in the IG received a 6-week tailored home-based exercise program with health education via remote support, while patients in the CG group only received health education. Clinical outcomes were compared using the Anterior Knee

Pain Scale (AKPS) to measure function and the Visual Analog Scale (VAS) to measure "worst pain" and "pain with daily activity." Muscle strength was measured according to the peak torque of the knee muscles using an isokinetic system. Among a total of 112 participants screened for eligibility, 38 were randomized and analyzed, including 19 participants in the intervention group and 19 participants in the control group. There were no significant differences in baseline characteristics between the groups. At 6-week follow-up, the intervention group showed a greater worst pain and pain with daily activity than the control group. Similarly, the intervention group had better improvements in AKPS and knee extensor strength, compared to the control group. No adverse events were reported. Authors concluded that home-based exercise and health education resulted in less pain, better function, and higher knee muscle strength compared with no exercise in patients with PFP. A large randomized controlled trial with long-term follow-up is required to confirm these findings.

Ge et al. (2024) compared the effectiveness and adherence of home physical therapy (HPT) and telerehabilitation (TR) in mitigating motor symptoms and improving the quality of life in patients with mild to moderate Parkinson's disease. This randomized controlled trial included a total of 190 patients who underwent in-person eligibility assessment, with 100 allocated to the HPT group and 90 to the TR group. Both interventions consisted of home-based training sessions lasting 40-60 min and were conducted five times a week for 4 weeks. The primary outcome was the Unified Parkinson's Disease Rating Scale motor section (UPDRS3) score. Secondary outcomes included balance function, assessed using the Berg Balance Scale (BBS); risk of fall, evaluated through the Timed Up-and-Go test (TUG) and the Five Times Sit-to-Stand test (FTSST); gait, measured using the Freezing of Gait Questionnaire (FOGQ) and IDEEA activity monitor; muscle strength, evaluated using the isokinetic dynamometry; motor aspects of experiences of daily living (UPDRS2); and quality of life, assessed by Parkinson's Disease Questionnaire-39 (PDQ-39). There was a significant difference in the UPDRS3, BBS, TUG, FTSST, FOGQ, step length, step velocity, pre-swing angle, UPDRS2 and PDQ-39 between baseline and 4 weeks in both groups. The decrease in the UPDRS3 score was significantly greater in the HPT group than in the TR group in the older age group, but there was no significant between-group difference in the younger age group. Similar changes favoring the HPT group were observed in the BBS, TUG, step velocity, and extension average torque. Authors concluded that both HPT and TR have demonstrated effectiveness, safety, and feasibility in PwPD. However, the HPT program exhibited greater effectiveness among older patients and higher patient compliance compared to TR.

Ardebol et al. (2025) compared postoperative clinical outcomes at the 3-month, 6-month, 12-month, and latest follow-up in patients undergoing supervised physical therapy (PT) or a home-based exercise program after arthroscopic repair (ARCR) of massive rotator cuff tears (MRCTs). A retrospective review was conducted on a prospectively maintained database of patients who underwent either supervised PT or home-based therapy after

ARCR of MRCTs. At their 2-week postoperative routine follow-up, patients were allowed to choose between home-based and supervised PT. Patient-reported outcomes (PROs) and range of motion (ROM) were collected and compared between cohorts preoperatively and at the 3-month, 6-month, 12-month, and latest follow-up. The percentage of patients reaching or exceeding the minimal clinically important difference (MCID) and patient accepted symptomatic state (PASS) for visual analog scale for pain, American Shoulder and Elbow Surgeon (ASES) score, and Subjective Shoulder Value was recorded for both cohorts at each time point. Complications, healing, satisfaction, and return to work were reported. Healing was evaluated via ultrasound at the latest follow-up. Ninety-nine patients met the study criteria: 61 in the supervised PT cohort and 38 in the home-based cohort. Both cohorts showed similar PROs and ROM at baseline. Postoperative PROs and ROM were similar among groups at the 3-month, 6-month, 12-month, and latest follow-up. However, ASES and forward flexion were significantly higher at 3-month follow-up in the home-based cohort. Both groups comparably achieved MCID and PASS for PROs at the 3-month, 6-month, and 12-month follow-up. At the latest follow-up, the supervised PT and home-based cohort achieved MCID and PASS for visual analog scale, ASES, and Subjective Shoulder Value, respectively. Satisfaction, healing, complication, and return-to-work rates were similar. Authors concluded that patients undergoing rehabilitation using a home-based protocol showed largely similar functional scores and healing to those with supervised PT after ARCR of MRCTs at the latest follow-up. Although patients with home-based therapy achieved higher forward flexion and ASES at the 3-month follow-up, these became comparable starting at the 6-month postoperative mark. MCID and PASS were achieved similarly for PROs at each time point.

