

## **AGENDA ITEM 7**

### **CONSIDERATION AND POSSIBLE RECOMMENDATION TO THE BOARD ON WHETHER ADVANCED PRACTICE APPROVAL IN HAND THERAPY IS REQUIRED TO TREAT CARPAL TUNNEL SYNDROME, REPETITIVE MOTION INJURIES, OR FINGER/HAND PAIN, WRIST PAIN OR ELBOW PAIN THAT IS NOT DUE TO INJURY OR SURGERY.**

THE FOLLOWING ARE INCLUDED:

- Business and Professions Codes (BPC) §2570.2 and §2570.3
- California Code of Regulations §4150 – §4155
- AOTA position paper “The Role of Occupational Therapy in Comprehensive Integrative Pain Management”
- AOTA position paper “Occupational Therapy’s Role with Chronic Conditions”
- AJOT position paper “Occupational Therapy Practice Guidelines for Adults with Chronic Conditions”

**Business and Professions Code (BPC) § 2570.2 and § 2570.3**

## **2570.2.**

As used in this chapter, unless the context requires otherwise:

(a) "Appropriate supervision of an aide" means that the responsible occupational therapist or occupational therapy assistant shall provide direct in-sight supervision when the aide is providing delegated client-related tasks and shall be readily available at all times to provide advice or instruction to the aide. The occupational therapist or occupational therapy assistant is responsible for documenting the client's record concerning the delegated client-related tasks performed by the aide.

(b) "Aide" means an individual who provides supportive services to an occupational therapist or occupational therapy assistant and who is trained by an occupational therapist or occupational therapy assistant to perform, under appropriate supervision, delegated, selected client and nonclient-related tasks for which the aide has demonstrated competency. An occupational therapist or occupational therapy assistant licensed pursuant to this chapter may utilize the services of one aide engaged in client-related tasks to assist the occupational therapist or occupational therapy assistant in the practice of occupational therapy. The occupational therapist shall be responsible for the overall use and actions of the aide.

(c) "Association" means the Occupational Therapy Association of California or a similarly constituted organization representing occupational therapists in this state.

(d) "Board" means the California Board of Occupational Therapy.

(e) "Continuing competence" means a dynamic and multidimensional process in which the occupational therapist or occupational therapy assistant develops and maintains the knowledge, performance skills, interpersonal abilities, critical reasoning, and ethical reasoning skills necessary to perform current and future roles and responsibilities within the profession.

(f) "Examination" means an entry level examination for occupational therapists and occupational therapy assistants administered by the National Board for Certification in Occupational Therapy or by another nationally recognized credentialing body.

(g) "Good standing" means that the person has a current, valid license to practice occupational therapy or assist in the practice of occupational therapy and has not been disciplined by the recognized professional licensing or standard-setting body within five years prior to application or renewal of the person's license.

(h) "Occupational therapist" means an individual who meets the minimum education requirements specified in Section 2570.6 and is licensed pursuant to the provisions of this chapter and whose license is in good standing as determined by the board to practice occupational therapy under this chapter. The occupational therapist is responsible for and directs the evaluation process and develops the intervention plan.

(i) "Occupational therapy assistant" means an individual who is licensed pursuant to the provisions of this chapter, who is in good standing as determined by the board, and based thereon, who is qualified to assist in the practice of occupational therapy under this chapter, and who works under the appropriate supervision of a licensed occupational therapist.

(j) “Occupational therapy services” means the services of an occupational therapist or the services of an occupational therapy assistant under the appropriate supervision of an occupational therapist.

(k) “Person” means an individual, partnership, unincorporated organization, or corporation.

(l) “Occupational therapy” means the therapeutic use of purposeful and meaningful goal-directed activities (occupations) with individuals, groups, populations, or organizations, to support participation, performance, and function in roles and situations in home, school, workplace, community, and other settings. Occupational therapy services are provided for habilitation, rehabilitation, and the promotion of health and wellness for clients with disability- and nondisability-related needs or to those who have, or are at risk of developing, health conditions that limit activity or cause participation restrictions. Occupational therapy services encompass occupational therapy assessment, treatment, education, and consultation. Occupational therapy addresses the physical, cognitive, psychosocial, sensory-perception and other aspects of performance in a variety of contexts and environments to support engagement in occupations that affect physical and mental health, well-being, and quality of life. Occupational therapy assessment identifies performance abilities and limitations that are necessary for self-maintenance, learning, work, and other similar meaningful activities. Occupational therapy treatment is focused on developing, improving, or restoring functional daily living skills, compensating for and preventing dysfunction, or minimizing disability. Through engagement in everyday activities, occupational therapy promotes mental health by supporting occupational performance in people with, or at risk of experiencing, a range of physical and mental health disorders. Occupational therapy techniques that are used for treatment involve teaching activities of daily living (excluding speech-language skills); designing or fabricating orthotic devices, and applying or training in the use of assistive technology or orthotic and prosthetic devices (excluding gait training). Occupational therapy consultation provides expert advice to enhance function and quality of life. Consultation or treatment may involve modification of tasks or environments to allow an individual to achieve maximum independence. Services are provided individually, in groups, or populations.

(m) “Hand therapy” is the art and science of rehabilitation of the hand, wrist, and forearm requiring comprehensive knowledge of the upper extremity and specialized skills in assessment and treatment to prevent dysfunction, restore function, or reverse the advancement of pathology. This definition is not intended to prevent an occupational therapist practicing hand therapy from providing other occupational therapy services authorized under this act in conjunction with hand therapy.

(n) “Physical agent modalities” means techniques that produce a response in soft tissue through the use of light, water, temperature, sound, or electricity. These techniques are used as adjunctive methods in conjunction with, or in immediate preparation for, occupational therapy services.

*(Amended by Stats. 2018, Ch. 490, Sec. 1. (AB 2221) Effective January 1, 2019.)*

### **2570.3.**

(a) A person shall not practice occupational therapy or hold themselves out as an occupational therapist or as being able to practice occupational therapy, or to render occupational therapy services in this state unless the person is licensed as an occupational therapist under the provisions of this chapter. A person shall not hold themselves out as an occupational therapy assistant or work as an occupational therapy assistant under the supervision of an occupational therapist unless the person is licensed as an occupational therapy assistant under this chapter.

(b) Only an individual may be licensed under this chapter.

(c) This chapter does not authorize an occupational therapist to practice physical therapy, as defined in Section 2620; speech-language pathology or audiology, as defined in Section 2530.2; nursing, as defined in Section 2725; psychology, as defined in Section 2903; marriage and family therapy, as defined in Section 4980.02; clinical social work, as defined in Section 4996.9; professional clinical counseling, as defined in Section 4999.20, educational psychology, as defined in Section 4989.14; or spinal manipulation or other forms of healing, except as authorized by this section.

(d) An occupational therapist may provide advanced practices if the occupational therapist has the knowledge, skill, and ability to do so and has demonstrated to the satisfaction of the board that the occupational therapist has met educational training and competency requirements. These advanced practices include the following:

- (1) Hand therapy.
- (2) The use of physical agent modalities.
- (3) Swallowing assessment, evaluation, or intervention.

(e) An occupational therapist providing hand therapy services shall demonstrate to the satisfaction of the board that the occupational therapist has completed education and training in all of the following areas:

- (1) Anatomy of the upper extremity and how it is altered by pathology.
- (2) Histology as it relates to tissue healing and the effects of immobilization and mobilization on connective tissue.
- (3) Muscle, sensory, vascular, and connective tissue physiology.
- (4) Kinesiology of the upper extremity, such as biomechanical principles of pulleys, intrinsic and extrinsic muscle function, internal forces of muscles, and the effects of external forces.
- (5) The effects of temperature and electrical currents on nerve and connective tissue.
- (6) Surgical procedures of the upper extremity and their postoperative course.

(f) An occupational therapist using physical agent modalities shall demonstrate to the satisfaction of the board that the occupational therapist has completed education and training in all of the following areas:

- (1) Anatomy and physiology of muscle, sensory, vascular, and connective tissue in response to the application of physical agent modalities.
- (2) Principles of chemistry and physics related to the selected modality.
- (3) Physiological, neurophysiological, and electrophysiological changes that occur as a result of the application of a modality.
- (4) Guidelines for the preparation of the client, including education about the process and possible outcomes of treatment.
- (5) Safety rules and precautions related to the selected modality.
- (6) Methods for documenting immediate and long-term effects of treatment.
- (7) Characteristics of the equipment, including safe operation, adjustment, indications of malfunction, and care.

(g) An occupational therapist in the process of achieving the education, training, and competency requirements established by the board for providing hand therapy or using physical agent modalities may practice these techniques under the supervision of an occupational therapist who has already met the requirements established by the board, a physical therapist, or a physician and surgeon.

(h) The board shall develop and adopt regulations regarding the educational training and competency requirements for advanced practices in collaboration with the Speech-Language Pathology and Audiology Board, the Board of Registered Nursing, and the Physical Therapy Board of California.

(i) This chapter does not authorize an occupational therapist to seek reimbursement for services other than for the practice of occupational therapy as defined in this chapter.

(j) "Supervision of an occupational therapy assistant" means that the responsible occupational therapist shall at all times be responsible for all occupational therapy services provided to the client. The occupational therapist who is responsible for appropriate supervision shall formulate and document in each client's record, with the occupational therapist's signature, the goals and plan for that client, and shall make sure that the occupational therapy assistant assigned to that client functions under appropriate supervision. As part of the responsible occupational therapist's appropriate supervision, the occupational therapist shall conduct at least weekly review and inspection of all aspects of occupational therapy services by the occupational therapy assistant.

- (1) The supervising occupational therapist has the continuing responsibility to follow the progress of each client, provide direct care to the client, and to assure that the occupational therapy assistant does not function autonomously.

(2) An occupational therapist shall not supervise more occupational therapy assistants, at any one time, than can be appropriately supervised in the opinion of the board. Three occupational therapy assistants shall be the maximum number of occupational therapy assistants supervised by an occupational therapist at any one time, but the board may permit the supervision of a greater number by an occupational therapist if, in the opinion of the board, there would be adequate supervision and the public's health and safety would be served. In no case shall the total number of occupational therapy assistants exceed three times the number of occupational therapists regularly employed by a facility at any one time.

*(Amended by Stats. 2022, Ch. 290, Sec. 1. (AB 2671) Effective January 1, 2023.)*

**California Code of Regulations (CCR), §4150 - §4155**



## **§ 4150. Definitions§**

For the purpose of this article:

- (a) "ACOTE" means the Accreditation Council for Occupational Therapy Education.
- (b) "Post professional education and training" means education and training obtained subsequent to the qualifying degree program or beyond current ACOTE standards for the qualifying degree program.
- (c) "Contact hour" means sixty (60) minutes of coursework or classroom instruction.
- (d) "Semester unit" means fifteen (15) contact hours.
- (e) "Quarter unit" means ten (10) contact hours.
- (f) "Rehabilitation of the hand, wrist, and forearm" as used in Code section 2570.2(l) refers to occupational therapy services performed as a result of surgery or injury to the hand, wrist, or forearm.
- (g) "Upper extremity" as used in Code section 2570.3(e) includes education relating to the hand, wrist, or forearm.
- (h) "Swallowing" as used in Code section 2570.3 is the passage of food, liquid, or medication through the pharyngeal and esophageal phases of the swallowing process.
- (i) "Instrumental evaluation" is the assessment of any aspect of swallowing using imaging studies that include, but are not limited to, endoscopy and video fluoroscopy
  - (1) "Endoscopic evaluation of swallowing" or "endoscopy" is the process of observing structures and function of the swallowing mechanism to include the nasopharynx, oropharynx, and hypopharynx.
  - (2) "Video fluoroscopic swallowing study" or "video fluoroscopy" is the fluoroscopic recording and videotaping of the anatomy and physiology of the oral cavity, pharynx, and upper esophagus using a variety of bolus consistencies to assess swallowing function. This procedure may also be known as video fluorography, modified barium study, oral-pharyngeal motility study and video radiography.

Note: Authority cited: Sections 2570.3 and 2570.20, Business and Professions Code.  
Reference: Sections 2570.2 and 2570.3, Business and Professions Code.

## **§ 4151. Hand Therapy**

- (a) Hand therapy services may be performed only when an occupational therapist has demonstrated to the Board in an application filed pursuant to section 4155 that he or she has met the post professional education and training requirements established by this section as follows:
  - (1) Education: Completion of 45 contact hours in the subjects listed in Code section 2570.3(e), including 30 hours specifically relating to the hand, wrist, and forearm.
  - (2) Training: Completion of 480 hours of supervised on-the-job training, clinical internship or affiliation, which may be paid or voluntary, pertaining to hand therapy.
- (b) An occupational therapist whose application pursuant to section 4155 provides proof of current certification as a Certified Hand Therapist, issued by the Hand Therapy Certification Commission, shall be deemed to have met the education and training requirements established by this section.
- (c) An occupational therapist providing hand therapy services using physical agent

modalities must also comply with the requirements of section 4152. A maximum of 8 contact hours and 60 hours of supervised on-the-job training, clinical internship or affiliation, paid or voluntary, completed under section 4152 will be credited toward the requirements of this section.

(d) An occupational therapist may provide only those hand therapy services he or she is competent to perform.

Note: Authority cited: Sections 2570.3 and 2570.20, Business and Professions Code.  
Reference: Sections 2570.2 and 2570.3, Business and Professions Code.

### **§ 4152. Physical Agent Modalities**

(a) Physical agent modalities may be used only when an occupational therapist has demonstrated to the Board in an application filed pursuant to section 4155 that he or she has met the post professional education and training requirements established by this section as follows:

(1) Education: Completion of 30 contact hours in the subjects listed in Code section 2570.3(f).

(2) Training: Completion of 240 hours of supervised on-the-job training, clinical internship or affiliation, which may be paid or voluntary, pertaining to physical agent modalities.

(b) An occupational therapist whose application pursuant to section 4155 provides proof of current certification as a Certified Hand Therapist, issued by the Hand Therapy Certification Commission, shall be deemed to have met the education and training requirements established by this section.

(c) An occupational therapist may use only those physical agent modalities he or she is competent to use.

Note: Authority Cited: Sections 2570.3 and 2570.20, Business and Professions Code.  
Reference: Sections 2570.2 and 2570.3, Business and Professions Code.

