

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

2  
3 **Date of Implementation:**           **March 25, 2021**

4  
5 **Product:**                                   **Specialty**

6  
7  
8 **Related Policies:**

9 CPG 135: Physical Therapy Medical Policy/Guideline

10 CPG 155: Occupational Therapy Medical Policy/Guideline

11 CPG 12: Medical Necessity Decision Assist Guideline for  
12 Rehabilitative Care

13 CPG 111: Patient Assessments: Medical Necessity Decision Guideline  
14 for Evaluations and Reevaluations

15 CPG 158: Informed Consent

16 CR 8: Homebound Services

17 QM 7: Patient Safety – The Prevention, Recognition, and Management  
18 of Adverse Outcomes

19 **GUIDELINES**

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

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

30  
31 **Not Medically Necessary**

32 Home-based rehabilitative and habilitative services are not considered medically necessary  
33 in accordance with ASH clinical criteria for corresponding service(s) as applicable to  
34 clinic-based services. See the *Occupational Therapy Medical Policy/Guidelines* (CPG 155  
35 – S), or the *Physical Therapy Medical Policy/Guidelines* (CPG 135 – S) clinical practice  
36 guidelines, or the specific clinical practice guideline for more information. Services that do  
37 not require the professional skills of a therapist to perform or supervise are considered not  
38 medically necessary even if performed or supervised by a physical therapist/occupational  
39 therapist, physician, or non-physician practitioner (NPP).

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

#### 4 **DESCRIPTION AND BACKGROUND**

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

17 Home-based rehabilitative services are delivered in the patient's place of residence by a  
 18 licensed therapist acting within the scope of a professional license within applicable  
 19 federal, state, and local regulations and guidelines. Home-based rehabilitative services  
 20 support conservative care first by promoting improved access to care for those who:

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

28 According to the American Physical Therapy Association (APTA) (2014), during home  
 29 care, there is the ability to have an increased focus on what the patient needs in their own  
 30 environment. Both APTA and the American Occupational Therapy Association (AOTA)  
 31 state that the therapist can address additional aspects that lead to dysfunction like home set  
 32 up and any other socioeconomic barriers identified in the home-based session. The  
 33 therapist can better understand patient environments, needs, and constraints to improve  
 34 care and, ultimately, outcomes. According to Hayhurst et al. (2020), rehabilitation  
 35 professionals can modify what they are doing with the patient, validate what patients  
 36 do and ensure patients are doing it safely, based on what the therapists see in the home.  
 37 There is a chance to ensure that people are doing what they need to do to improve. The  
 38 therapist can identify and work with socioeconomic factors that complicate and affect  
 39 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

1 established when the practitioner identifies themselves as a licensed clinician, agrees to  
 2 undertake diagnosis and/or treatment of the member, and the member agrees to be treated.  
 3 However, the elements of establishing a patient-practitioner relationship are determined by  
 4 the relevant healthcare regulatory board of the state where the services are provided.

5  
 6 The practitioner should interact with the member in a culturally competent way and in the  
 7 language familiar to that member. If the member cannot understand the practitioner  
 8 because of a language barrier, ASH may provide language assistance. If a language  
 9 assistance line is not acceptable for the encounter(s), then services should not be rendered,  
 10 and the patient should be referred to a clinic-based practitioner. It is up to the practitioner  
 11 to use professional judgment to determine when the delivery of home-based rehabilitative  
 12 services is appropriate.

### 13 14 **EVALUATION AND TREATMENT OF MEMBER**

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

20  
 21 Treatment and consultation recommendations made in a home-based setting will be held  
 22 to the same practice standards as those in clinic-based settings. Practitioners should use  
 23 professional judgement to determine if home-based rehabilitation services are appropriate  
 24 for the patient. Following the initial home-based visit, the practitioner will determine  
 25 whether ongoing home-based services are warranted.

### 26 27 **REFERRALS FOR EMERGENCY SERVICES**

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

- 36 • Vital signs critically abnormal;
- 37 • Patient falls at home and incurs an injury;
- 38 • Very unusual change in patient status.

39  
 40 See the *Managing Medical Emergencies (CPG 159 – S)* clinical practice guideline for more  
 41 information on common signs and symptoms of medical emergencies.

## 1 PRACTITIONER SCOPE AND TRAINING

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

8  
9 Best practice can be defined as a clinical, scientific, or professional technique, method, or  
10 process that is typically evidence-based and consensus-driven and is recognized by a  
11 majority of professionals in a particular field as more effective at delivering a particular  
12 outcome than any other practice (Joint Commission International Accreditation Standards  
13 for Hospitals, 2020).

14  
15 Depending on the practitioner's scope of practice, training, and experience, a member's  
16 condition and/or symptoms during examination or the course of treatment may indicate the  
17 need for referral to another practitioner or even emergency care. In such cases, it is prudent  
18 for the practitioner to refer the member for appropriate co-management (e.g., to their  
19 primary care physician) or, if immediate emergency care is warranted, contact 911 as  
20 appropriate. For more information, see *Managing Medical Emergencies (CPG 159 – S)*  
21 clinical practice guideline.