Benson et al. (2025) authored an article on outpatient in the home setting for patients post total joint arthroplasty (TJA). These procedures are performed at higher rates at ambulatory surgery centers (ASCs) and outpatient hospitals as surgeries continue to progress with minimally invasive approaches. Reducing surgical costs without compromising safety and clinical outcomes are a few driving factor in finding alternative care solutions. Similarly, there may be avenues to reducing the rehabilitative costs of traditional home healthcare. Research continues to support the need for early therapeutic interventions after TJA. Historically, patients undergoing total joint replacements have been discharged to a skilled nursing facility or home healthcare. With the frequency of TJAs performed as outpatient procedures, there is an opportunity to change the dynamic of postoperative rehab. Advancements in surgery and anesthesia have led to optimization for TJA patients. As a result of advancements, implants are lasting longer so patients are considering replacements at younger ages. These factors present an opportunity to close a gap in the market, creating an outpatient home physical therapy program. During the initial phases of planning for total joint surgery, physical therapy in the home is initiated and scheduled prior to surgery. This mitigates variables that may affect delays in the rehabilitative process which can drive negative patient outcomes, dissatisfaction, and hospital readmittance.

PRACTITIONER SCOPE AND TRAINING

Practitioners should practice only in the areas in which they are competent based on their education, training, and experience in delivering home-based rehabilitative services within their scope of practice. Levels of education, experience, and proficiency may vary among individual practitioners. It is ethically and legally incumbent on a practitioner to determine if they have the knowledge and skills necessary to perform such services and whether the services are within their scope of practice.

Best practice can be defined as a clinical, scientific, or professional technique, method, or process that is typically evidence-based and consensus-driven and is recognized by a majority of professionals in a particular field as more effective at delivering a particular outcome than any other practice (Joint Commission International Accreditation Standards for Hospitals, 2020).

Depending on the practitioner's scope of practice, training, and experience, a member's condition and/or symptoms during examination or the course of treatment may indicate the need for referral to another practitioner or even emergency care. In such cases, it is prudent for the practitioner to refer the member for appropriate co-management (e.g., to their primary care physician) or, if immediate emergency care is warranted, contact 911 as appropriate. For more information, see *Managing Medical Emergencies (CPG 159 – S)* clinical practice guideline.

References

American Academy of Home Care Medicine. Retrieved November 2, 2025 from https://www.aahcm.org/

American Medical Association. (current year). *Current Procedural Terminology (CPT) current year* (rev. ed.). Chicago: AMA

American Physical Therapy Association House of Delegates. Code of ethics for the physical therapist (HOD S06-20-28-25). Alexandria, VA: American Physical Therapy Association; 2020. Retrieved November 2, 2025 from https://www.apta.org/apta-and-you/leadership-and-governance/policies/code-of-ethics-for-the-physical-therapist

Anderson L, Sharp GA, Norton RJ, et al. Home-based versus centre-based cardiac rehabilitation. Cochrane Database Syst Rev. 2017;6(6):CD007130. Published 2017 Jun 30. doi:10.1002/14651858.CD007130.pub4

APTA Guide to Physical Therapist Practice 4.0. American Physical Therapy Association. Published 2023. Accessed November 2, 2025. https://guide.apta.org

AOTA 2020 Occupational Therapy Code of Ethics. Am J Occup Ther November/December 2020, Vol. 74(Supplement_3), 7413410005p1–7413410005p13. Doi: https://doi.org/10.5014/ajot.2020.74S3006

Ardebol J, Gonzalez-Morgado D, Noble MB, Galasso LA, Menendez ME, Denard PJ. Home-Based or Supervised Physical Therapy Shows Similar Functional Outcomes and Healing After Massive Rotator Cuff Repair. Arthroscopy. 2025;41(4):896-902.e2. doi:10.1016/j.arthro.2024.06.037

Benson B, Williams D. Outpatient in the Home Physical Therapy: A New Postoperative Rehabilitative Setting for Total Joint Replacements. Orthop Nurs. 2025;44(2):123-126. doi:10.1097/NOR.0000000000001106

Bringing Physical Therapy Home. American Physical Therapy Association (APTA). Retrieved November 2, 2025 from http://www.homehealthsection.org

Buhagiar, M. A., Naylor, J. M., Harris, I. A., Xuan, W., Adie, S., & Lewin, A. (2019). Assessment of Outcomes of Inpatient or Clinic-Based vs Home-Based Rehabilitation After Total Knee Arthroplasty: A Systematic Review and Meta-analysis. *JAMA network open*, *2*(4), e192810. https://doi.org/10.1001/jamanetworkopen.2019.2810

Carpenter D, Famolaro T, Hassell S, Kaeberle B, Reefer S, Robins C, Siegel S. Patient Safety in the Home: Assessment of Issues, Challenges, and Opportunities. Cambridge, Massachusetts: Institute for Healthcare Improvement; August 2017.