### **§ 4152.1. Use of Topical Medications**

(a) As used in this section, "topical medications" means medications applied locally to the skin or underlying tissue where such medications require a prescription or order under federal or state law. The following medications are applicable to the practice of occupational therapy and may be used by an occupational therapist:

- (1) Bacteriocidal agents;
- (2) Debriding agents;
- (3) Topical anesthetic agents;
- (4) Anti-inflammatory agents;
- (5) Antispasmodic agents; and
- (6) Adrenocortico-steroids.

(b) An occupational therapist shall apply or administer topical medications in accordance with this subsection.

(1) Any topical medication applied or administered shall have been ordered on a specific or standing basis by a practitioner legally authorized to order or prescribe such

medication pursuant to Business and Professions Code section 2571(a).

(2) An occupational therapist may administer a topical medication by the use of a physical agent modality, only if the occupational therapist is approved by the Board in the advanced practice area of physical agent modalities.

(3) An occupational therapist shall follow written protocols in applying or administering topical medications. The protocols shall:

(A) Be prepared by the facility within which the topical medications are being applied or administered;

(B) Be approved by the medical director or equivalent of the facility;

(C) Include a description of each medication, its actions, its indications and contraindications, and the proper procedure and technique for application;

(D) Require that the administration be consistent with the manufacturer's guidelines for any equipment to be used in the administration of the topical medication; and

(E) Be based on research and evidence-based practice, pharmaceutical standards of practice and known desired outcomes.

(4) Supervision of the application or administration of topical medications by an occupational therapy assistant under this section shall be in accordance with Article 9.

(c) Under no circumstance does this section authorize an occupational therapist or occupational therapist assistant to administer a medication via injection.

Note: Authority cited: Sections 163.5 and 2570.20, Business and Professions Code.

Reference: Section 2571, Business and Professions Code.

### **§ 4153. Swallowing Assessment, Evaluation, or Intervention**

(a) The role of an occupational therapist in instrumental evaluations is to observe structure and function of the swallowing mechanism in order to assess swallowing capability and determine swallowing interventions. The occupational therapist may not perform the physically invasive components of the instrumental evaluation.

(b) Swallowing assessment, evaluation or intervention may be performed only when an occupational therapist has demonstrated to the Board that he or she has met the post professional education and training requirements established by this section as follows:

(1) Education: Completion of 45 contact hours in the following subjects:

(A) Anatomy, physiology and neurophysiology of the head and neck with focus on the structure and function of the aerodigestive tract;

(B) The effect of pathology on the structures and functions of the aerodigestive tract including medical interventions and nutritional intake methods used with patients with swallowing problems;

(C) Interventions used to improve pharyngeal swallowing function.

(2) Training: Completion of 240 hours of supervised on-the-job training, clinical internship or affiliation, which may be paid or voluntary, pertaining to swallowing assessment, evaluation or intervention. An occupational therapist in the process of completing the training requirements of this section may practice swallowing assessment, evaluation or intervention under the supervision of an occupational therapist who has been approved under this article, a speech language pathologist with expertise in this area, or a physician and surgeon.

(c) An occupational therapist may provide only those swallowing assessment, evaluation or intervention services he or she is competent to perform.

Note: Authority cited: Sections 2570.3 and 2570.20, Business and Professions Code.  
Reference: Sections 2570.2 and 2570.3, Business and Professions Code.

#### **§ 4154. Post Professional Education and Training**

(a) Post professional education courses shall be obtained at any of the following:

- (1) College or university degree programs accredited or approved by ACOTE;
- (2) College or university degree programs accredited or approved by the Commission on Accreditation in Physical Therapy Education;
- (3) Colleges or universities with Speech and Hearing Programs accredited or approved by the Council on Academic Accreditation in Audiology and Speech-Language Pathology;

(4) Any approved provider. To be approved by the Board the provider shall submit the following:

- (A) A clear statement as to the relevance of the course to the advanced practice area.
- (B) Information describing, in detail, the depth and breadth of the content covered (e.g., a course syllabus and the goals and objectives of the course) particularly as it relates to the advanced practice area.
- (C) Information that shows the course instructor's qualifications to teach the content being taught (e.g., his or her education, training, experience, scope of practice, licenses held, and length of experience and expertise in the relevant subject matter), particularly as it relates to the advanced practice area.
- (D) Information that shows the course provider's qualifications to offer the type of course being offered (e.g., the provider's background, history, experience, and similar courses previously offered by the provider), particularly as it relates to the advanced practice area; or

(5) A provider that has not been approved by the Board, if the applicant occupational therapist demonstrates that the course content meets the subject matter requirements set forth in sections 2570.3(e) or 2570.3(f) of the Code, or section 4153 of these regulations, and submits the following:

- (A) Information describing, in detail, the depth and breadth of the content covered (e.g., a course syllabus and the goals and objectives of the course) particularly as it relates to the advanced practice area.
- (B) Information that shows the course instructor's qualifications to teach the content being taught (e.g., his or her education, training, experience, scope of practice, licenses held, and length of experience and expertise on the relevant subject matter), particularly as it relates to the advanced practice area.

(b) Post professional training shall be supervised which means, at a minimum:

- (1) The supervisor and occupational therapist have a written agreement, signed and dated by both parties prior to accruing the supervised experience, outlining the plan of supervision and training in the advanced practice area. The level of supervision is determined by the supervisor whose responsibility it is to ensure that the amount, degree, and pattern of supervision is consistent with the knowledge, skill and ability of the occupational therapist, and appropriate for the complexity of client needs and

number of clients for whom the occupational therapist is providing advanced practice services.

(2) The supervisor is readily available in person or by telecommunication to the occupational therapist while the therapist is providing advanced practice services.

(3) The supervisor does not have a co-habitative, familial, intimate, business, excluding employment relationships, or other relationship that could interfere with professional judgment and objectivity necessary for effective supervision, or that violates the Ethical Standards of Practice, pursuant to section 4170.

(c) Any course instructor providing post-professional education under section 4154(a)(4) or (5) who is a health care practitioner as defined in section 680 of the Code shall possess an active, current, and unrestricted license.

(d) Post professional education and training must be completed within the five years immediately preceding the application for approval in each advanced practice area.

Note: Authority cited: Sections 2570.3 and 2570.20, Business and Professions Code.  
Reference: Sections 2570.2 and 2570.3, Business and Professions Code.

#### **§ 4155. Application for Approval in Advanced Practice Areas**

In order to provide any of the advanced practice services set forth in Code section 2570.3(d), an occupational therapist shall apply to the Board and receive approval in that advanced practice area.

(a) To apply for approval, an occupational therapist shall submit to the Board an application as specified in subsections (1), (2), or (3), along with the required documentation.

(1) Applicants seeking approval in the area of Hand Therapy shall submit the [Application for Advanced Practice Approval in Hand Therapy](#) (Form APH, Rev. 10/09), hereby incorporated by reference;

(2) Applicants seeking approval in the use of physical agent modalities shall submit the [Application for Advanced Practice Approval in Physical Agent Modalities](#) (Form APP, Rev. 07/11), hereby incorporated by reference;

(3) Applicants seeking approval in the area of Swallowing Assessment, Evaluation, or Intervention shall submit the [Application for Advanced Practice Approval in Swallowing](#) (Form APS, Rev. 10/09), hereby incorporated by reference;

(b) The documentation must include the following:

(1) Documented proof of attendance and completion of each course (i.e., certificate of completion or transcript).

(2) Evidence of the number of contact hours completed for each course for courses that are not Board approved.

(3) Outline or syllabus of each course for courses that are not Board approved.

(4) Information describing, in detail, the depth and breadth of the content covered (e.g., a course syllabus and the goals and objectives of the course) as it relates to the advanced practice area.

(5) Resume or credentials of each instructor for courses that are not Board approved.

(6) Verification of completion of supervised on-the-job training, clinical internship or affiliation reflecting the nature of the training and the number of hours. Such verification must be signed by the supervisor(s) under penalty of perjury.

(c) An advanced practice application not completed within six months of receipt or notification of deficiency, whichever is later, shall be deemed abandoned.

(d) An application submitted subsequent to the abandonment of a previous application shall be treated as a new application.

Note: Authority cited: Sections 2570.3 and 2570.20, Business and Professions Code.

Reference: Sections 2570.2 and 2570.3, Business and Professions Code.

**AOTA position paper "The Role of Occupational  
Therapy in Comprehensive Integrative Pain  
Management"**

# The Role of Occupational Therapy in Comprehensive Integrative Pain Management

Jointly Commissioned by



Authors: Lindsey Reeves, OTD, OTR/L; Malia Sako, OTD, OTR/L; Julie Malloy, MOT, OTR/L, PMP, CPHQ, FNAP  
Amy Goldstein, MSW; Katie Bennett, JD

## Introduction

Pain is the top reason given for seeking health care.<sup>1</sup> People with acute and chronic pain face significant challenges accessing and understanding which facets of person-centered, multimodal, comprehensive integrative pain management (CIPM) would provide improvement in functional capacity, pain interference, quality of life, and pain management coping skills. Most clinical guidelines recommend non-pharmacological and integrative therapies as first-line interventions for pain, and the Health & Human Services Inter-Agency Pain Management Best Practices Task Force Report presents a convincing roadmap for advancing best practices in multidisciplinary, whole-person care.<sup>2</sup> This approach includes traditional and advancing medication and interventional procedures, complementary and integrative services, restorative therapies, and behavioral health approaches. The purpose of this collaborative effort between AACIPM and AOTA is to build awareness across stakeholders by providing additional context about occupational therapy as an important part of a quality interdisciplinary and integrative team.

## What is Occupational Therapy?

Occupational therapy practitioners, including occupational therapy assistants, define *occupation* as a *meaningful activity*, and occupations can range from activities of daily living (ADLs) to community-based activities to the unique pastimes that enrich a person's life. Occupational therapy practitioners strive to improve their patients' functional performance, independence, and quality of life in order to increase participation in their daily activities.<sup>3</sup>

From beginning of life through end-of-life care, and every stage in between, occupational therapy practitioners work with people throughout the lifespan in hospitals, outpatient clinics, primary care, schools, and community-based settings. Occupational therapy practitioners work along the continuum of care, supporting people through prevention and self-management of acute and chronic conditions.<sup>4</sup>

Occupational therapy practitioners are trained to conduct a thorough evaluation to assess performance deficits and strengths, and develop a specific, individualized treatment plan geared toward returning patients to their most important occupations. Their person-centered interventions are based in facilitating self-analysis, collaboration, problem-solving, and action planning within the context of their patients' daily lives and overall health management.



**Occupational therapy practitioners strive to improve their patients' functional performance, independence, and quality of life in order to increase participation in their daily activities.<sup>3</sup>**





## What role does occupational therapy play in a comprehensive pain management program?

The role of an occupational therapy practitioner within a comprehensive integrative pain management program uniquely focuses on function. This includes ADLs, instrumental activities of daily living (IADLs) (e.g., meal-prep, shopping, childcare), and other daily life activities. Using evidence-based, skilled interventions, occupational therapy practitioners take a holistic and comprehensive approach to thoroughly evaluate structural, physiological, psychological, environmental, and personal factors that influence the experience of pain. This information is then used to apply self-management strategies, functional activities, hands-on techniques, and specific exercises to improve function and participation.

While occupational therapy practitioners independently help patients implement health-promoting behavior change, they also overlap and reinforce treatment goals from other interdisciplinary team members. For example, a patient with pain may learn relaxation techniques in pain psychology and physical exercises from their physical therapist, but they may have difficulty integrating these interventions into their habits and routines in a consistent and effective way. Occupational therapy practitioners can address this challenge with the patient by analyzing activity patterns, problem-solving barriers, and facilitating sustainable carryover. Additionally, occupational therapy practitioners train caregivers and contribute valuable assessments regarding patient safety, environmental safety, and readiness for discharge. This combination of skillsets prioritizes patient safety and independence and can even reduce risk for readmission.<sup>5</sup>

Unfortunately, occupational therapy practitioners are commonly overlooked in the research and development of comprehensive pain management teams compared with fellow non-pharmacological providers (e.g., physical therapists, psychologists).<sup>6</sup> By including occupational therapy practitioners, pain management teams can better reflect guidelines from the Centers for Disease Control and Prevention that recommend non-pharmacological interventions that are common in occupational therapy, such as patient education, self-regulation, developing self-management skills, and realistic goal-setting.<sup>7</sup>

## How do occupational therapy practitioners treat pain?

Occupational therapy practitioners collaborate with patients to identify and incorporate self-management strategies into their daily routines to reduce pain, increase participation in meaningful occupations, and improve quality of life. Informed by the *Occupational Therapy Practice Framework, Domain & Process, 4th edition*, Table 1 summarizes the occupational areas that are impacted by chronic pain and the evidence-based occupational therapy interventions used to address pain-related functional impairment.<sup>3</sup>

**Table 1: Occupational Therapy Interventions for Pain Management**

Occupational Area Impacted by Chronic Pain	OT Intervention
<p data-bbox="175 1514 496 1581"><b>Activities of Daily Living (ADLs) / Self-care</b></p> <p data-bbox="175 1619 496 1749">Examples: Grooming, dressing, toileting, feeding, functional mobility, sexual activity</p>	<ul data-bbox="613 1413 1373 1850" style="list-style-type: none"><li>• Adaptive equipment selection and training</li><li>• Positioning equipment and strategies</li><li>• Functional mobility training (e.g., static positioning, dynamic movement, transfers, lifting and bending techniques)</li><li>• Neuromuscular re-education</li><li>• Nerve mobilization</li><li>• Functional range of motion and strengthening exercises</li><li>• Activity pacing and energy conservation strategies</li><li>• Ergonomic and body mechanic training<sup>8, 9, 10</sup></li><li>• Fall safety and prevention<sup>11</sup></li><li>• Home evaluations</li></ul>