## 22 MEDICAL RECORDS

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

28  
29  
30 Practitioners engaging in home-based rehabilitative services must comply with all laws,  
31 rules, and regulations governing the maintenance of member records, including member  
32 confidentiality requirements and duration of retention, regardless of the state where the  
33 records of any member within this state are maintained. Informed consent obtained in  
34 connection with an encounter involving home-based services should also be filed in the  
35 medical record. Patients may request, and practitioners must supply copies of medical  
36 records related to home-based services as per state and federal medical documentation  
37 regulations.

## 1 **HEALTH CARE ETHICS AND INTEGRITY**

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

5 Practitioners will:

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

23  
24 Practitioners will not:

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

## 34 35 **CONFIDENTIALITY**

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

## 1 **NON-DISCRIMINATION**

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

## 11 **EVIDENCE REVIEW**

12 Available literature comparing home-based rehabilitation programs to clinic-based or  
13 inpatient rehabilitation programs have not shown a significant difference in outcomes for  
14 some conditions.  
15

16  
17 In Bassett & Prapavessis (2007), patients with ankle sprain were randomized to standard  
18 physical therapy intervention in a clinic setting ( $n=22$ ) or home intervention ( $n=22$ ), which  
19 consisted of using a physical therapist to visit and provide education to the patient. The  
20 patients performed a home exercise program between visits. All subjects performed the  
21 same three-phase physical therapy intervention protocol. Ankle function was measured  
22 using Lower Limb Task Questionnaire (LLTQ) and patient motivation using the Situational  
23 Movement Scale before and after the intervention. Both groups had similar outcome scores  
24 for post-treatment ankle function and motivation.  
25

26 Stolee et al. (2011) published a systematic review of evidence comparing outcomes of  
27 home-based rehabilitation to inpatient rehabilitation for older patients (mean age over 55)  
28 with musculoskeletal conditions. For all studies that measured functional improvement and  
29 quality of life, the homegroup had scores equal to or better than the hospital group. Of  
30 significance, four studies found that the functional status of the homegroup was  
31 significantly better than the inpatient group after the rehabilitation period. Also, four of the  
32 12 studies found quality of life was significantly better for the home-based rehabilitation  
33 group and one found that the rate of delirium was significantly lower for clients receiving  
34 rehabilitation at home. Overall, the studies consistently found that home rehabilitation was  
35 equal or superior to hospital-based rehabilitation in nearly all patient outcomes assessed.  
36

37 Li et al. (2017) authored a systematic review and meta-analysis comparing the effects of  
38 home-based rehabilitation with those of hospital-based rehabilitation on patients  
39 undergoing Total Knee Arthroplasty (TKA). The modified Jadad scale was used to assess  
40 the studies. The results from the ten trials involving 1240 patients that were eligible for  
41 meta-analysis showed that home-based rehabilitation is not inferior to hospital-based

1 rehabilitation. Outcomes were measured using the total Western Ontario and McMaster  
2 Universities Osteoarthritis Index score, physical function, stiffness, walk test, and Oxford  
3 Knee Score at 12 or 52 weeks after TKA ( $P > 0.05$ ). Neither pain nor knee flexion range  
4 of motion differed between the groups in the first 12 weeks. The pain score in the hospital-  
5 based group was better than that in the home-based group ( $P < 0.05$ ), whereas the knee  
6 flexion range of motion in the home-based group was superior to that in the hospital-based  
7 group ( $P < 0.05$ ) at 52 weeks. Home-based rehabilitation after primary TKA was  
8 comparable to hospital-based rehabilitation.

9  
10 Anderson et al. (2017) compared the effect of home-based and supervised center-based  
11 cardiac rehabilitation on mortality and morbidity, exercise-capacity, health-related quality  
12 of life, and modifiable cardiac risk factors in patients with heart disease. They included six  
13 new studies (624 participants) for this update, which now includes a total of 23 trials that  
14 randomized a total of 2890 participants undergoing cardiac rehabilitation. Participants had  
15 an acute myocardial infarction, revascularization, or heart failure. Several studies provided  
16 insufficient detail to enable assessment of potential risk of bias, in particular, details of  
17 generation and concealment of random allocation sequencing and blinding of outcome  
18 assessment were poorly reported. No evidence of a difference was seen between home-  
19 and center-based cardiac rehabilitation in clinical primary outcomes up to 12 months of  
20 follow up: total mortality, exercise capacity, or health-related quality of life up to 24  
21 months. Trials were generally of short duration, with only three studies reporting outcomes  
22 beyond 12 months. However, there was evidence of marginally higher levels of program  
23 completion by home-based participants. Authors concluded that this update supports  
24 previous conclusions that home- and center-based forms of cardiac rehabilitation seem to  
25 be similarly effective in improving clinical and health-related quality of life outcomes in  
26 patients after myocardial infarction or revascularization, or with heart failure. This finding  
27 supports the continued expansion of evidence-based, home-based cardiac rehabilitation  
28 programs. The choice of participating in a more traditional and supervised center-based  
29 program or a home-based program may reflect local availability and consider the  
30 preference of the individual patient. Further data are needed to determine whether the  
31 effects of home- and center-based cardiac rehabilitation reported in the included short-term  
32 trials can be confirmed in the longer term and need to consider adequately powered non-  
33 inferiority or equivalence study designs.