Center for Disease Control and Prevention. (2016, September). Guide to Infection Prevention for Outpatient Settings: Minimum expectations for safe care. Retrieved October 22, 2024 from https://www.cdc.gov/infection-control/media/pdfs/outpatient-guide-508.pdf?CDC_AAref_Val=https://www.cdc.gov/infectioncontrol/pdf/outpatient/guide.pdf

Chen YC, Chou W, Hong RB, Lee JH, Chang JH. Home-based rehabilitation versus hospital-based rehabilitation for stroke patients in post-acute care stage: Comparison on the quality of life. J Formos Med Assoc. 2023;122(9):862-871. doi:10.1016/j.jfma.2023.05.007

Chi, N. F., Huang, Y. C., Chiu, H. Y., Chang, H. J., & Huang, H. C. (2020). Systematic Review and Meta-Analysis of Home-Based Rehabilitation on Improving Physical Function Among Home-Dwelling Patients With a Stroke. *Archives of physical medicine and rehabilitation*, *101*(2), 359–373. https://doi.org/10.1016/j.apmr.2019.10.181

Clients who cross the line. (n.d.). Retrieved from https://www.hpso.com/Resources/Legal-and-Ethical-Issues/Clients-who-Cross-the-Line

De Coninck, L., Bekkering, G. E., Bouckaert, L., Declercq, A., Graff, M., & Aertgeerts, B. (2017). Home- and Community-Based Occupational Therapy Improves Functioning in Frail Older People: A Systematic Review. *Journal of the American Geriatrics Society*, *65*(8), 1863–1869. https://doi.org/10.1111/jgs.14889

Ge Y, Zhao W, Zhang L, et al. Home physical therapy versus telerehabilitation in improving motor function and quality of life in Parkinson's disease: a randomized controlled trial. BMC Geriatr. 2024;24(1):968. Published 2024 Nov 22. doi:10.1186/s12877-024-05529-6

Gelaw, A. Y., Janakiraman, B., Gebremeskel, B. F., & Ravichandran, H. (2020). Effectiveness of Home-based rehabilitation in improving physical function of persons with Stroke and other physical disability: A systematic review of randomized controlled trials. *Journal of stroke and cerebrovascular diseases: the official journal of National Stroke Association*, *29*(6), 104800. https://doi.org/10.1016/j.jstrokecerebrovasdis.2020.104800

Hong QM, Wang HN, Liu XH, Zhou WQ, Zhang X, Luo XB. Home-based exercise program and Health education in patients with patellofemoral pain: a randomized controlled trial. BMC Musculoskelet Disord. 2023;24(1):896. Published 2023 Nov 18. doi:10.1186/s12891-023-07027-z

HPSO Physical Therapy Spotlight: Home Care in the Time of the Novel Coronavirus (COVID-19). (n.d.). Retrieved November 2, 2025, from http://www.hpso.com/risk-education/individuals/articles/HPSO-Physical-Therapy-Spotlight-Home-Care-in-the-Time-of-the-Novel-Coronavirus-(COVID-19)

Imran HM, Baig M, Erqou S, et al. Home-Based Cardiac Rehabilitation Alone and Hybrid With Center-Based Cardiac Rehabilitation in Heart Failure: A Systematic Review and Meta-Analysis. J Am Heart Assoc. 2019;8(16):e012779. doi:10.1161/JAHA.119.012779

Joint Commission International (2020). Joint Commission International Accreditation Standards for Hospitals (7th ed.): Joint Commission Resources

Lee IF, Yau FN, Yim SS, Lee DT. Evaluating the impact of a home-based rehabilitation service on older people and their caregivers: a matched-control quasi-experimental study. Clin Interv Aging. 2018 Sep 12;13:1727-1737. Doi: 10.2147/CIA.S172871. PMID: 30254432; PMCID: PMC6140694

Li, D., Yang, Z., Kang, P., & Xie, X. (2017). Home-Based Compared with Hospital-Based Rehabilitation Program for Patients Undergoing Total Knee Arthroplasty for Osteoarthritis: A Systematic Review and Meta-analysis of Randomized Controlled Trials. *American journal of physical medicine & rehabilitation*, *96*(6), 440–447. https://doi.org/10.1097/PHM.0000000000000621

Liu J, Sai-Chuen Hui S, Yang Y, Rong X, Zhang R. Effectiveness of Home-Based Exercise for Nonspecific Shoulder Pain: A Systematic Review and Meta-analysis. Arch Phys Med Rehabil. 2022;103(10):2036-2050. doi:10.1016/j.apmr.2022.05.007

McDonagh ST, Dalal H, Moore S, et al. Home-based versus centre-based cardiac rehabilitation. Cochrane Database Syst Rev. 2023;10(10):CD007130. Published 2023 Oct 27. doi:10.1002/14651858.CD007130.pub5