Occupational Area Impacted by Chronic Pain	OT Intervention
<p><b>Instrumental Activities of Daily Living (IADLs)</b></p> <p>Examples: caretaking, driving, financial management, home management, meal preparation, safety and emergency maintenance, shopping</p>	<ul style="list-style-type: none"> <li>• Activity pacing and energy conservation strategies, including activity analysis and activity modifications<sup>12, 13, 14, 15, 16</sup></li> <li>• Adaptive equipment selection and training</li> <li>• Transportation training, including comprehensive driver evaluations and driver rehabilitation</li> <li>• Community reintegration</li> <li>• Compensatory cognitive strategies<sup>11</sup></li> </ul>
<p><b>Health Management</b></p> <p>Examples: symptom and condition management, communication with health care system, medication management, physical activity, nutrition management, personal care device management</p>	<ul style="list-style-type: none"> <li>• Patient education and disease self-management training, including trigger identification, symptom tracking, and pain flare-up planning<sup>17, 18</sup></li> <li>• Pain coping strategies: physical modalities, complementary and alternative pain coping strategies, sensory strategies, self-regulation, mobilization</li> <li>• Pain communication and assertive communication training<sup>19, 20, 21</sup></li> <li>• Medication management<sup>22</sup></li> <li>• Self-regulation training and stress management coping strategies, including mindfulness, relaxation techniques, and cognitive behavioral techniques<sup>23, 24</sup></li> <li>• Eating routine strategies (e.g., frequency/quality education to avoid dietary pain triggers and improve energy management)<sup>25, 26</sup></li> <li>• Physical activity routines (e.g., grading physical activity, establishing sustainable routines)<sup>27</sup></li> <li>• Time management strategies, including routine establishment to promote nervous system regulation</li> </ul>
<p><b>Rest &amp; Sleep</b></p>	<ul style="list-style-type: none"> <li>• Sleep hygiene and positioning strategies<sup>28, 29</sup></li> <li>• Cognitive behavioral therapy for insomnia (CBT-I)</li> <li>• Energy conservation and fatigue management</li> </ul>
<p><b>Education &amp; Work</b></p>	<ul style="list-style-type: none"> <li>• Academic and work accommodations<sup>30</sup></li> <li>• Ergonomic and body mechanics training<sup>31, 5</sup></li> <li>• Advocacy and self-advocacy training<sup>32, 33, 34</sup></li> <li>• Assertive communication training</li> <li>• Community re-integration, including gradual re-entry plans</li> <li>• Activity pacing and energy management strategies</li> <li>• Environmental modifications</li> <li>• Sensory strategies to monitor environmental triggers or exacerbating factors<sup>35</sup></li> <li>• Community and online resources exploration</li> <li>• Compensatory cognitive strategies</li> </ul>

Occupational Area Impacted by Chronic Pain	OT Intervention
<p style="text-align: center;"><b>Play, Leisure, &amp; Social Participation</b></p>	<ul style="list-style-type: none"> <li>• Strategies to prevent social isolation</li> <li>• Assertive communication strategies</li> <li>• Advocacy and self-advocacy training</li> <li>• Personal values and interests exploration</li> <li>• Community resources</li> <li>• Community reintegration</li> </ul>

The list of skilled occupational therapy interventions included in Table 1 demonstrates the diverse practices that are used during treatment sessions to achieve the overall goal of improving function and participation. By working with patients to develop individualized strategies related to lifestyle, resource utilization, and self-advocacy, occupational therapy practitioners help to prevent future injury and pain. Further, satisfying participation in occupations can improve mood, provide a healthy diversion, and increase the release of endorphins, which are the body's natural pain relievers. By helping patients develop and sustain health-promoting daily activities, occupational therapy practitioners empower them by improving self-efficacy, self-management, and overall quality of life.

### **When is a referral to an occupational therapy practitioner appropriate?**

The following patient factors may indicate a need for occupational therapy services:

- Impaired function or ability to participate in occupations due to pain-related barriers (e.g., musculoskeletal impairments, strength deficits, decreased endurance, psychosocial barriers, contextual barriers)
- Presence of health-detering lifestyle factors that contribute to pain (e.g., stress, sleep disturbance, overexertion, poor eating/exercise routines)
- Lack of awareness regarding factors that exacerbate or alleviate symptoms, resulting in challenges with self-management
- A stage of change in a patient's life that reflects their readiness to try new strategies and approaches
- Interest in non-pharmacological approaches to pain management.

### **Is occupational therapy care for pain management covered by insurance?**

Occupational therapy for pain management is a covered service by most insurance companies, including commercial (employee-sponsored and marketplace plans), Workers' Compensation, Medicare, and Medicaid plans. However, there is wide variability in the terms of coverage, such as the number of visits and allowed interventions. Occupational therapy clinics often assist individuals with pain in determining insurance eligibility and coverage and, if necessary, gaining authorization for service. Patients are typically responsible for a deductible, coinsurance, or copayment. Occupational therapy treatment is usually billed using the Current Procedural Terminology (CPT) codes depending on the payer source. Depending on state guidelines and payer policy, occupational therapy can also be delivered successfully through telehealth platforms. Telehealth expands access for individuals with pain who may have a provider shortage in their area and for individuals who may experience barriers to transportation or increased pain with travel.

### **What type of training do occupational therapy practitioners receive?**

Currently, occupational therapy assistants and occupational therapists are considered generalist practitioners upon completing their educational programs, which are a minimum of associate's degrees and master's level programs, respectively. Pain management training and education is incorporated into the entry-level academic occupational therapy programs; therefore, all occupational therapy practitioners are qualified to provide pain management services. While all occupational therapy practitioners are qualified to treat pain, those who have completed advanced-level training in pain management specifically is somewhat limited. Occupational therapy practitioners

recognize this is a challenge and have recommended strategies to increase training in pain management, including the use of internships specializing in pain management, post-professional training courses, interprofessional education, and curriculum changes.<sup>36</sup>

Nancy Baker, ScD, MPH, OTR/L, FAOTA an Associate Professor of Occupational Therapy at Tufts University, suggests the use of post-professional training programs specializing in pain management treatment.<sup>35</sup> For example, the University of Southern California offers a clinical residency that focuses on pain management in their post-professional doctoral training, and it includes direct patient care, engaging in interdisciplinary team care for pain management, and participating in continuing education courses and conferences. Baylor University offers Pain Science as one of three elective tracks in their post-professional occupational therapy doctoral curriculum. Additionally, institutions that have both post-professional occupational therapy doctoral programs and medical centers with multidisciplinary pain teams, like Boston University, provide the opportunity for students to build a residency that integrates additional pain management training.

There are also additional continuing education and advanced practice certificates that occupational therapy practitioners can enroll in for further pain management training, such as the Lifestyle Redesign<sup>®</sup> for Pain Management 6-hour continuing education course, Master's in Pain Management online program for post-professionals at the University of Southern California, or the McGill Online Graduate Certificate in Chronic Pain Management.

### Can patients access occupational therapy in all communities?

Occupational therapy practitioners provide services in a variety of settings including hospitals, outpatient clinics, school systems, and homes. Depending on the state where occupational therapy services are received, referrals may be made by physicians, nurse practitioners, physician assistants, licensed social workers, and psychologists, among others. Patients can also contact their insurance company to request information about occupational therapy practitioners who are covered under their health care plan.

In some communities and systems, patients, providers, and payers have limited access to OT services due to limited awareness by patients and non-occupational therapy health providers about an occupational therapy practitioner's role in treating pain. Even when training and reimbursement for non-pharmacological pain management interventions are available, occupational therapy practitioners may not be present in a uniform, equitable way to meet a community's needs. In a review of barriers to accessing interdisciplinary pain care, research found that there were few or no providers available in some ZIP codes despite insurance coverage of non-pharmacological services. This scarcity led to patients relying on more high-risk options, such as opioid use.<sup>37 41</sup>

What's more, the ZIP codes with the highest need for non-pharmacological providers typically coincide with communities heavily impacted by racial and socioeconomic disparities.<sup>37</sup> In a 2020 survey by the U.S. Pain Foundation of 1,581 people with pain, a key finding is that "most pain patients are not getting access to multidisciplinary and integrative pain care, the care widely viewed as best practice. More than three-quarters of patients seen at pain clinics/centers said the center only offers pain doctors, not multidisciplinary specialists, like psychologists, nutritionists, physical therapists, etc."<sup>38</sup>

Increasing access to telehealth services can help to alleviate these barriers that are due to social determinants. Typically, occupational therapy practitioners are not Centers for Medicare & Medicaid Services (CMS) covered telehealth providers; however, through a COVID-19 emergency waiver (still in effect as of March 2022), occupational therapy practitioners have been temporarily approved as qualified telehealth providers.<sup>39</sup> Through telehealth, specialized occupational therapy practitioners have been able to expand their reach and leverage their expertise in a more equitable and cost-effective way.<sup>40</sup> Individuals living with chronic pain have reported additional benefits to telehealth, as it often addresses barriers related to transportation, geography, insurance, time, energy expenditure, and stress related to navigating appointments with multiple health care providers.<sup>37,41</sup> Multiple studies examining the effectiveness of interventions delivered via telehealth indicate high patient satisfaction and the desire to continue using telehealth beyond the duration of the COVID-19 pandemic.<sup>42,43,44</sup> At a national, state, and local level, occupational therapy practitioners are advocating for permanent telehealth coverage to sustain these identified improvements in access and pain management outcomes.



**Through telehealth, specialized occupational therapy practitioners have been able to expand their reach and leverage their expertise in a more equitable and cost-effective way.<sup>40</sup>**



## What must be done to better integrate occupational therapy services into a comprehensive pain management model?

The lack of practical understanding of how to provide, guide, and integrate the interprofessional part of comprehensive integrative pain management has been one of the most commonly mentioned barriers by all the stakeholders involved in AACIPM. In other words, health care providers are not currently trained to understand exactly when, how, and why they should refer to other professionals, even if they know the evidence recommends other interventions and treatments for pain management. Further, individuals with pain often must create their own pain care plans due to the paucity of comprehensive integrative pain management clinics and the fragmentation of existing care models when it comes to the complexities of pain. This requires people with chronic pain to have a much deeper understanding of all the providers' strengths.



**...individuals with pain often must create their own pain care plans due to the paucity of integrative pain management clinics...**



For example, Maggie, who lives with Ehlers Danlos Syndrome (EDS) and is a Board-Certified Patient Advocate, knows exactly when and why she needs to visit the providers on her team (e.g., physician, occupational therapist, physical therapist, acupuncturist, massage therapist). Unfortunately, this scenario is not the norm. On the importance of the patient needing to understand which treatments and referrals to ask for, Maggie states:

*“There are numerous hoops to jump through when it comes to getting the care that I need, when I need it, and from the right provider. For example, an EDS-related shoulder subluxation with soft tissue damage can present similarly to a broken bone or torn rotator cuff. When this happens to me, I would start with my regular primary care doctor, who sends a referral to the PT and OT teams, and then I’m on my way to restoration of function. If my regular doctor is not available, I have to accept a referral to orthopedics and go through additional exams and scans to confirm that it is, in fact, a normal EDS-related subluxation. This extends my pain and healing time. Unfortunately, it takes time and experience with repeated injuries to figure out the best pathways for care for each person, including learning what will be covered by their individual insurance plan.”*

In order to integrate occupational therapy services as part of a comprehensive pain management program, there must be better understanding and awareness of these services by 1) payers, 2) health care providers, and 3) individuals.

1) With approximately half of insured people covered by employer-sponsored health plans, it is imperative that employers who are purchasers of health care understand the role of OT and other therapies when it comes to selecting benefit designs for acute and chronic pain. Additionally, payer-provider partnerships are extremely important when developing a comprehensive integrative program, such as the partnership between Blue Cross Blue Shield of Vermont and the University of Vermont Medical Center for the Comprehensive Pain Program pilot. This pilot includes a wider range of health care providers, including occupational therapy practitioners, than often found in one clinic and they are integrated, interprofessional, and integrative in their approach.

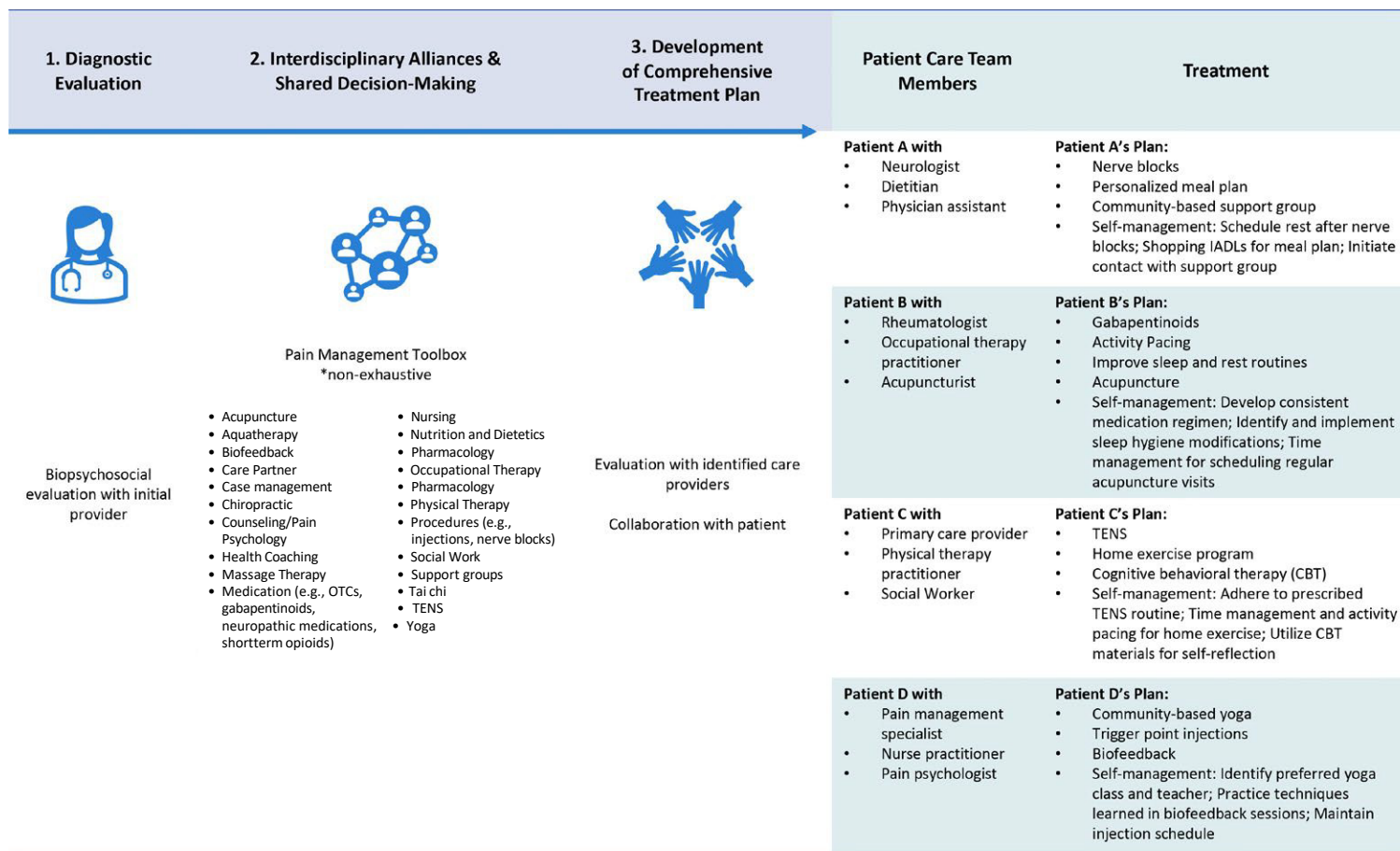
2) Physicians and other healthcare providers may benefit from additional training in how occupational therapy practitioners can treat pain conditions so that they are better able to identify patients who would benefit from this service and to make the recommended referral to an occupational therapy provider. This training could be incorporated into medical school curriculum or provided to practicing physicians in clinical settings in the form of an in-service, presentation, or clinical observations of occupational therapy evaluation and treatment sessions. Pain management treatments are more likely to be integrated when practitioners have a clear overview of timeline, workflow, and team members. Image 1 describes this continuum of care that a patient may experience with a comprehensive pain management team, from initial evaluation with a pain management specialist through development of a holistic treatment plan.