34  
35 A systematic review and meta-analysis of randomized controlled trials (RCTs) assessing  
36 the effect of home-based rehabilitation for patients with hip fracture was performed by Wu  
37 et al. (2018). Primary outcomes were mobility and daily activity. Meta-analysis was  
38 performed using the random-effect model. Nine RCTs involving 887 patients were  
39 included in the meta-analysis. Compared with control intervention for hip fracture, home-  
40 based rehabilitation was found to significantly improve mobility daily activity,  
41 instrumental activity, and balance, but resulted in no significant influence on walking



1 outdoors, usual gait speed, fast gait speed, and emergency department visit. The results of  
2 the meta-analysis showed that home-based rehabilitation has considerable positive effects  
3 on physical functioning after hip fracture.

4  
5 Buhagiar et al. (2019) did a meta-analysis to determine whether inpatient or clinic-based  
6 rehabilitation is associated with superior function and pain outcomes after TKA compared  
7 with any home-based program. Published randomized clinical trials of adults who  
8 underwent primary unilateral TKA and began rehabilitation within six postoperative  
9 weeks, in which those receiving post-acute inpatient or clinic-based rehabilitation were  
10 compared with those receiving a home-based program. Primary outcomes were mobility  
11 (6-minute walk test [6MWT]) and patient-reported pain and function (Oxford knee score  
12 or Western Ontario and McMaster Universities Osteoarthritis Index) reported at 10 to 12  
13 postoperative weeks. The GRADE assessment (Grading of Recommendations,  
14 Assessment, Development, and Evaluation) was applied to the primary outcomes. Five  
15 unique studies involving 752 unique participants (451 [60%] female; mean age, 68.3 years)  
16 compared clinic- and home-based rehabilitation, and one study involving 165 participants  
17 (112 [68%] female; mean age, 66.9 years) compared inpatient and home-based  
18 rehabilitation. Low-quality evidence showed no clinically important difference between  
19 clinic- and home-based programs for mobility at 10 weeks (6MWT favoring home  
20 program). Moderate-quality evidence showed no clinically important difference between  
21 clinic- and home-based programs for patient-reported pain and function at 10 weeks and  
22 52 weeks. Based on low- to moderate-quality evidence, no superiority of clinic-based or  
23 inpatient programs compared with home-based programs was found in the early subacute  
24 period after TKA. This evidence suggests that home-based rehabilitation is an appropriate  
25 first line of therapy after uncomplicated TKA for patients with adequate social supports.

26  
27 Imran et al. (2019) performed a meta-analysis to compare functional capacity and health-  
28 related quality of life outcomes in heart failure for one home-based cardiac rehabilitation  
29 and usual care, two hybrid cardiac rehabilitation and usual care, and three home-based and  
30 center-based cardiac rehabilitation. Authors identified 31 randomized controlled trials with  
31 a total of 1791 heart failure participants. Among 18 studies that compared home-based  
32 cardiac rehabilitation and usual care, participants in home-based programs had  
33 improvement of peak oxygen uptake and health-related quality of life. Nine RCTs that  
34 compared hybrid cardiac rehabilitation with usual care showed that hybrid cardiac  
35 rehabilitation had greater improvements in peak oxygen uptake but not in health-related  
36 quality of life. Five studies comparing home-based cardiac rehabilitation with center-based  
37 cardiac rehabilitation showed similar improvements in functional capacity and health-  
38 related quality of life. Authors concluded that home-based cardiac rehabilitation and hybrid  
39 cardiac rehabilitation significantly improved functional capacity, but only home-based  
40 cardiac rehabilitation improved health-related quality of life over usual care. However,

- 1 both are potential alternatives for patients who are not suitable for center-based cardiac
- 2 rehabilitation.

1 Gelaw et al. (2020) were interested in determining if home-based rehabilitation is effective  
2 in improving physical function of people with physical disabilities. They performed a  
3 systematic review of randomized controlled trials. Selected randomized controlled trials  
4 were critically appraised with 11 items. Physiotherapy Evidence Database scale scores  
5 extracted from the Physiotherapy Evidence Database, and studies were included if the  
6 cutoff of 5 points was reached on Physiotherapy Evidence Database scale score. Nine  
7 randomized controlled trials met the preset eligibility criteria. This systematic review found  
8 the consistency of findings among the included studies, which showed that home-based  
9 rehabilitation is an effective option for people with physical disabilities. Home-based  
10 rehabilitation is not superior to hospital-based rehabilitation in improving nearly all patient  
11 outcomes assessed. However, home-based exercise programs require patient enthusiasm  
12 and regular follow-up to yield positive outcomes.