Medicare Benefit Policy Manual. Chapter 7-Home Health Services. (Rev. 12425 Issued: 12-21-23). Retrieved November 2, 2025, from https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/bp102c07.pdf

Nascimento LR, Gaviorno LF, de Souza Brunelli M, Gonçalves JV, Arêas FZDS. Home-based is as effective as centre-based rehabilitation for improving upper limb motor recovery and activity limitations after stroke: A systematic review with meta-analysis. Clin Rehabil. 2022;36(12):1565-1577. Doi:10.1177/02692155221121015

National Institute for Occupational Safety and Health. NIOSH Hazard Review: Occupational hazards in home healthcare. Retrieved November 2, 2025 from https://www.cdc.gov/niosh/docs/2010-125/default.html

NIOSH fast facts: Home healthcare workers - how to prevent exposure in unsafe conditions. (2012). Retrieved November 2, 2025 from https://www.cdc.gov/niosh/docs/2012-121/pdfs/2012-121.pdf

Nkonde-Price C, Reynolds K, Najem M, et al. Comparison of Home-Based vs Center-Based Cardiac Rehabilitation in Hospitalization, Medication Adherence, and Risk Factor Control Among Patients With Cardiovascular Disease. JAMA Netw Open. 2022;5(8):e2228720. Published 2022 Aug 1. doi:10.1001/jamanetworkopen.2022.28720

Nutarelli S, Delahunt E, Cuzzolin M, Delcogliano M, Candrian C, Filardo G. Home-Based vs Supervised Inpatient and/or Outpatient Rehabilitation Following Knee Meniscectomy: A Systematic Review and Meta-analysis. JAMA Netw Open. 2021;4(5):e2111582. Published 2021 May 3. doi:10.1001/jamanetworkopen.2021.11582

Occupational Therapy's Distinct Value in Rehab & Disability. (n.d.). American Occupational Therapy Association. Retrieved November 2, 2025, from https://www.aota.org/

Schick S, Elphingstone J, Paul K, et al. Home-based physical therapy results in similar outcomes to formal outpatient physical therapy after reverse total shoulder arthroplasty: a randomized controlled trial. J Shoulder Elbow Surg. 2023;32(8):1555-1561. doi:10.1016/j.jse.2023.03.023

Schuchman M, Fain M, Cornwell T. The Resurgence of Home-Based Primary Care Models in the United States. *Geriatrics (Basel)*. 2018;3(3):41. Published 2018 Jul 16. doi:10.3390/geriatrics3030041

Soukkio PK, Suikkanen SA, Kukkonen-Harjula KT, et al. Effects of a 12-month home-based exercise program on functioning after hip fracture - Secondary analyses of an RCT. J Am Geriatr Soc. 2022;70(9):2561-2570. doi:10.1111/jgs.17824

Stolee, P., Lim, S. N., Wilson, L., & Glenny, C. (2012). Inpatient versus home-based rehabilitation for older adults with musculoskeletal disorders: a systematic review. *Clinical Rehabilitation*, *26*(5), 387–402. https://doi.org/10.1177/0269215511423279

The Home Health Section Toolbox of Standardized Tests and Measures. Home Health Section website. 2013. https://aptahhs.memberclicks.net/assets/docs/Home%20Health%20Toolbox.pdf.

Totten AM, White-Chu EF, Wasson N, Morgan E, Kansagara D, Davis O'Reilly C, Goodlin S. Home-Based Primary Care Interventions. (Prepared by the Pacific Northwest Evidence-based Practice Center under Contract No. 290-2012-00014-I.) AHRQ Publication No. 15(16)-EHC036-EF. Rockville, MD: Agency for Healthcare Research and Quality; February 2016. Archived. Retrieved November 2, 2025 https://effectivehealthcare.ahrq.gov/products/home-based-care/research

United States Department Of Labor. Home Healthcare. (n.d.). Retrieved November 2, 2025, from https://www.osha.gov/home-healthcare

Ward D, Drahota A, Gal D, Severs M, Dean TP. Care home versus hospital and own home environments for rehabilitation of older people. Cochrane Database of Systematic Reviews 2008, Issue 4. Art. No.: CD003164. DOI: 10.1002/14651858.CD003164.pub2.

Wu, D., Zhu, X., & Zhang, S. (2018). Effect of home-based rehabilitation for hip fracture: A meta-analysis of randomized controlled trials. *Journal of rehabilitation medicine*, *50*(6), 481–486. https://doi.org/10.2340/16501977-2328

Zhao B, Liu H, Du K, Zhou W, Li Y. Effectiveness and safety of outpatient rehabilitation versus home-based rehabilitation after knee arthroplasty: a systematic review and meta-analysis. J Orthop Surg Res. 2023;18(1):704. Published 2023 Sep 19. doi:10.1186/s13018-023-04160-2