3) Individuals with pain also need to be aware of occupational therapy as a treatment option so they can self-advocate and request a referral for this non-pharmacological treatment option. A few strategies to improve patient awareness are occupational therapy practitioners in primary care settings where they can educate patients about their role, and having occupational therapy practitioners present about their services at community patient conferences.

## Can you provide an example of what an integrative team approach that includes occupational therapy looks like?

Image 1 highlights examples of comprehensive treatment plans that can result from interdisciplinary collaboration, where all disciplines are considered and integrated appropriately. Self-management is included within each patient's treatment plan to highlight the importance of patient engagement and to show how each team member can play a role in facilitating self-management. While some patients enter care teams with strong self-management skills, others may need additional training and intervention to develop this invaluable skillset. As noted in Table 1, occupational therapy practitioners can play a significant role in training patients to increase their confidence in their health management and IADLs, including symptom and condition management, communication with their health care system staff, medication management, and building health-promoting daily routines.<sup>3</sup> Each individual will have different self-management needs, which is why an individualized, evidence-based, multimodal approach is considered the best practice in pain care.

**Image 1: Diagnostic Process and Treatment Examples From an Interdisciplinary Approach to Pain Management**



Adapted from: U.S. Department of Health and Human Services (2019, May). Pain Management Best Practices Inter-Agency Task Force Report: Updates, Gaps, Inconsistencies, and Recommendations. <https://www.hhs.gov/sites/default/files/pmtf-final-report-2019-05-23.pdf><sup>46</sup>

### A Person With Complex Regional Pain Syndrome: A Case Study

Mark is a 53-year-old male high school teacher with a diagnosis of complex regional pain syndrome (CRPS) Type 1 bilaterally in his hands caused by a repetitive strain injury at work. His pain management doctor prescribed neuralgia medications (Gabapentin, Ketamine, and Mirtazapine) and educated him about additional interventional and non-pharmacological treatment options for CRPS including sympathetic nerve blocks, spinal cord or dorsal root ganglion nerve stimulators, occupational therapy, physical therapy, and pain psychology. After reviewing his treatment options and insurance coverage for these recommended treatments, Mark participated in occupational therapy, physical therapy, and pain psychology as part of an interdisciplinary team approach.

Mark took a temporary leave of absence from work when he was diagnosed with CRPS due to his inability to perform his essential job functions. He utilized this time to participate in the interdisciplinary pain management program. At the initial occupational therapy evaluation, Mark reported symptoms of aching and shooting pain, sensitivity to touch, and occasional edema. Mark identified fine motor movements, driving, and stress as pain triggers, and he identified the use of deep pressure as a pain alleviating factor. Mark's primary functional complaint was pain flares that interfered with work-related productivity, most frequently caused by the compounding effect of stress combined with repetitive or sustained fine motor use (e.g., handling papers, handwriting, and typing). He also was unable to participate in avocation and leisure activities, including playing the piano and transcribing a book he wrote into another language. Additionally, his pain negatively impacted his mood and caused interpersonal challenges with his partner, as he would avoid participating in social and community activities with her.

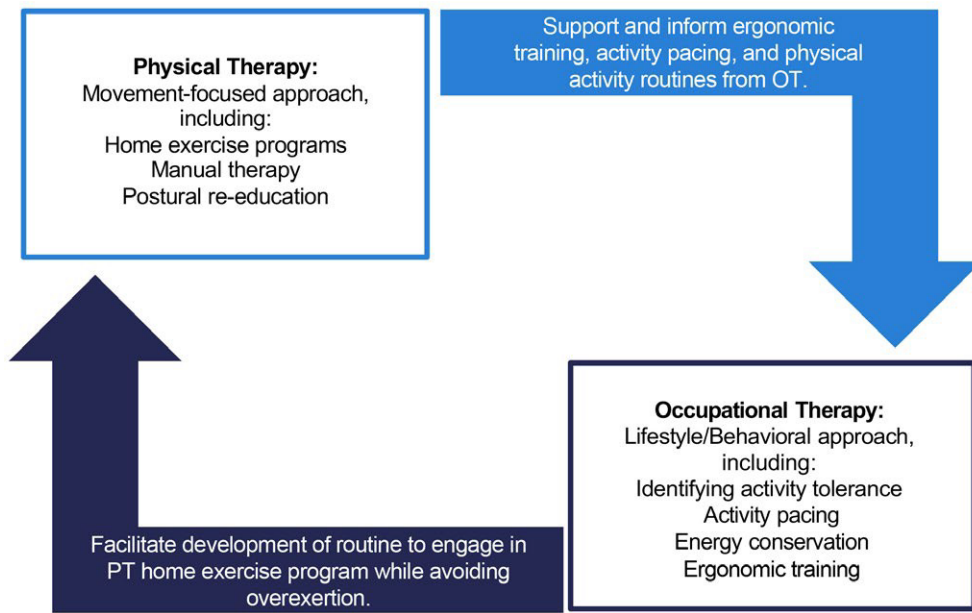
In collaboration with Mark, the following occupational therapy goals were identified: improve tolerance for fine motor activities in order to return to work, establish new health-promoting stress management strategies and routines, gradually resume participation in preferred avocation activities without triggering a CRPS pain flare up, and explore new activities he can tolerate and engage in with his partner.

Mark had a PPO insurance plan that included occupational therapy, physical therapy, and pain psychology coverage, based on medical necessity with a \$30 copayment for each discipline. He was seen for a total of 12 occupational therapy sessions before he met his occupational therapy goals and was discharged. Occupational therapy visits started at a frequency of once every 2 weeks, then gradually decreased in frequency as Mark became more independent with his pain self-management. Mark's treatment and functional outcomes are summarized below:

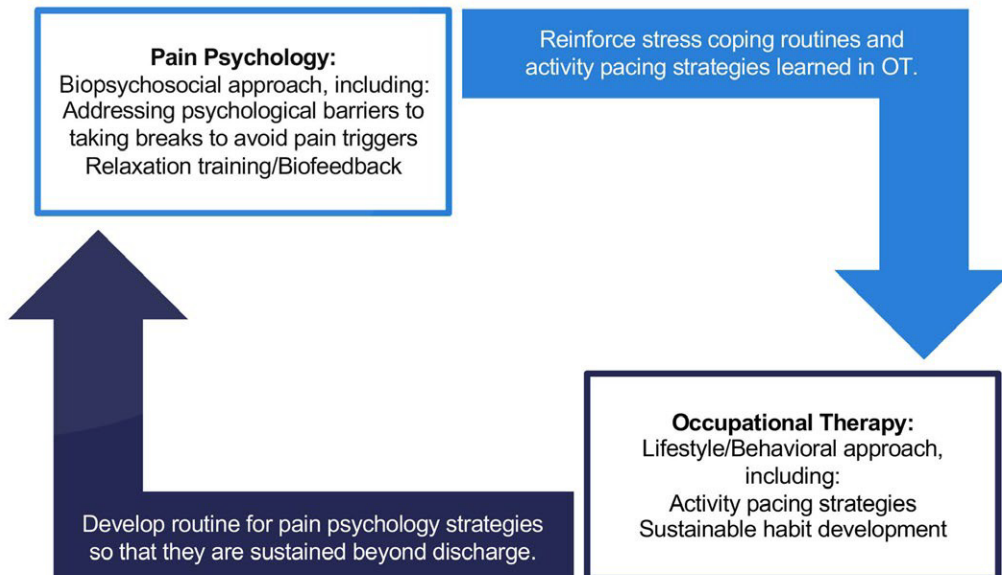
- Patient education regarding pain physiology, trigger identification, and symptom management and tracking.
- Activity pacing and energy conservation strategies to avoid over activity during fine motor tasks, to reduce frequency and intensity of symptom flare ups. This included a graded activity plan to gradually increase tolerance for written grading tasks from 5 minutes to 30 minutes with rest breaks. This approach was also used to gradually increase participation in piano playing from 0x/week to 3x/week.
- Advocacy and self-advocacy strategies to identify workplace accommodations that eventually allowed Mark to return to work. With the use of new ergonomic and adaptive equipment, including talk-to-text software and a foot mouse to reduce fine motor demands, and the incorporation of a teaching assistant to offload fine motor tasks, Mark was able to return to full time work.
- Self-regulation and stress management training, including mindfulness and adaptive thinking strategies, to decrease stress while driving and teaching and to improve management of pain.
- Reintegrating into outdoor exercise routines with his partner by going on weekend hikes, to alleviate stress and to reduce fear avoidance behaviors and risk for social isolation.

Mark's recovery process and outcomes achieved were the direct benefit of an interdisciplinary pain management team, as each discipline positively reinforced the treatment plan and patient goals communicated by the other providers. Images 2 and 3 demonstrate the different treatment modalities used in occupational therapy, physical therapy, and pain psychology and how the integrative team approach is used to support each discipline's goals to enhance and progress treatment outcomes.

**Image 2. Synergistic Interdisciplinary Team Between Physical Therapy and Occupational Therapy to Treat Mark**



**Image 3. Synergistic Interdisciplinary Team Approach Between Pain Psychology and Occupational Therapy to Treat Mark**





Case Study—At a Glance	
<b>Client Factors</b>	<ul style="list-style-type: none"> <li>• 53 y/o male</li> <li>• Diagnosis: Complex regional pain syndrome Type I affecting bilateral hands</li> </ul>
<b>Occupational Therapy Insurance Coverage and Plan of Care</b>	<ul style="list-style-type: none"> <li>• PPO insurance plan</li> <li>• \$30 copay for all disciplines</li> <li>• 12 OT sessions</li> </ul>
<b>Occupational Therapy Treatment Plan</b>	<ul style="list-style-type: none"> <li>• Team members: pain management doctor, physical therapist, occupational therapist, pain psychologist</li> <li>• Gabapentin, Ketamine, and Mirtazapine (per prescribing provider)</li> <li>• Home exercise program</li> <li>• Manual therapy</li> <li>• Relaxation training with biofeedback</li> <li>• Activity pacing and energy conservation</li> <li>• Habit and routine development</li> <li>• Disease education and trigger identification</li> <li>• Reintegration into meaningful activities</li> </ul>
<b>Integrative Pain Management Providers Included in Treatment</b>	<ul style="list-style-type: none"> <li>• Pain management physician</li> <li>• Physical therapy</li> <li>• Pain psychology</li> </ul>
<b>Functional Outcomes</b>	<ul style="list-style-type: none"> <li>• Improved understanding of pain mechanism and pain triggers</li> <li>• Reduced risk for overexertion and subsequent pain flares with improved use of activity pacing</li> <li>• Improved participation in work after advocating for accommodations</li> <li>• Reintegration of outdoor activities that serve as stress coping, avocation, rest, and social participation</li> </ul>

## Conclusion

Pain is complex and requires a person-centered, multimodal, interdisciplinary approach to care. A best practice involves a team of providers working synergistically and with patient shared decision making so that individuals are able to achieve what matters to them. Occupational therapy practitioners have an important role on an individual's pain management team. With their training, occupational therapy practitioners provide unique, individualized interventions focused on nonpharmacological self-management and increasing a patient's functional and meaningful participation in their life.<sup>47</sup> While occupational therapy practitioners offer their distinctive lens on a comprehensive team, they are also effective and engaged collaborators, which improves the patient's quality of care through the compounding benefits of a synergistic treatment plan. Moving forward, action steps must be taken to increase patient, payer, and provider awareness of occupational therapy's role, and to address inequities in the health care system in order to optimize the care that occupational therapy practitioners can provide. Occupational therapy's presence on a comprehensive pain management team is a vital factor in providing exceptional, holistic patient care.

**While occupational therapy practitioners offer their distinctive lens on a comprehensive team, they are also effective and engaged collaborators...**



The Alliance to Advance Comprehensive Integrative Pain Management (AACIPM) is the first-of-its-kind multi-stakeholder collaborative, comprised of people living with pain, public and private insurers, government agencies, patient and caregiver advocates, researchers, purchasers of healthcare, policy experts, and the spectrum of healthcare providers involved in the delivery of comprehensive integrative pain management.

The American Occupational Therapy Association is the national professional association representing the interests of more than 220,000 occupational therapists, occupational therapy assistants, and students of occupational therapy. The science-driven, evidence-based practice of occupational therapy enables people of all ages to live life to its fullest by promoting health and minimizing the functional effects of chronic diseases, illness, injury, and disability. AOTA believes that understanding a person's whole health, including function, environment, and context are crucial.