13  
14 Chi et al. (2020) evaluated the effects of home-based rehabilitation on improving physical  
15 function in home-dwelling patients after a stroke. In total, 49 articles in English ( $n=23$ ) and  
16 Chinese ( $n=26$ ) met the inclusion criteria during their systematic review. A random effects  
17 model with a sensitivity analysis showed that home-based rehabilitation exerted moderate  
18 improvements on physical function in home-dwelling patients with a stroke. Moderator  
19 analyses revealed that those patients with stroke of a younger age, of male sex, with a first-  
20 ever stroke episode, in the acute stage, and receiving rehabilitation training from their  
21 caregiver showed greater improvements in physical function. They concluded that home  
22 rehabilitation can improve functional outcome in survivors of stroke and should be  
23 considered appropriate during discharge planning if continuation care is required.

24  
25 Nutarelli et al. (2021) compared outcomes associated with home-based rehabilitation  
26 programs versus standard inpatient and/or outpatient supervised physical therapy (IOP)  
27 following arthroscopic isolated meniscectomy (AM). Randomized clinical trials of patients  
28 treated with home-based rehabilitation programs vs IOP after AM were included. The  
29 primary outcome was the Lysholm score (scale of 0-100 with higher scores indicating  
30 better knee function) and secondary outcomes were subjective International Knee  
31 Documentation Committee score, knee extension and flexion, thigh girth, horizontal and  
32 vertical hop test, and days to return to work, as indicated in the PROSPERO registration.  
33 Outcomes were measured in the short-term (ranging from 28 to 50 days) and the midterm  
34 (6 months). In this meta-analysis of eight RCTs including 434 patients, IOP was associated  
35 with a greater short-term improvement in Lysholm score compared with home-based  
36 rehabilitation programs, with a mean difference of -8.64 points between the two  
37 approaches, but the sensitivity analysis showed no difference. Similarly, no statistically  
38 significant difference was detected at midterm for Lysholm score, with a mean difference  
39 between groups of -4.78 points. Home-based rehabilitation programs were associated with  
40 a greater short-term improvement in thigh girth, with a mean difference between groups of  
41 1.38 cm, whereas IOP was associated with a better short-term vertical hop score, with a

1 mean difference between groups of -3.25 cm. No differences were found for all the other  
2 secondary outcomes. Authors concluded that no intervention was found to be superior in  
3 terms of physical and functional outcomes as well as work-related and patient-reported  
4 outcomes, both at short-term and midterm follow-up. Overall, these results suggest that  
5 home-based rehabilitation programs may be an effective management approach after  
6 arthroscopic isolated meniscectomy in the general population.

7  
8 Nascimento et al., (2022) examined the effects of home-based exercises in comparison with  
9 center-based exercises for improving the paretic upper limb after stroke. Eight trials,  
10 involving 488 participants, were included. Most trials (63%) delivered semi-supervised  
11 interventions (amount of supervision 3-43%), and three trials provided full supervision.  
12 Random-effects meta-analyses provided moderate- to high-quality evidence that home-  
13 and center-based exercises provide similar effects on motor recovery, dexterity, upper limb  
14 activity performance, and quality of movement. Effects on strength were also similar but  
15 the quality of the evidence was rated as low. Authors concluded that effects of home-based  
16 prescribed exercises on upper limb motor recovery, dexterity, and activity are likely to be  
17 similar to improvements obtained by center-based exercises after stroke.

18  
19 Nkonde-Price et al. (2022) compared hospitalizations, medication adherence, and  
20 cardiovascular risk factor control between participants in home-based cardiac  
21 rehabilitation vs center-based cardiac rehabilitation. The primary outcome was 12-month  
22 all-cause hospitalization. Secondary outcomes included all-cause hospitalizations at 30 and  
23 90 days; 30-day, 90-day, and 12-month cardiovascular hospitalizations; and medication  
24 adherence and cardiovascular risk factor control at 12 months. Logistic regression was used  
25 to compare hospitalization, medication adherence, and cardiovascular risk factor control,  
26 with inverse probability treatment weighting (IPTW) to adjust for demographic and clinical  
27 characteristics. Of 2556 patients who participated in cardiac rehabilitation (mean age, 66.7  
28 years; 754 [29.5%] women; 1196 participants [46.8%] with Charlson Comorbidity Index  
29  $\geq 4$ ), there were 289 Asian or Pacific Islander patients (11.3%), 193 Black patients (7.6%),  
30 611 Hispanic patients (23.9%), and 1419 White patients (55.5%). A total of 1241  
31 participants (48.5%) received home-based cardiac rehabilitation and 1315 participants  
32 (51.5%) received center-based cardiac rehabilitation. After IPTW, patients who received  
33 home-based cardiac rehabilitation had lower odds of hospitalization at 12 months but  
34 similar odds of adherence to  $\beta$ -blockers and statins and of control of blood pressure, low-  
35 density lipoprotein cholesterol, and hemoglobin A1c at 12 months compared with patients  
36 who received center-based cardiac rehabilitation. These findings suggest that home-based  
37 cardiac rehabilitation in a demographically diverse population, including patients with high  
38 risk who are medically complex, was associated with fewer hospitalizations at 12 months  
39 compared with patients who participated in center-based cardiac rehabilitation. This study  
40 strengthens the evidence supporting home-based cardiac rehabilitation in previously  
41 understudied patient populations.

1 Liu et al. (2022) evaluated the effectiveness of home-based exercise to treat nonspecific  
2 shoulder pain. Twelve studies were included in the review, and 10 studies were included  
3 in the meta-analysis. Low to moderate quality of evidence indicated that home-based  
4 exercise alone and other conservative treatments showed equal improvements in pain  
5 intensity reduction, function, flexion ROM, and abduction ROM. Very low quality of  
6 evidence indicated that home-based exercise alone was more effective than no treatment  
7 for pain intensity reduction and function improvement. Authors concluded home-based  
8 exercise alone may be equally effective as other conservative treatments and superior to no  
9 treatment for the treatment of nonspecific shoulder pain. To draw firmer conclusions,  
10 further research is required to validate these findings.

11  
12 Soukkio et al. (2022) studied the effects of a 12-month home-based supervised, progressive  
13 exercise program on functioning, physical performance, and physical activity. Participants'  
14 ( $n = 121$ ) mean age was 81 years (SD 7), and 75% were women. The mean IADL score at  
15 baseline was 17.1 (SD 4.5) in the exercise group, and 17.4 (5.1) in the usual care group.  
16 The mean Short Physical Performance Battery (SPPB) scores were 3.9 (1.6) and 4.2 (1.8),  
17 and handgrip strength was 17.7 (8.9) kg and 20.8 (8.0) kg, respectively. The age- and sex-  
18 adjusted mean changes in Lawton's Instrumental Activities of Daily Living (IADL) over  
19 12 months were 3.7 in the exercise and 2.0 in the usual care group; changes in SPPB 4.3  
20 and 2.1; and changes in handgrip strength 1.2 kg and 1.0 kg, respectively. We found no  
21 between-group differences in changes in the frequency of leisure-time activity sessions.  
22 Authors concluded a 12-month home-based supervised, progressive exercise program  
23 improved functioning and physical performance more than usual care among patients with  
24 hip fractures. However, the training did not increase leisure-time physical activity.

25  
26 Chen et al. (2023) completed a study that focused on the integrated post-acute care (PAC)  
27 stage of stroke patients and employed a retrospective study to examine the satisfaction with  
28 life quality in two groups, one that received home-based rehabilitation and one that  
29 received hospital-based rehabilitation. A secondary purpose was to analyze the correlations  
30 among the index and components concerning their quality of life (QOL) and compare the  
31 advantages and disadvantages of these two approaches to PAC. This research was a  
32 retrospective study of 112 post-acute stroke patients. The home-based group received  
33 rehabilitation for one to two weeks, and two to four sessions per week. The hospital-based  
34 group received the rehabilitation for three to six weeks, and 15 sessions per week. The  
35 home-based group mainly received the training and guidance of daily activities at the  
36 patients' residence. The hospital-based group mainly received physical facilitation and  
37 functional training in the hospital setting. The mean scores of QOL assessment for both  
38 groups were found to be significantly improved after intervention. Between-group  
39 comparisons showed that the hospital-based group had better improvement than the home-  
40 based group in mobility, self-care, pain/discomfort and depression/anxiety. In the home-  
41 based group, the MRS score and the participant's age can explain 39.4% of the variance of

1 QOL scores. Authors concluded that the home-based rehabilitation was of lower intensity  
2 and duration than the hospital-based one, but it still achieved a significant improvement in  
3 QOL for the PAC stroke patients. The hospital-based rehabilitation offered more time and  
4 treatment sessions. Therefore hospital-based patients responded with better QOL outcomes  
5 than the home-based patients.

6  
7 Zhao et al. (2023) investigated the relative effectiveness and safety of outpatient versus  
8 home-based rehabilitation persists. Authors' analysis identified no significant differences  
9 in primary outcomes, including Range of Motion, Western Ontario and McMaster  
10 Universities Arthritis Index, Knee Injury and Osteoarthritis Outcome Score, Oxford Knee  
11 Score, and the Knee Society Score, between home-based and outpatient rehabilitation  
12 across different follow-up points. Adverse reactions, readmission rates, the need for  
13 manipulation under anesthesia, reoperation rate, and post-surgery complications were also  
14 similar between both groups. Home-based rehabilitation demonstrated cost-effectiveness,  
15 resulting in substantial annual savings. Furthermore, quality of life and patient satisfaction  
16 were found to be comparable in both rehabilitation methods. Authors concluded that home-  
17 based rehabilitation post-knee arthroplasty appears as an effective, safe, and cost-efficient  
18 alternative to outpatient rehabilitation. Despite these findings, further multicenter, long-  
19 term randomized controlled trials are required to validate these findings and provide robust  
20 evidence to inform early rehabilitation choices post-knee arthroplasty.