- <sup>1</sup>National Center for Complementary and Integrative Health. (2021, September 22). Pain. <https://www.nccih.nih.gov/health/pain>
- <sup>2</sup>Department of Health and Human Services. (2019). Department of health and human services pain management best practices inter-agency task force report. <https://www.hhs.gov/sites/default/files/pmtf-final-report-2019-05-23.pdf>
- <sup>3</sup>American Occupational Therapy Association. (2020). Occupational therapy practice framework: Domain and process (4th ed.). *American Journal of Occupational Therapy*, 74(Suppl. 2), 1-87. <https://doi.org/10.5014/ajot.2020.74S2001>
- <sup>4</sup>American Occupational Therapy Association. (n.d.). *About occupational therapy: What is occupational therapy?* <https://www.aota.org/About-Occupational-Therapy.aspx>
- <sup>5</sup>Rogers, A. T., Bai, G., Lavin, R. A., & Anderson, G. F. (2016, September 2). Higher hospital spending on occupational therapy is associated with lower readmission rates. *Medical Care Research and Review*, 1–19. <https://doi.org/10.1177/1077558716666981>
- <sup>6</sup>Oslund, S., Robinson, R. C., Clark, T. C., Garofalo, J. P., Behnk, P. Walker, B., ... & Noe, C. E. (2009, July). Long-term effectiveness of a comprehensive pain management program: strengthening the case for interdisciplinary care. *Baylor University Medical Center Proceedings*, 22(3), 211–214.
- <sup>7</sup>Breeden, K. L. (2011). Opioid guidelines and their implications for occupational therapy. *Medicine*, 1.
- <sup>8</sup>Farmer, P. K., Snodgrass, S. J., Buxton, A. J., & Rivett, D. A. (2015). An investigation of cervical spinal posture in cervicogenic headache. *Physical therapy*, 95(2), 212–222.
- <sup>9</sup>Mongini, F., Ciccone, G., Rota, E., Ferrero, L., Ugolini, A., Evangelista, A., ... & Galassi, C. (2008). Effectiveness of an educational and physical programme in reducing headache, neck and shoulder pain: A workplace controlled trial. *Cephalalgia*, 28(5), 541–552.
- <sup>10</sup>Watson, D. H., & Drummond, P. D. (2012). Head pain referral during examination of the neck in migraine and tension-type headache. *Headache: The Journal of Head and Face Pain*, 52(8), 1226–1235.
- <sup>11</sup>American Occupational Therapy Association. (2015). Take a stand to prevent falls: Falls prevention presentation developed by AOTA and AGPT, a component of APTA. <https://www.aota.org/-/media/corporate/files/practice/aging/falls/prevent-falls-aota-apta.pptx>
- <sup>12</sup>Mathiowetz, V. G., Matuska, K. M., Finlayson, M. L., Luo, P., & Chen, H. Y. (2007). One-year follow-up to a randomized controlled trial of an energy conservation course for persons with multiple sclerosis. *International Journal of Rehabilitation Research*, 30(4), 305–313.
- <sup>13</sup>McLean, A., Coutts, K., & Becker, W. J. (2012). Pacing as a treatment modality in migraine and tension-type headache. *Disability and Rehabilitation*, 34(7), 611–618.
- <sup>14</sup>Nielson, W. R., Jensen, M. P., Karsdorp, P. A., & Vlaeyen, J. W. (2013). Activity pacing in chronic pain: concepts, evidence, and future directions. *Clinical Journal of Pain*, 29(5), 461–468.
- <sup>15</sup>Sauter, C., Zebenholzer, K., Hisakawa, J., Zeithofer, J., & Vass, K. (2008). A longitudinal study on effects of a six-week course for energy conservation for multiple sclerosis patients. *Multiple Sclerosis Journal*, 14(4), 500–505.
- <sup>16</sup>Stensland, M., & Sanders, S. (2018). Living a life full of pain: Older pain clinic patients' experience of living with chronic low back pain. *Qualitative Health Research*, 28(9), 1434–1448.
- <sup>17</sup>Barlow, J., Wright, C., Sheasby, J., Turner, A., & Hainsworth, J. (2002). Self-management approaches for people with chronic conditions: a review. *Patient Education and Counseling*, 48(2), 177–187.
- <sup>18</sup>Buse, D. C., & Andrasik, F. (2009). Behavioral medicine for migraine. *Neurologic Clinics*, 27(2), 445–465.
- <sup>19</sup>Alberti, R. E., & Emmons, M. L. (2008). *Your perfect right: Assertiveness and equality in your life and relationships* (9th ed.). Impact Publishing.

- <sup>20</sup>Buse, D. C., Rupnow, M. F., & Lipton, R. B. (2009, May). Assessing and managing all aspects of migraine: Migraine attacks, migraine-related functional impairment, common comorbidities, and quality of life. *Mayo Clinic Proceedings*, *84*(5), 422–435).
- <sup>21</sup>Caudill, M. A. (2008). *Managing pain before it manages you* (3rd ed.). Guilford Press
- <sup>22</sup>Lauwerier, E., Paemeleire, K., Van Damme, S., Goubert, L., & Crombez, G. (2011). Medication use in patients with migraine and medication-overuse headache: The role of problem-solving and attitudes about pain medication. *Pain*, *152*(6), 1334–1339.
- <sup>23</sup>Ehde, D. M., Dillworth, T. M., & Turner, J. A. (2014). Cognitive-behavioral therapy for individuals with chronic pain: Efficacy, innovations, and directions for research. *The American Psychologist*, *69*(2), 153–166. <https://doi.org/10.1037/a0035747>.
- <sup>24</sup>Greenson, J. & Eisenlohr-Moul, T. (2014). Mindfulness-based stress reduction for chronic pain. In R. A. Baer (Ed.), *Mindfulness-based treatment approaches* (2nd ed.; pp. 269–292). Elsevier, Inc. <http://dx.doi.org/10.1016/B978-0-12-416031-6.00012-8>.
- <sup>25</sup>Buchholz, D. (2002). *Heal your headache: The 1-2-3 program for taking charge of your pain*. Workman Publishing.
- <sup>26</sup>Okifuji, A., Donaldson, G. W., Barck, L., & Fine, P. G. (2010). Relationship between fibromyalgia and obesity in pain, function, mood, and sleep. *The Journal of Pain*, *11*, 1329–1337.
- <sup>27</sup>Brosseau, L., Wells, G. A., Pugh, A. G., Smith, C. A., Rahman, P., Álvarez Gallardo, I. C., ... Taki, J. (2016). Ottawa panel evidence-based clinical practice guidelines for therapeutic exercise in the management of hip osteoarthritis. *Clinical Rehabilitation*, *30*, 935–946.
- <sup>28</sup>Hester, J., & Tang, N. K. (2008). Insomnia co-occurring with chronic pain: Clinical features, interaction, assessments and possible interventions. *Reviews in Pain*, *2*(1), 2–7.
- <sup>29</sup>Straube, S., & Heesen, M. (2015). Pain and sleep. *PAIN*, *156*, 1371–1372.
- <sup>30</sup>Americans with Disabilities Act of 1990 EEOC Enforcement Guidance on Reasonable Accommodation and Undue Hardship Under the Americans with Disabilities Act <http://www.eeoc.gov/policy/docs/accommodation.html#requesting>.
- <sup>31</sup>U.S. Bureau of Labor Statistics. (2016). 2015 nonfatal occupational injuries and illnesses: Cases with days away from work: Case and demographics. <https://stats.bls.gov/iif/oshwc/osh/case/osch0058.pdf>
- <sup>32</sup>Kinnersley, P., Edwards, A., Hood, K., Cadbury, N., Ryan, R., Prout, H., ... Butler, C. (2007). Interventions before consultations for helping patients address their information needs. *The Cochrane Database of Systematic Reviews*, *3*, CD004565.
- <sup>33</sup>Linton, S. J., Boersma, K., Traczyk, M., Shaw, W., & Nicholas, M. (2016). Early workplace communication and problem solving to prevent back disability: Results of a randomized controlled trial among high-risk workers and their supervisors. *Journal of Occupational Rehabilitation*, *26*(2), 150–159.
- <sup>34</sup>Mosen, D. M., Schmittiel, J., Hibbard, J., Sobel, D., Remmers, C., & Bellows, J. (2007). Is patient activation associated with outcomes of care for adults with chronic conditions? *Journal of Ambulatory Care Management*, *30*(1), 21–29.
- <sup>35</sup>Engel-Yeger, B., & Dunn, W. (2011). Relationship between pain catastrophizing level and sensory processing patterns in typical adults. *American Journal of Occupational Therapy*, *65*, e1–e10. <https://doi.org/10.5014/ajot.2011.90004>
- <sup>36</sup>National Academies of Science, Engineering, and Medicine. (2019). *The role of nonpharmacological approaches to Pain Management: Proceedings of a workshop*. Washington, DC: The National Academies Press.
- <sup>37</sup>Elton, D. (2020). Data about access to pain therapies based on zip code [PowerPoint Slides]. AACIPM Symposium: Equity in Access to Pain Management for People with Chronic Pain. <https://painmanagementalliance.org/wp-content/uploads/2020/09/Equity-in-Access-Symposium-Data-about-Access-to-Pain-Therapies-Based-on-Zip-Code-9-24-20.pdf>
- <sup>38</sup>U.S. Pain Foundation. (2021). *Understanding barriers to multidisciplinary pain care*. <https://uspainfoundation.org/surveyreports/accesstocare/>.

- <sup>39</sup>Centers for Medicare & Medicaid Services. (2021, January 7). *COVID-19 frequently asked questions (FAQs) on Medicare fee-for-service (FFS) billing*. P. 65. <https://edit.cms.gov/files/document/medicare-telehealth-frequently-asked-questions-faqs-31720.pdf>
- <sup>40</sup>Pronovost, A., Peng, P., & Kern, R. (2009). Telemedicine in the management of chronic pain: A cost analysis study. *Canadian Journal of Anesthesia/Journal Canadien d'Anesthésie*, *56*(8), 590–596.
- <sup>41</sup>Gellatly, J., Pelikan, G., Wilson, P., Woodward-Nutt, K., Spence, M., Jones, A., & Lovell, K. (2018). A qualitative study of professional stakeholders' perceptions about the implementation of a stepped care pain platform for people experiencing chronic widespread pain. *BMC Family Practice*, *19*(1), 1–11.
- <sup>42</sup>Grogan-Johnson, S., Alvares, R., Rowan, L., & Creaghead, N. (2010). A pilot study comparing the effectiveness of speech language therapy provided by telemedicine with conventional on-site therapy. *Journal of Telemedicine and Telecare*, *16*(3), 134–139.
- <sup>43</sup>Levy, C. E., Geiss, M., & David Omura DPT, M. H. A. (2015). Effects of physical therapy delivery via home video telerehabilitation on functional and health-related quality of life outcomes. *Journal of Rehabilitation Research and Development*, *52*(3), 361.
- <sup>44</sup>Sangelaji, B., Smith, C., Paul, L., Treharne, G., & Hale, L. (2017). Promoting physical activity engagement for people with multiple sclerosis living in rural settings: A proof-of-concept case study. *European Journal of Physiotherapy*, *19*(suppl. 1), 17–21.
- <sup>45</sup>Harkey, L. C., Jung, S. M., Newton, E. R., & Patterson, A. (2020). Patient satisfaction with telehealth in rural settings: A systematic review. *International Journal of Telerehabilitation*, *12*(2), 53–64.
- <sup>46</sup>U.S. Department of Health and Human Services. (2019, May). Pain management best practices inter-agency task force report: Updates, gaps, inconsistencies, and recommendations. <https://www.hhs.gov/ash/advisory-committees/pain/reports/index.html>
- <sup>47</sup>American Occupational Therapy Association. (2021). Position Statement-Role of occupational therapy in pain management. *American Journal of Occupational Therapy*. <https://www.hhs.gov/ash/advisory-committees/pain/reports/index.html>

# **AOTA position paper "Occupational Therapy's Role with Chronic Conditions"**

# Occupational Therapy's Role With Chronic Conditions

## Introduction

It is the position of the American Occupational Therapy Association (AOTA) that occupational therapy practitioners are distinctly qualified to address the impact of chronic conditions on occupational performance and participation across the lifespan. The purpose of this paper is twofold: first, it will define chronic conditions and describe the multiple factors associated with the development of one or more chronic conditions. Second, it will provide an overview of how occupational therapy has a distinct impact on improving the health and wellness of persons, groups, and populations with or at risk for chronic conditions through health promotion, disease prevention, and intervention.

## Definition and Prevalence

Chronic conditions are physical diseases, mental health disorders, or neurodevelopmental conditions, typically lasting 1 year or more, that require continuous medical monitoring and/or significantly impact one or more ADLs (Centers for Disease Control and Prevention [CDC], 2019a). Common chronic conditions include but are not limited to heart disease, cancer, diabetes, obesity, anxiety, bipolar disorder, depression, Alzheimer's disease, cerebrovascular accident (CVA), chronic obstructive pulmonary disease (COPD), autoimmune disorders, and chronic pain. Chronic conditions have a complex etiology, including non-modifiable risk factors (e.g., genetic, environmental), potentially modifiable risk factors (e.g., excessive alcohol use, smoking, exposure to secondhand smoke, poor nutrition, lack of physical activity), as well as social determinants of health (SDOH) (e.g., food insecurity, unemployment, neighborhood

safety) (CDC, 2019a). Potentially modifiable risk factors play a significant role in the development of complications, disease progression, and limitations in occupational performance and engagement.

According to the CDC, 6 in 10 adults living in the United States have a chronic condition, and 4 in 10 have two or more chronic conditions (CDC, 2019b). The most prevalent chronic conditions in the United States include hypertension (27% of U.S. adults), lipid disorders (22%), mood disorders (12%), diabetes (10%), and anxiety disorders (10%) (Buttorff et al., 2017). Adults age 65 and older have elevated rates of chronic conditions; 8 in 10 have at least one chronic condition (National Council on Aging, n.d.), and nearly 7 in 10 have two or more chronic conditions (Centers for Medicare & Medicaid Services, 2015). Children and youth are no less impervious to chronic conditions; 1 in 4 have a chronic condition and 1 in 20 have multiple chronic conditions (CDC, 2019c; Van Cleave et al., 2010). Some of the most common chronic conditions affecting children and youth include asthma, obesity, cerebral palsy, Type 1 diabetes, epilepsy, and neurodevelopmental conditions such as attention deficit hyperactivity disorder (Jin et al., 2017; Miller et al., 2016).

While chronic mental health conditions such as mood disorders can and do occur in the absence of a physical illness, people who have been diagnosed with a chronic physical condition are at greater risk for developing a chronic mental health condition such as major depressive disorder, anxiety disorder (Pinquart & Shen, 2011), or substance use disorder (Bahorik et al., 2017; National Institute of Mental Health [NIMH], 2019; Wu et al., 2018). Conversely, persons living with chronic mental health conditions are far more likely to develop a chronic physical condition such as cardiovascular disease or diabetes (NIMH, 2019). The high comorbidity of physical and mental health chronic conditions can be related to medication side effects (e.g.,



weight gain leading to metabolic syndrome) and is often directly related to SDOH. According to the CDC (2021), “conditions in the places where people live, learn, work, and play affect a wide range of health risks and outcomes... are known as social determinants of health.” Social determinants of health play a major role in the health or ill health of persons, groups, and populations across the lifespan (Cockerham et al., 2017). Social determinants of health such as adverse childhood events (Chanlongbutra et al., 2018; Sonu et al., 2019); disparities in access to adequate nutrition (Brown et al., 2008), safe and stable housing (Chhabra et al., 2020), work opportunities (Robert Wood Johnson Foundation, 2008), education (Hahn et al., 2015), and health care (Reed et al., 2019); as well as discrimination and racism have all been linked to chronic health conditions (Abramson et al., 2015).

### **Significance and Impact**

Chronic conditions are the leading causes of disability and mortality in the US (CDC, 2019b). Functional limitations are common in persons with chronic conditions, and escalate dramatically with multiple chronic conditions. Among persons with *1–2 chronic conditions*, 9% have physical limitations such as difficulty walking, climbing stairs, or grasping objects; 6% have limitations in performing work or school activities; 2% have limitations in IADLs such as shopping or preparing meals; and 1% have limitations in ADLs such as bathing or dressing (Buttorff et al., 2017). In contrast, among those with *five or more chronic conditions*, 51% have physical limitations, 42% have limitations in performing work or school activities; 18% have IADL limitations, and 11% have ADL limitations (Buttorff et al., 2017). Persons with chronic conditions often face higher mortality rates than their counterparts; on average, each chronic physical condition reduces one’s lifespan by 1.8 years (DuGoff et al., 2014). Similarly, persons with severe chronic mental health conditions have their life expectancy reduced by 10 to 25

years, with most of these deaths attributable to comorbid chronic physical conditions (World Health Organization [WHO], n.d.). These complex comorbidities are largely attributable to SDOH and the subsequent disparities in access to preventive care and other resources to support engagement in health-supporting behaviors among persons with chronic mental health conditions (Price et al., 2016).

The implications of a chronic condition are not limited to persons, and may also impact families, groups, and populations. Family members and friends often serve as unpaid care partners to persons with chronic conditions. Approximately 53.0 million U.S. adults provide care to an adult or child each year (AARP and the National Alliance for Caregiving [NAC], 2020), the majority of whom have chronic (versus short-term) conditions. These care partners spend an average of 24 hours per week in this role. Forty percent report a high burden of care and 21% report that their own health is fair to poor, compared with only 10% of those in the general population who do not identify as care partners. Implications for these individuals include physical, emotional, and financial stress as well as potential changes to work routines to accommodate the demands of providing care (AARP & NAC, 2020).

Lastly, the financial cost of chronic conditions is significant. According to the CDC, 90% of annual health care expenditures, or \$3.3 trillion per year, related to health care is spent on medical care for persons with chronic physical and mental health conditions (CDC, 2019d). Another \$226 billion per year is lost due to missed days of work as a result of managing a chronic condition (CDC, 2019e).

### **Impact of Chronic Conditions on Occupation**

Living with one or more chronic conditions has a significant impact on activity patterns and occupational performance (Collins et al., 2005; Crespo et al. 2013; Lai et al., 2020). Chronic condition self-management requires engagement in a wide range of health management occupations to maintain health, manage symptoms, and delay or prevent complications. Health management occupations may include symptom and condition management, communication with the health care system, medication management, exercise, and nutrition management (American Occupational Therapy Association [AOTA], 2020). These activities can be extremely time consuming, with one study estimating that persons with chronic conditions and their care partners spend approximately 2 hours a day on such activities (Jowsey et al., 2012). In addition to making time in daily routines to perform health management occupations, the symptoms and sequelae of chronic conditions often impact the performance of other occupations (Pyatak 2011). For example, persons with diabetes may have their workday disrupted to treat an emergent episode of hypoglycemia; persons experiencing the symptoms of depression may have difficulty sleeping or initiating their morning self-care routine; and persons with arthritis may have pain or weakness that limits their ability to perform activities related to home management.

### **Scope of Occupational Therapy Practice in Chronic Conditions**

Utilizing an occupation-based approach within the three-tiered public health model can provide the necessary framework for occupational therapy practitioners to successfully impact the genesis and trajectory of chronic conditions. The three-tiered model includes universal services or health promotion (Tier 1), targeted services or disease prevention (Tier 2), and intensive services or intervention (Tier 3) and has been commonly used in approaching health and wellness (WHO, 2001; Miles et al., 2010; O'Connell et al., 2009). Tier 1 or universal services provided by occupational therapy practitioners includes the promotion of health and

wellness through education and opportunities to engage in health-promoting occupations for everyone, regardless of health status. Examples of tier 1 services include workplace wellness initiatives providing education on stress management and healthy body mechanics, school-based programs addressing positive mental health through community building and peer mentoring activities, and consulting on universal design for public spaces to promote accessibility for all. Tier 2 or targeted services focus on those who are at risk for a chronic condition, such as persons who have exposure to adverse childhood experiences or who have potentially modifiable risk factors (CDC, 2019a; Chanlongbutra et al., 2018; Sonu et al., 2019), as well as those who have developed a chronic condition and are at risk for developing further complications. Targeted services include early identification of risk factors, education, provision of environmental supports or modifications, facilitating performance of health management occupations, and supporting participation in occupations to enhance health and wellness (Garvey et al, 2015, Kyler, Fang, & Smallfield, 2020). Tier 3 or intensive services are interventions to enable participation for persons experiencing functional limitations secondary to a chronic condition, such as a person with diabetic peripheral neuropathy who is seeing an occupational therapy practitioner for interventions to address impaired lower body dressing and functional mobility.

### **Occupational Therapy Process**

The changes to occupational performance and engagement attributable to a chronic condition can be significant over time, leading to occupational injustices, most notably occupational imbalance and occupational deprivation. The time and energy required to manage a chronic condition, coupled with often challenging symptoms, can disrupt activity patterns and occupational engagement. This disruption, in turn, can potentially exacerbate the condition, creating a negative cycle. This scenario exemplifies the unique impact of chronic, versus acute,

conditions that is important to consider in the occupational therapy process. Furthermore, it highlights the need to intervene holistically, considering interconnections between mind, body, and spirit that are inextricably linked. The occupational therapy practitioner's role is in understanding the unique needs of the person, group, or population in context, as it relates to the occupational impact of the chronic condition.

The typical occupational therapy process encompasses evaluation, intervention, and assessment of outcomes. The occupational therapy evaluation should include consultation and screening, an occupational profile, analysis of occupational performance, and a synthesis of all information gathered (AOTA, 2020). Particular evaluation considerations for chronic conditions can include assessing the temporal dimensions of the condition (e.g., waxing and waning of symptoms); fatigue; and impact on current and desired life roles and activity patterns. Occupational therapy intervention encompasses occupations and activities, interventions to support occupations, education and training, advocacy, virtual interventions, and group interventions (AOTA, 2020). Special considerations for clients with chronic conditions may include care partner education and training (e.g., regarding self-care and compassion fatigue); integrating condition-specific health management activities into daily routines; self-advocacy in expressing health needs and ensuring they are met; and identifying resources for ongoing support. Outcomes are often related to occupational performance, role competence, well-being, and quality of life, and may vary according to person- and context-specific needs and desires. A unique consideration for outcomes among chronic conditions include acknowledging the client's agency in identifying desired outcomes, given the potential for the erosion of self-efficacy due to frequent interfacing with health care systems that can be perceived as disempowering. **Table 1** provides examples of intervention strategies for three exemplar chronic conditions (obesity,

arthritis, and depression), as delivered at Tier 1, Tier 2, and Tier 3 levels of intervention. The occupational therapy intervention process is presented in further detail for persons diagnosed with chronic conditions in **Table 2**. The examples in both Table 1 and Table 2 illustrate the wide range of occupational therapy intervention strategies with potential relevance to persons, groups, and populations with or at risk of developing chronic conditions.

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**Table 1. Examples of Person-, Group-, and Population-Level Intervention Strategies to Address the 3-Tier Model for Chronic Conditions**

<p><b>Chronic Condition</b></p>	<p><b>Tier 1: Occupation-Based Health Promotion Strategies for ALL Groups/Populations That Are Currently Not at Risk for the Condition</b></p>	<p><b>Tier 2: Occupation-Based Disease Prevention Strategies for Groups/Persons Who Are at Risk for Development of the Condition</b></p>	<p><b>Tier 3: Occupation-Based Intervention Strategies for Persons Who Have Already Developed the Condition</b></p>
<p>Obesity</p>	<ul style="list-style-type: none"> <li>● Population level: Create a community-based healthy eating and exercise program for all children and youth attending a local elementary school to foster healthy habits and routines to support school performance</li> <li>● Population level: Create a community-based garden for all ages to tend, including graded activities to facilitate different levels of participation</li> <li>● Population level: Promote universal design on school playground for equal access for children with a full</li> </ul>	<ul style="list-style-type: none"> <li>● Population level: Create movement-based after school program for those at risk of obesity due to living in a food desert</li> <li>● Group level: Create an exercise club at a community mental health program to enhance social participation and mitigate common side effects of psychotropic medication that include weight gain</li> <li>● Person level: Develop weekly routines that incorporate regular exercise and healthy meal planning to promote agency in</li> </ul>	<ul style="list-style-type: none"> <li>● Person level: Create personalized physical activity programs adapted for an individual with neuropathic pain to support independent health</li> <li>● Person level: Create personalized meal plans to promote healthy mealtime routines while incorporating familial and cultural preferences</li> <li>● Person level: Identify and implement cognitive strategies to develop motivation to engage in health promoting behaviors</li> </ul>

	range of sensory, motor, cognitive, and psychosocial abilities	their recovery process	
Arthritis	<ul style="list-style-type: none"> <li>● Population level: Promote back health by hosting regular backpack awareness events for school-age youth</li> <li>● Group level: Incorporate elementary school training of students and faculty regarding the use of proper body mechanics to support musculoskeletal integrity over time.</li> </ul>	<ul style="list-style-type: none"> <li>● Person level: Encourage use of ergonomic household wares for older adults</li> <li>● Group level: Implement tailored activity programs that incorporate both strengthening and flexibility into older adult programs</li> </ul>	<ul style="list-style-type: none"> <li>● Person level: Incorporate use of Velcro on clothing and shoes as needed to minimize pain</li> <li>● Person level: Incorporate use of large-handled utensils to minimize joint pressure</li> <li>● Person or Group level: Provide adaptive exercises as tolerated to promote strength and flexibility</li> </ul>
Major Depressive Disorder	<ul style="list-style-type: none"> <li>● Promote positive mental health among youth of school age by utilizing programs and initiatives from Every Moment Counts (<a href="https://everymomentcounts.org/">https://everymomentcounts.org/</a>)</li> <li>● Develop national parenting programs that promote infant and toddler mental health through</li> </ul>	<ul style="list-style-type: none"> <li>● Group level: Screen for Adverse Childhood Experiences (ACES) among at-risk youth identified in a school setting and implement peer group support program to foster secure attachments</li> <li>● Group level: Develop occupation-based programming that</li> </ul>	<ul style="list-style-type: none"> <li>● Person or Group level: Develop and implement sensory strategies to develop mindfulness and enhanced awareness of internal (interoceptive) states</li> <li>● Person level: Engage client in occupations rooted in interests to enhance health-promoting activity patterns</li> </ul>



	engagement in co-occupations	includes mentorship to university students experiencing high levels of stress and isolation from natural support systems	
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**Table 2. Case Examples of Occupational Therapy Intervention for Chronic Conditions**

<p>Client and Background—Alex (he/him), age 59, is a male who was referred to occupational therapy for evaluation and treatment on the inpatient psychiatric unit where he was admitted the day before. Alex was diagnosed with schizoaffective disorder at the age of 18. He was admitted voluntarily following a physical altercation with his roommate at the group home where he resides, after which he indicated to staff that he felt very out of control and in need of a “secure place to get my head together.” He is the only child of parents who divorced when he was an infant. He was raised by his mother and various stepfathers who physically abused Alex until his early teens. He has had multiple inpatient hospitalizations since the age of 19 and spent a total of 8 years in state psychiatric hospitals.</p>	
<p>Occupational Profile—Alex currently resides in a group home and attends a day program 3 days/week. Alex has smoked 2 packs of cigarettes/day since the age of 14. He did not graduate from high school and has little to no employment history outside of program-related volunteer work mostly related to maintenance and gardening tasks. He enjoys sitting outside of his group home or day program and talking to passersby. Although he has recently been diagnosed with COPD he never misses an outing to the bowling alley, even when the physical exertion is a struggle. He would like to be more independent but worries if he could “make it on my own.”</p>	
<p>Evaluation</p>	<p><b>Adverse Child Experiences (ACES) (Felitti et al., 1998)</b> screening administered and yielded a score of 5/10 (divorce, family member with mental illness, physical abuse, substance use, and incarceration of family member) indicated increased risk for chronic medical conditions</p> <p><b>Canadian Occupational Performance Measure (COPM) (Law et al., 2019)</b>—Alex willingly participated in the evaluation process and stated that he felt “hopeful” and “happy” to receive the help. Alex identified the following as occupational challenges that he would like to address with the occupational therapy practitioner:</p> <ul style="list-style-type: none"> <li>● Quitting smoking—feels “out of breath” during all activities/occupations that require physical exertion             <ul style="list-style-type: none"> <li>○ Importance 10/10</li> <li>○ Performance 1/10</li> <li>○ Satisfaction 1/10</li> </ul> </li> <li>● Emotional regulation— “pops off” at others when his feelings and point of view are not validated             <ul style="list-style-type: none"> <li>○ Importance 8/10</li> </ul> </li> </ul>

- Performance 5/10
- Satisfaction 4/10
- Making friends— Alex has difficulty making meaningful connections with others and sometimes misinterprets their social cues.
  - Importance 10/10
  - Performance 5/10
  - Satisfaction 5/10

**Adolescent/Adult Sensory Profile (Brown & Dunn, 2002)**—Quadrant scores are as follows: Low registration 25/75 (*less than most people*), Sensation seeking 63/75 (*more than most people*), Sensory sensitivity 46/75 (*more than most people*), and Sensation avoiding 49/75 (*much more than most people*). Alex was seeking most notably in the area of movement, and in the areas of touch and auditory he was highly avoidant.

Alex’s high ACE score indicates that complex trauma has played a significant role in his development, particularly in regard to strategies to manage his chronic stress (smoking, use of movement, and avoidance of touch and auditory input). Alex seems highly motivated to engage in self-development although does state that he is “nervous” about his ability to quit smoking. Both person and group occupational therapy intervention are recommended to develop social support and emotional regulation strategies, and improve health behaviors related to smoking and physical conditioning.