21  
22 Schick et al. (2023) compared the functional and patient-reported outcomes (PROs) of a  
23 formal physical therapy (F-PT) program vs. a home therapy program after reverse total  
24 shoulder arthroplasty. One hundred patients were prospectively randomized into 2 groups:  
25 F-PT and home-based physical therapy (H-PT). Patient demographic variables, range of  
26 motion (ROM) and strength measurements, and outcomes (Simple Shoulder Test,  
27 American Shoulder and Elbow Surgeons, Single Assessment Numeric Evaluation, visual  
28 analog scale, and Patient Health Questionnaire-2 scores) were collected preoperatively and  
29 at 6 weeks, 3 months, 6 months, 1 year, and 2 years postoperatively. Patient perceptions  
30 regarding their group assignment, F-PT vs. H-PT, were also assessed. Seventy patients  
31 were included for analysis, with 37 in the H-PT group and 33 in the F-PT group. Thirty  
32 patients in both groups had a minimum of 6 months' follow-up. The average length of  
33 follow-up was 20.8 months. Forward flexion, abduction, internal rotation, and external  
34 rotation ROM did not differ between groups at final follow-up. Strength did not differ  
35 between groups with the exception of external rotation, which was greater by 0.8  
36 kilograms-force (kgf) with F-PT ( $P = .04$ ). PROs at final follow-up did not differ between  
37 therapy groups. Patients receiving home-based therapy appreciated the convenience and  
38 cost savings, and the majority believed home therapy was less burdensome. Authors  
39 concluded that physical therapy and home-based physical therapy programs after reverse  
40 total shoulder arthroplasty result in similar improvements in ROM, strength, and PRO  
41 scores.

1 **References**

2 American Academy of Home Care Medicine. Retrieved October 8, 2023 from  
3 <https://www.aahcm.org/>

4  
5 American Medical Association. (current year). *Current Procedural Terminology (CPT)*  
6 *current year* (rev. ed.). Chicago: AMA

7  
8 American Physical Therapy Association House of Delegates. Code of ethics for the  
9 physical therapist (HOD S06-20-28-25). Alexandria, VA: American Physical Therapy  
10 Association; 2020. Retrieved October 8, 2023 from [https://www.apta.org/apta-and-](https://www.apta.org/apta-and-you/leadership-and-governance/policies/code-of-ethics-for-the-physical-therapist)  
11 [you/leadership-and-governance/policies/code-of-ethics-for-the-physical-therapist](https://www.apta.org/apta-and-you/leadership-and-governance/policies/code-of-ethics-for-the-physical-therapist)

12  
13 Anderson L, Sharp GA, Norton RJ, et al. Home-based versus centre-based cardiac  
14 rehabilitation. *Cochrane Database Syst Rev.* 2017;6(6):CD007130. Published 2017 Jun  
15 30. doi:10.1002/14651858.CD007130.pub4

16  
17 APTA Guide to Physical Therapist Practice 4.0. American Physical Therapy Association.  
18 Published 2023. Accessed October 8, 2023. <https://guide.apta.org>

19  
20 AOTA 2020 Occupational Therapy Code of Ethics. *Am J Occup Ther*  
21 November/December 2020, Vol. 74(Supplement\_3), 7413410005p1–7413410005p13.  
22 Doi: <https://doi.org/10.5014/ajot.2020.74S3006>

23  
24 Bassett, S. F., & Prapavessis, H. (2007). Home-based physical therapy intervention with  
25 adherence-enhancing strategies versus clinic-based management for patients with ankle  
26 sprains. *Physical therapy*, 87(9), 1132–1143. <https://doi.org/10.2522/ptj.20060260>

27  
28 Bringing Physical Therapy Home. American Physical Therapy Association (APTA).  
29 Retrieved October 8, 2023 from <http://www.homehealthsection.org>

30  
31 Buhagiar, M. A., Naylor, J. M., Harris, I. A., Xuan, W., Adie, S., & Lewin, A. (2019).  
32 Assessment of Outcomes of Inpatient or Clinic-Based vs Home-Based Rehabilitation  
33 After Total Knee Arthroplasty: A Systematic Review and Meta-analysis. *JAMA*  
34 *network open*, 2(4), e192810. <https://doi.org/10.1001/jamanetworkopen.2019.2810>

35  
36 Carpenter D, Famolaro T, Hassell S, Kaeberle B, Reefer S, Robins C, Siegel S. Patient  
37 Safety in the Home: Assessment of Issues, Challenges, and Opportunities. Cambridge,  
38 Massachusetts: Institute for Healthcare Improvement; August 2017.