**Intervention**

A trauma-sensitive and recovery-oriented approach was used with Alex to promote justice, voice, and choice for Alex. Alex engaged in 1:1 daily sessions with the OT practitioner to develop mindfulness strategies including body-based work such as deep breathing, body scans, and simple chair yoga techniques to decrease stress response and enable emotional regulation. Alex agreed to participate in a smoking cessation group based upon harm reduction. To support his efforts, he and the OT practitioner developed a sensory tool box for him to enhance interoception and utilize when emotionally escalating. Energy conservation techniques were identified and mastered by Alex to accommodate the decreased respiratory function secondary to smoking. Alex is hopeful that he will not need these techniques if he is successful with smoking cessation. Through the smoking cessation group, Alex developed several relationships and exchanged information with members to enhance his community support system. Lastly, Alex engaged in exercise routines within tolerable limits 5 days per

	<p>week on the unit and wants to continue to include these exercises in his daily routine upon discharge. Outpatient OT and social work were recommended to f/u with Alex’s desire to be more independent in his living situation.</p>
<p>Outcomes</p>	<p>The COPM was readministered, with positive change scores in all identified areas of importance noted as follows: 1) quitting smoking +5 performance, +6 satisfaction; 2) emotional regulation +2 performance, +3 satisfaction; 3) making friends +2 performance, +2 satisfaction. Alex identified a variety of desired outcomes as a result of participating in the occupational therapy evaluation process. Health and wellness, which he has struggled with for many years and which resulted in a chronic condition (COPD) was addressed through a smoking cessation group and a regular exercise routine, as was preventing further complications secondary to the COPD. By the end of his 3-week hospitalization, Alex had cut his cigarette consumption by half and had not missed a day of exercising while on the unit. A desire to make friends resulted in improved social participation and role competence as a friend. Finally, quality of life was greatly improved as Alex physically felt better due to the exercise program and decrease in cigarette smoking. He also reported fewer positive symptoms associated with his diagnosis of schizoaffective disorder.</p>
<p>Research evidence and related resources guiding practice</p>	<p>American Occupational Therapy Association. (2018). Adults with serious mental illness critically appraised topic.  <a href="https://www.aota.org/~media/Corporate/Files/Secure/Practice/CCL/Mental%20Health/MH_MiniCAT_Exercise.pdf">https://www.aota.org/~media/Corporate/Files/Secure/Practice/CCL/Mental%20Health/MH_MiniCAT_Exercise.pdf</a></p> <p>D’Amico, M. L., Jaffe, L. E., &amp; Gardner, J. A. (2018). Evidence for interventions to improve and maintain occupational performance and participation for people with serious mental illness: A systematic review. <i>American Journal of Occupational Therapy</i>, 72, 7205190020.  <a href="https://doi.org/10.5014/ajot.2018.033332">https://doi.org/10.5014/ajot.2018.033332</a></p> <p>Griffin Lannigan, E., &amp; Noyes, S. (2019). Occupational therapy interventions for adults living with serious mental illness. <i>American Journal of Occupational Therapy</i>, 73, 1–5. <a href="https://doi.org.une.idm.oclc.org/10.5014/ajot.2019.735001">https://doi.org.une.idm.oclc.org/10.5014/ajot.2019.735001</a></p>

Kaldenberg, J., Newman, R., & Emmert, C. (2020). Self-management interventions for social and leisure participation among community-dwelling adults with chronic conditions: Systematic review of related literature from 1995–2018 [Critically Appraised Topic]. American Occupational Therapy Association.

Kalmakis, K. A., & Chandler, G. E. (2015). Health consequences of adverse childhood experiences: A systematic review. *Journal of the American Association of Nurse Practitioners*, 27(8), 457–465. <https://doi-org.une.idm.oclc.org/10.1002/2327-6924.12215>

Pfeiffer, B., Brusilovskiy, E., Bauer, J., & Salzer, M. S. (2014). Sensory processing, participation, and recovery in adults with serious mental illnesses. *Psychiatric Rehabilitation Journal*, 37(4), 289–296. <https://doi-org.une.idm.oclc.org/10.1037/prj0000099>

Client and Background— Alejandra (Ale) (she/her) is a 16-year-old female with obesity who was recently diagnosed with Type 2 diabetes. Ale has a strong family history of diabetes: both of her parents, an uncle, and two of her grandparents also have diabetes. Ale’s medical history is otherwise unremarkable. With respect to diabetes, Ale’s parents expressed support for learning more about how to help her manage diabetes, and stated that they had little education or support themselves when they were first diagnosed. Ale and her family were referred by their primary care provider to a community-based, family-centered program facilitated by an occupational therapy assistant (OTA), with co-leadership and supervision from an interdisciplinary team including an occupational therapist, dietician, social worker, and certified diabetes care and education specialist. The OTA facilitates the group each week, while the other team members rotate through the group sessions to provide information and support related to their areas of expertise. The full team also meets weekly to review cases and provide supervision. The group meets weekly for 16 weeks, and provides diabetes self-management education and support focused on educating families about diabetes and supporting them to make healthy lifestyle changes that are sustainable, client-centered, and adapted to their individualized goals. Ale, her mother, and her two younger brothers are attending the program.

Occupational Profile—Ale is currently a junior in high school, and works part-time after school helping her parents run their small family restaurant. Ale does well in school, and her favorite subjects are History and Art. She hopes to earn a scholarship to go to college, and studies diligently. In her free time she enjoys hanging out with friends, listening to music, and working on paintings. Ale doesn't currently engage in any regular physical activity, although she likes going dancing with her friends on the weekends. Ale's parents both work at their restaurant, and Ale's mother is the primary care provider for their three children: Ale, age 16; Byron, age 13; and Jaime, age 11. Ale's mother also provides support to Ale's grandmother, who lives nearby and recently stopped driving due to low vision secondary to diabetic retinopathy. Ale's mother visits a few times a week to assist with light housekeeping, grocery shopping, and other errands in the community, and Ale sometimes accompanies her to assist and spend time with her grandmother. Ale's family is quite busy and their meals often consist of whatever is available at the restaurant; when at home, the children often snack on prepared and frozen foods. The family has a ritual of eating Monday night dinners together when the restaurant is closed, but otherwise do not often eat family meals together.

Evaluation

**Canadian Occupational Performance Measure (COPM) (Law et al., 2019)**—Together with her mother, Ale identified the following areas of occupational performance that she would like to improve:

- Meal preparation: Finding healthy breakfasts and lunches that can be prepared quickly to take to school (Importance 8/10, Performance 6/10, Satisfaction 5/10)
- Physical activity: Engaging in at least 20 minutes of moderate physical activity at least 5 times a week (Importance 7/10, Performance 4/10, Satisfaction 3/10)
- Taking medications: Establishing a consistent routine for taking daily medication (Importance 10/10, Performance 7/10, Satisfaction 6/10)

**Diabetes Self-Management Questionnaire (DSMQ) (Schmitt et al., 2013)**—The DSMQ was administered to identify Ale's current performance of diabetes self-care activities. Scores are transformed to a 0–10 scale, with 0 representing the lowest and 10 the highest self-rating of the assessed behavior. Ale scored a 5 on the “Glucose Management” subscale (referencing taking medication and blood glucose monitoring activities), a 6 on the “Dietary Control” subscale, a 3 on the “Physical Activity” subscale, and an 8 on the “Health Care Use” subscale.

	<p>The findings of Ale’s evaluation indicated that she has difficulty consistently performing health management occupations relevant to effectively managing her diabetes. She is motivated to improve her performance on these tasks in order to minimize the risk of developing complications, and she has good support from her family to enact lifestyle changes. Ale and her family would benefit from occupational therapy services to implement consistent routines for taking medications and engaging in physical activity, and education on meal preparation strategies to improve the nutritional quality of their meals and incorporate preparation of healthy meals into their weekday routines.</p>
<p>Intervention</p>	<p>Ale, her mother, and her brothers attended weekly group sessions for 16 weeks to address goals related to meal preparation, physical activity, and taking medications. To address meal preparation, the dietician reviewed healthy eating patterns for people with diabetes, while the OTA coached Ale and her family in identifying healthy meals that could be prepared quickly for weekday breakfasts and lunches to take to school. In some cases this meant adapting meals they already enjoyed to meet nutritional goals (e.g., eating whole rather than refined grains, adjusting portion sizes, or substituting leafy for starchy vegetables) and in other cases trying new recipes to find ones that their family enjoyed. The occupational therapist, drawing on Ale’s interest in art, involved her in creating illustrations for a family cookbook that included recipes, meal plans, and grocery lists to facilitate ongoing carryover of meal preparation at home. To address physical activity, the OTA reviewed strategies to incorporate physical activity into the family’s daily routines, and developed a plan with the family to incorporate more activity into their day. Over several weeks, Ale gradually increased her physical activity through walking to school each morning instead of getting a ride, doing body weight exercises while watching television in the evening, and going dancing with her friends more often on weekends. To address taking medications, the occupational therapist provided education on habit formation and the strategy of chaining with an existing habitual activity. Ale and her mother (who also takes diabetes medications) identified packing school lunches as a strong habit and an activity they did together. They placed their medications in the kitchen next to the lunch supplies as a cue to take their medication at that time, and also supported one another with reminders to take their medication until it became a habit.</p>

<p>Outcomes</p>	<p>Ale and her family derived several measurable benefits from the occupational therapy program. Ale addressed her goals of improving her medication routines, healthy eating, and physical activity. By the time of discharge she was taking her medication consistently at least 6/7 days per week, had increased her physical activity to an average of 20 minutes per day, and was preparing breakfasts and lunches 5/7 days per week that were consistent with her nutritional goals. Her COPM scores reflected +2 Performance/+3 Satisfaction for meal preparation, +4 Performance/+2 Satisfaction for physical activity, and +1 Performance/+2 Satisfaction for taking medications. Similarly, her scores on the DSMQ subscales increased an average of 1.7 points, reflecting a clinically meaningful change. Additionally, because Ale’s blood sugar levels were lower, she was experiencing decreased fatigue, more energy, and better sleep because of decreased nocturia. Ale’s mother also started taking her diabetes medications more consistently, and reported preparing healthier meals for the family at mealtimes. Lastly, Ale’s family expressed increased knowledge about how to manage diabetes and less anxiety about the possibility of developing diabetes complications. All of these changes increased the family’s overall well-being.</p>
<p>Research evidence and related resources guiding practice</p>	<p>Cahill, S. M., Polo, K. M., Egan, B. E., &amp; Marasti, N. (2016). Interventions to promote diabetes self-management in children and youth: A scoping review. <i>American Journal of Occupational Therapy</i>, 70, 7005180020p1-7005180020p8.</p> <p>Fritz, H. (2014). The influence of daily routines on engaging in diabetes self-management. <i>Scandinavian Journal of Occupational Therapy</i>, 21(3), 232–240.</p> <p>Thompson, M. (2014). Occupations, habits, and routines: Perspectives from persons with diabetes. <i>Scandinavian Journal of Occupational Therapy</i>, 21(2), 153–160.</p> <p>Pyatak, E. A., Carandang, K., Vigen, C. L., Blanchard, J., Diaz, J., Concha-Chavez, A., ... &amp; Peters, A. L. (2018). Occupational therapy intervention improves glycemic control and quality of life among young adults with diabetes: The Resilient, Empowered, Active Living with Diabetes (REAL Diabetes) randomized controlled trial. <i>Diabetes Care</i>, 41(4), 696–704.</p>



Pyatak, E., King, M., Vigen, C. L., Salazar, E., Diaz, J., Niemiec, S. L. S., ... & Shukla, J. (2019). Addressing diabetes in primary care: Hybrid effectiveness–implementation study of Lifestyle Redesign® occupational therapy. *American Journal of Occupational Therapy*, 73, 7305185020p1-7305185020p12.

Sokol-McKay, D. A. (2011). Occupational therapy’s role in diabetes self-management [Fact sheet]. R American Occupational Therapy Association. <http://www.aota.org/Consumers/Professionals/WhatIsOT/HW/Facts/Diabetes.aspx>.

**Client and Background**—Robert (he/him) is a 53-year-old male who worked as a forklift operator for 28 years until he became disabled 5 years earlier due to chronic lower back pain secondary to sciatica. Robert underwent three epidural nerve injections with little relief of reported pain of 9–10/10. Robert underwent two microdiscectomies but these surgeries failed to reduce his pain significantly. Consequently, Robert uses large doses of opiates to control his back pain. He is divorced and currently lives in a two-bedroom apartment with his 21-year-old son who works part time and attends community college. He also has a 24-year-old daughter who lives in a neighboring town, but has no other family in the area. Robert receives Social Security Disability Insurance and is currently covered under Medicare.

**Occupational Profile**—Robert worked as a forklift operator for 28 years until the chronic pain forced his retirement from the company. He enjoyed his job immensely as it 1) “got me outside,” 2) “gave me a certain sense of freedom,” and 3) “paid well.” Robert also mentioned the sense of belonging he felt with his co-workers that he had never experienced before, either with his family of origin or with his wife and children. Robert currently spends most of his day watching television, playing online poker, or reading internet message boards. In the evenings, he eats dinner with his son when he is home, and several nights a week meets with friends at a local bar to drink and watch sports until late in the evening. Once a week he attends a bingo night, and he occasionally goes “cruising” on the weekends, although sitting for long periods on his motorcycle exacerbates his back pain. He expresses boredom with his current routine and frustration that he is unable to do many activities he previously enjoyed. He has noticed since his increased use of opiates that many friends are pulling away from him and he expresses an increase in feelings of “loneliness” that have been a constant throughout his life. Robert wants the “pain to be over,” states that he feels like a “failure” due to his work status, and expresses a desire to “do something more fulfilling than going to the bar every day.”

Evaluation

**Drug Abuse Screening Tool (DAST) (Skinner, 1982)**—Administered as part of SBIRT (Screening Brief Intervention & Referral to Treatment) protocol. Robert scored 7/10, indicating that he has a substantial level of drug use, and an intensive approach to the drug use is warranted.

**Beck Depression Inventory II (BDI-II) (Beck et al., 21996)**—Administered to screen for depression and referral for psychiatric consultation. Robert scored 20/63, indicating borderline for clinical depression.

**Occupational Self-Assessment (OSA) (Baron et al., 2006)**—Administered to assess occupational competence, values, and satisfaction with regard to himself and his environment to better understand his occupational adaptation to his disability status. Robert indicated that he was satisfied in his ability to manage his finances and basic needs, getting where he needs to go and getting along with others. He indicated having “a lot of problems” but highly valuing the following OSA areas related to “Myself”: physically doing what I need to do, taking care of the place where I live, taking care of myself (bathing, dressing, sleeping, and eating nutritious meals), expressing myself to others, relaxing and enjoying myself, having a satisfying routine, and effectively using my abilities. Robert indicated having “a lot of problems” but highly valuing the following OSA areas related to “My Environment”: a place where I can be productive and opportunities to do things I value and like.