39

- 1 Center for Disease Control and Prevention. (2016, September). Guide to Infection
- 2 Prevention for Outpatient Settings: Minimum expectations for safe care. Retrieved
- 3 October 8, 2023 from <https://www.cdc.gov/infectioncontrol/pdf/outpatient/guide.pdf>



- 1 Chen YC, Chou W, Hong RB, Lee JH, Chang JH. Home-based rehabilitation versus  
2 hospital-based rehabilitation for stroke patients in post-acute care stage: Comparison  
3 on the quality of life. *J Formos Med Assoc.* 2023;122(9):862-871.  
4 doi:10.1016/j.jfma.2023.05.007  
5
- 6 Chi, N. F., Huang, Y. C., Chiu, H. Y., Chang, H. J., & Huang, H. C. (2020). Systematic  
7 Review and Meta-Analysis of Home-Based Rehabilitation on Improving Physical  
8 Function Among Home-Dwelling Patients With a Stroke. *Archives of physical  
9 medicine and rehabilitation, 101(2), 359–373.*  
10 <https://doi.org/10.1016/j.apmr.2019.10.181>  
11
- 12 Clients who cross the line. (n.d.). Retrieved from [https://www.hpso.com/Resources/Legal-  
13 and-Ethical-Issues/Clients-who-Cross-the-Line](https://www.hpso.com/Resources/Legal-and-Ethical-Issues/Clients-who-Cross-the-Line)  
14
- 15 De Coninck, L., Bekkering, G. E., Bouckaert, L., Declercq, A., Graff, M., & Aertgeerts, B.  
16 (2017). Home- and Community-Based Occupational Therapy Improves Functioning in  
17 Frail Older People: A Systematic Review. *Journal of the American Geriatrics Society,*  
18 *65(8), 1863–1869.* <https://doi.org/10.1111/jgs.14889>  
19
- 20 Gelaw, A. Y., Janakiraman, B., Gebremeskel, B. F., & Ravichandran, H. (2020).  
21 Effectiveness of Home-based rehabilitation in improving physical function of persons  
22 with Stroke and other physical disability: A systematic review of randomized  
23 controlled trials. *Journal of stroke and cerebrovascular diseases: the official journal  
24 of National Stroke Association, 29(6), 104800.*  
25 <https://doi.org/10.1016/j.jstrokecerebrovasdis.2020.104800>  
26
- 27 HPSO Physical Therapy Spotlight: Home Care in the Time of the Novel Coronavirus  
28 (COVID-19). (n.d.). Retrieved October 8, 2023, from [http://www.hpso.com/risk-  
29 education/individuals/articles/HPSO-Physical-Therapy-Spotlight-Home-Care-in-the-  
30 Time-of-the-Novel-Coronavirus-\(COVID-19\)](http://www.hpso.com/risk-education/individuals/articles/HPSO-Physical-Therapy-Spotlight-Home-Care-in-the-Time-of-the-Novel-Coronavirus-(COVID-19))  
31
- 32 Imran HM, Baig M, Erqou S, et al. Home-Based Cardiac Rehabilitation Alone and Hybrid  
33 With Center-Based Cardiac Rehabilitation in Heart Failure: A Systematic Review and  
34 Meta-Analysis. *J Am Heart Assoc.* 2019;8(16):e012779.  
35 doi:10.1161/JAHA.119.012779  
36
- 37 Joint Commission International (2020). Joint Commission International Accreditation  
38 Standards for Hospitals (7<sup>th</sup> ed.): Joint Commission Resources

- 1 Lee IF, Yau FN, Yim SS, Lee DT. Evaluating the impact of a home-based rehabilitation  
2 service on older people and their caregivers: a matched-control quasi-experimental  
3 study. *Clin Interv Aging*. 2018 Sep 12;13:1727-1737. Doi: 10.2147/CIA.S172871.  
4 PMID: 30254432; PMCID: PMC6140694  
5
- 6 Li, D., Yang, Z., Kang, P., & Xie, X. (2017). Home-Based Compared with Hospital-Based  
7 Rehabilitation Program for Patients Undergoing Total Knee Arthroplasty for  
8 Osteoarthritis: A Systematic Review and Meta-analysis of Randomized Controlled  
9 Trials. *American journal of physical medicine & rehabilitation*, 96(6), 440–447.  
10 <https://doi.org/10.1097/PHM.0000000000000621>  
11
- 12 Liu J, Sai-Chuen Hui S, Yang Y, Rong X, Zhang R. Effectiveness of Home-Based Exercise  
13 for Nonspecific Shoulder Pain: A Systematic Review and Meta-analysis. *Arch Phys  
14 Med Rehabil*. 2022;103(10):2036-2050. doi:10.1016/j.apmr.2022.05.007  
15
- 16 Medicare Benefit Policy Manual. Chapter 7-Home Health Services. (Rev. 11447, 06-06-  
17 22). Retrieved October 8, 2023, from [https://www.cms.gov/Regulations-and-  
18 Guidance/Guidance/Manuals/downloads/bp102c07.pdf](https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/bp102c07.pdf)  
19
- 20 Nascimento LR, Gaviorno LF, de Souza Brunelli M, Gonçalves JV, Arêas FZDS. Home-  
21 based is as effective as centre-based rehabilitation for improving upper limb motor  
22 recovery and activity limitations after stroke: A systematic review with meta-analysis.  
23 *Clin Rehabil*. 2022;36(12):1565-1577. Doi:10.1177/02692155221121015  
24
- 25 National Institute for Occupational Safety and Health. NIOSH Hazard Review:  
26 Occupational hazards in home healthcare. Retrieved October 8, 2023 from  
27 <https://www.cdc.gov/niosh/docs/2010-125/default.html>  
28
- 29 NIOSH fast facts: Home healthcare workers - how to prevent exposure in unsafe  
30 conditions. (2012). Retrieved October 8, 2023 from  
31 <https://www.cdc.gov/niosh/docs/2012-121/pdfs/2012-121.pdf>  
32
- 33 Nkonde-Price C, Reynolds K, Najem M, et al. Comparison of Home-Based vs Center-  
34 Based Cardiac Rehabilitation in Hospitalization, Medication Adherence, and Risk  
35 Factor Control Among Patients With Cardiovascular Disease. *JAMA Netw Open*.  
36 2022;5(8):e2228720. Published 2022 Aug 1.  
37 doi:10.1001/jamanetworkopen.2022.28720

- 1 Nutarelli S, Delahunt E, Cuzzolin M, Delcogliano M, Candrian C, Filardo G. Home-Based  
 2 vs Supervised Inpatient and/or Outpatient Rehabilitation Following Knee  
 3 Meniscectomy: A Systematic Review and Meta-analysis. *JAMA Netw Open*.  
 4 2021;4(5):e2111582. Published 2021 May 3.  
 5 doi:10.1001/jamanetworkopen.2021.11582  
 6
- 7 Occupational Therapy's Distinct Value in Rehab & Disability. (n.d.). American  
 8 Occupational Therapy Association. Retrieved October 8, 2023, from  
 9 <https://www.aota.org/>  
 10
- 11 Schick S, Elphingstone J, Paul K, et al. Home-based physical therapy results in similar  
 12 outcomes to formal outpatient physical therapy after reverse total shoulder arthroplasty:  
 13 a randomized controlled trial. *J Shoulder Elbow Surg*. 2023;32(8):1555-1561.  
 14 doi:10.1016/j.jse.2023.03.023  
 15
- 16 Schuchman M, Fain M, Cornwell T. The Resurgence of Home-Based Primary Care Models  
 17 in the United States. *Geriatrics (Basel)*. 2018;3(3):41. Published 2018 Jul 16.  
 18 doi:10.3390/geriatrics3030041  
 19
- 20 Soukkio PK, Suikkanen SA, Kukkonen-Harjula KT, et al. Effects of a 12-month home-  
 21 based exercise program on functioning after hip fracture - Secondary analyses of an  
 22 RCT. *J Am Geriatr Soc*. 2022;70(9):2561-2570. doi:10.1111/jgs.17824  
 23
- 24 Stolee, P., Lim, S. N., Wilson, L., & Glenny, C. (2012). Inpatient versus home-based  
 25 rehabilitation for older adults with musculoskeletal disorders: a systematic review.  
 26 *Clinical Rehabilitation*, 26(5), 387–402. <https://doi.org/10.1177/0269215511423279>  
 27
- 28 The Home Health Section Toolbox of Standardized Tests and Measures. Home Health  
 29 Section website. 2013.  
 30 <https://aptahhs.memberclicks.net/assets/docs/Home%20Health%20Toolbox.pdf>.  
 31
- 32 Totten AM, White-Chu EF, Wasson N, Morgan E, Kansagara D, Davis O'Reilly C,  
 33 Goodlin S. Home-Based Primary Care Interventions. (Prepared by the Pacific  
 34 Northwest Evidence-based Practice Center under Contract No. 290-2012-00014-I.)  
 35 AHRQ Publication No. 15(16)-EHC036-EF. Rockville, MD: Agency for Healthcare  
 36 Research and Quality; February 2016. Archived. Retrieved October 8, 2023  
 37 <https://effectivehealthcare.ahrq.gov/products/home-based-care/research>  
 38
- 39 United States Department Of Labor. Home Healthcare. (n.d.). Retrieved October 8, 2023,  
 40 from <https://www.osha.gov/home-healthcare>

- 1 Ward D, Drahota A, Gal D, Severs M, Dean TP. Care home versus hospital and own home  
2 environments for rehabilitation of older people. *Cochrane Database of Systematic*  
3 *Reviews* 2008, Issue 4. Art. No.: CD003164. DOI:  
4 10.1002/14651858.CD003164.pub2.  
5
- 6 Wu, D., Zhu, X., & Zhang, S. (2018). Effect of home-based rehabilitation for hip fracture:  
7 A meta-analysis of randomized controlled trials. *Journal of rehabilitation medicine*,  
8 50(6), 481–486. <https://doi.org/10.2340/16501977-2328>  
9
- 10 Zhao B, Liu H, Du K, Zhou W, Li Y. Effectiveness and safety of outpatient rehabilitation  
11 versus home-based rehabilitation after knee arthroplasty: a systematic review and meta-  
12 analysis. *J Orthop Surg Res.* 2023;18(1):704. Published 2023 Sep 19.  
13 doi:10.1186/s13018-023-04160-2