**Pain Self-Efficacy Questionnaire (PSEQ) (Nicholas, 2007)**—Administered to evaluate one’s capability to engage in usual activities and routines despite experiencing pain. Scores range from 0–60, with higher scores indicating less difficulty. Robert scored a 23 on the PSEQ, indicating moderate difficulty engaging in usual activities when pain is present.

Robert’s occupational therapy evaluation indicated limitations in several areas of functioning, including self-care, home management, community integration, and leisure. His current reliance on opiates as a first-line treatment for pain, depressive symptoms, and limited self-efficacy in coping with pain contribute to his current level of functioning. Robert is motivated to participate in treatment to develop pain-coping strategies that enable his performance of self-care and increased engagement in activities outside the home. Persons occupational therapy services are indicated to address ADL

	<p>and IADL performance and satisfaction, increase pain management skills, and improve community integration.</p>
<p>Intervention</p>	<p>Robert attended a chronic pain clinic 1x/week for 12 weeks. Robert’s list of concerns related to his chronic pain were varied and numerous, and in collaborating with Robert, the following areas of concern were prioritized: 1) learn strategies to minimize pain during daily routines including self-care, 2) develop relaxation and coping strategies to increase sense of control over and competency with pain management, 3) identify potential low or unpaid work opportunities, and 4) develop a support system. The therapist used a coaching model to support Robert in acquisition of pain management strategies. Coaching was used to support development of competency and perception of control over the pain and situation. Strategies included chunking tasks to embed rest breaks, body mechanics training, and a home assessment to modify/adapt the environment to adhere to ergonomic principles. The therapist used mindfulness activities such as body scans, breathing techniques, and non-contact therapeutic touch to support Robert in developing a repertoire of techniques he could use to manage the pain without the use of prescription medications. The therapist and Robert collaboratively developed a plan to reestablish a volunteer work routine at a local community garden for those living in a food desert, which addressed his interest of being outside and creating meaningful social support and human connections. Finally, the therapist worked with Robert to establish a plan for networking, which included a local chronic pain support group. Robert also explored social skills related to asserting himself to get his social and emotional needs met.</p>
<p>Outcomes</p>	<p>Robert’s quality of life was significantly improved following participation in occupational therapy via the chronic pain clinic. He learned many new strategies to decrease and manage pain and reported that he no longer relies on prescription opiates as a first line of defense against the pain. Robert’s score on the PSEQ increased 14 points, indicating a clinically meaningful improvement in his ability to manage pain. Using proper body mechanics and employing principles of ergonomics also improved Robert’s occupational performance related to self-care skills such as bathing and dressing. Robert’s newfound ability to self-manage much of the pain increased his well-being and sense of hope about his future, which contributed to a decrease in depressive symptoms—his BDI score decreased to 15, indicating mild depressive symptoms. Robert has been consistent in</p>

	<p>attending his volunteer position at the local community garden, and his role competence regarding his perception of his worker role was enhanced. Robert's attendance at the local support group was initially sporadic. The occupational therapy practitioner suggested that he volunteer to lead the group 1x/month, which has increased his attendance and participation in the group significantly. His leadership in this area and connection with others who are experiencing similar challenges has also contributed to his sense of well-being.</p>
<p>Research evidence and related resources guiding practice</p>	<p>American Occupational Therapy Association. (2017). Occupational therapy and complementary health approaches and integrative health. <i>American Journal of Occupational Therapy</i> 71(Suppl. 2):7112410020. <a href="https://doi.org/10.5014/ajot.2017.716S08">https://doi.org/10.5014/ajot.2017.716S08</a></p> <p>Babor, T. F., Del Boca, F., &amp; Bray, J. W. (2017). Screening, Brief Intervention and Referral to Treatment: implications of SAMHSA's SBIRT initiative for substance abuse policy and practice. <i>Addiction</i>, 112, 110–117. <a href="https://doi-org.une.idm.oclc.org/10.1111/add.13675">https://doi-org.une.idm.oclc.org/10.1111/add.13675</a></p> <p>Hardison, M. E., &amp; Roll, S. C. (2016). Mindfulness interventions in physical rehabilitation: A scoping review. <i>American Journal of Occupational Therapy</i>, 70, 7003290030. <a href="https://doi.org/10.5014/ajot.2016.018069">https://doi.org/10.5014/ajot.2016.018069</a></p> <p>Lagueux, É., Dépelteau, A., &amp; Masse, J. (2018). Occupational therapy's unique contribution to chronic pain management: A scoping review. <i>Pain Research &amp; Management</i>, 2018, 1-19. <a href="https://doi-org.une.idm.oclc.org/10.1155/2018/5378451">https://doi-org.une.idm.oclc.org/10.1155/2018/5378451</a></p> <p>McCauley, J. L., Mercer, M. A., Barth, K. S., Brady, K. T., &amp; Back, S. E. (2014). Pain management perceptions among prescription opioid dependent persons. <i>Drug and Alcohol Dependence</i>, 142, 354–358. <a href="https://doi-org.une.idm.oclc.org/10.1016/j.drugalcdep.2014.06.024">https://doi-org.une.idm.oclc.org/10.1016/j.drugalcdep.2014.06.024</a></p> <p>Persson, E., Rivano-Fischer, M., &amp; Eklund, M. (2004). Evaluation of changes in occupational performance among patients in a pain management program. <i>Journal of Rehabilitation Medicine</i>, 36(2), 85–91.</p> <p>Simon, A. U., &amp; Collins, C. E. (2017). Lifestyle Redesign® for chronic pain management: A retrospective clinical efficacy study. <i>American Journal of Occupational Therapy</i>, 71(4), 7104190040p1-7104190040p7.</p>

## References

- AARP and National Alliance for Caregiving. (2020, May). Caregiving in the United States 2020. AARP. <https://doi.org/10.26419/ppi.00103.001>
- Abramson, C. M., Hashemi, M., & Sánchez-Jankowski, M. (2015). Perceived discrimination in U.S. healthcare: Charting the effects of key social characteristics within and across racial groups. *Preventive Medicine Reports, 2*, 615–621. <https://doi-org.une.idm.oclc.org/10.1016/j.pmedr.2015.07.006>
- American Occupational Therapy Association. (2020). Occupational therapy practice framework: Domain and process. *American Journal of Occupational Therapy, 74*(Suppl. 2), 7412410010p1–7412410010p87. <https://doi.org/10.5014/ajot.2020.74S2001>
- Bahorik, A. L., Satre, D. D., Kline-Simon, A. H., Weisner, C. M., & Campbell, C. I. (2017). Alcohol, cannabis, and opioid use disorders, and disease burden in an integrated health care system. *Journal of Addiction Medicine, 11*(1), 3–9. <https://doi-org.une.idm.oclc.org/10.1097/ADM.0000000000000260>
- Baron, K., Kielhofner, G., Iyengar, A., Goldhammer, V., & Wolenski, J. (2006). Occupational self-assessment. Model of Human Occupation Clearinghouse, Department of Occupational Therapy, College of Applied Health Sciences, University of Illinois of Chicago.
- Brown, C. E., & Dunn, W. (2002). *Adolescent Adult Sensory Profile*. Pearson.
- Brown, A. F., Vargas, R. B., Ang, A., & Pebley, A. R. (2008). The neighborhood food resource environment and the health of residents with chronic conditions: The food resource environment and the health of residents. *Journal of General Internal Medicine, 23*(8), 1137–1144. <https://doi-org.une.idm.oclc.org/10.1007/s11606-008-0601-5>

Buttorff, C., Ruder, T., & Bauman, M. (2017). Multiple chronic conditions in the United States.

RAND Corporation. <https://www.rand.org/pubs/tools/TL221.html>.

Centers for Disease Control and Prevention. (2019a). *About chronic diseases*.

<https://www.cdc.gov/chronicdisease/about/index.htm>

Centers for Disease Control and Prevention. (2019b). *Chronic diseases in America*.

<https://www.cdc.gov/chronicdisease/resources/infographic/chronic-diseases.htm>

Centers for Disease Control and Prevention. (2019c). Managing chronic health conditions.

<https://www.cdc.gov/healthyschools/chronicconditions.htm#:~:text=About%2025%25%20of%20children%20in,%2C%20and%20behavior%2Flearning%20problems>

Centers for Disease Control and Prevention. (2019d). *Health and economic costs of chronic diseases*. <https://www.cdc.gov/chronicdisease/about/costs/index.htm>

Centers for Disease Control and Prevention. (2019e). *Workplace health promotion*.

<https://www.cdc.gov/chronicdisease/resources/publications/aag/workplace-health.htm>

Centers for Disease Control and Prevention. (2021). *Social determinants of health: Know what affects health*. <https://www.cdc.gov/socialdeterminants/>

Centers for Medicare & Medicaid Services. (2015). *Chronic conditions charts*.

[https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/ChronicConditions/Chartbook\\_Charts.html](https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/ChronicConditions/Chartbook_Charts.html)

Chanlongbutra, A., Singh, G. K., & Mueller, C. D. (2018). Adverse childhood experiences, health-related quality of life, and chronic disease risks in rural areas of the United States.

*Journal of Environmental & Public Health*, 1–15. <https://doi->

[org.une.idm.oclc.org/10.1155/2018/7151297](https://doi-une.idm.oclc.org/10.1155/2018/7151297)

- Chhabra, M., Spector, E., Demuynck, S., Wiest, D., Buckley, L., & Shea, J. A. (2020). Assessing the relationship between housing and health among medically complex, chronically homeless persons experiencing frequent hospital use in the United States. *Health & Social Care in the Community*, 28(1), 91–99. <https://doi-org.une.idm.oclc.org/10.1111/hsc.12843>
- Cockerham, W. C., Hamby, B. W., & Oates, G. R. (2017). The social determinants of chronic disease. *American Journal of Preventive Medicine*, 52(1S1), S5–S12. <https://doi.org/10.1016/j.amepre.2016.09.010>
- Collins, J. J., Baase, C. M., Sharda, C. E., Ozminkowski, R. J., Nicholson, S., Billotti, G. M., Turpin, R. S., ... & Berger, M. L. (2005). The assessment of chronic health conditions on work performance, absence, and total economic impact for employers. *Journal of Occupational and Environmental Medicine*, 47(6), 547–557. <https://doi.org/10.1097/01.jom.0000166864.58664.29>
- Crespo, C., Santos, S., Canavarro, M. C., Kielpikowski, M., Pryor, J. & Féres-Carneiro, T. (2013). Family routines and rituals in the context of chronic conditions: A review. *International Journal of Psychology*, 48(5), 729–746. <https://doi.org/10.1080/00207594.2013.806811>
- DuGoff, E. H., Canudas-Romo, V. F., Buttorff, C., Leff, B., & Anderson, G. F. (2014). Multiple chronic conditions and life expectancy: A life table analysis. *Medical Care*, 52(8), 688–694. <https://doi.org/10.1097/mlr.0000000000000166>
- Fang, L., Kyler, D., & Smallfield, S. (2020). Self-management interventions for rest and sleep among community-dwelling adults with chronic conditions: Systematic review of related

literature from 1995–2018 [Critically Appraised Topic]. American Occupational Therapy Association.

Felitti V., Anda, R., Nordenberg, D., Williamson, D., Spitz A., Edwards V.,... & Marks, J.

(1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) study.

*American Journal of Preventive Medicine*, 14(4), 245–258. [https://doi.org/10.1016/s0749-3797\(98\)00017-8](https://doi.org/10.1016/s0749-3797(98)00017-8). PMID: 9635069.

Garvey, J., Connolly, D., Boland, F., & Smith, S. M. (2015). OPTIMAL, an occupational therapy led self-management support programme for people with multimorbidity in primary care: a randomized controlled trial. *BMC Family Practice*, 16(1), 59.

Hahn, R. A., Knopf, J. A., Wilson, S. J., Truman, B. I., Milstein, B., Johnson, R. L., ... & Hunt, P. C. (2015). Programs to increase high school completion: a community guide systematic health equity review. *American Journal of Preventive Medicine*, 48(5), 599–608. <https://doi-org.une.idm.oclc.org/10.1016/j.amepre.2014.12.005>

Jin, M., An, Q., & Wang, L. (2017). Chronic conditions in adolescents. *Experimental and Therapeutic Medicine*, 14(1), 478–482. <https://doi.org/10.3892/etm.2017.4526>

Jowsey, T., Yen, L. & Mathews, P. W. (2012). Time spent on health related activities associated with chronic illness: A scoping literature review. *BMC Public Health* 12, 1044. <https://doi-org.une.idm.oclc.org/10.1186/1471-2458-12-1044>

Kyler, D., Fang, L., & Smallfield, S. (2020). Self-management interventions for ADLs among community-dwelling adults with chronic conditions: Systematic review of related literature from 1995–2018 [Critically Appraised Topic]. American Occupational Therapy Association.



- Lai, F. T. T., Ma, T. W., & Hou, W. K. (2020). How does chronic multimorbidity affect daily routines? An experience sampling study of community-dwelling adults in Hong Kong. *Journal of Community Psychology, 48*(7), 2323–2348. <https://doi.org/10.1002/jcop.22418>
- Law, M., Baptiste, S., & Carswell, A., McColl, M., Polatajko, H., & Pollock, N. (2019). Canadian Occupational Performance Measure (5th edition-revised). COPM, Inc.
- Miles, J., Espiritu, R. C., Horen, N., Sebian, J., & Waetzig, E. (2010). A public health approach to children's mental health: A conceptual framework. Georgetown University Center for Child and Human Development, National Technical Assistance Center for Children's Mental Health
- Miller, G. F., Coffield, E., Leroy, Z., & Wallin, R. (2016). Prevalence and costs of five chronic conditions in children. *Journal of School Nursing: The official publication of the National Association of School Nurses, 32*(5), 357–364. <https://doi.org/10.1177/1059840516641190>
- National Alliance for Caregiving (NAC) & AARP Public Policy Institute. (2015). *Caregiving in the U.S.* <https://www.aarp.org/content/dam/aarp/ppi/2015/caregiving-in-the-united-states-2015-report-revised.pdf>
- National Council on Aging. (n.d.) *Healthy aging facts*. <https://www.ncoa.org/news/resources-for-reporters/get-the-facts/healthy-aging-facts/>
- National Institute of Mental Health. (2019). *Chronic illness & mental health*.
- Nicholas, M. K. (2007). The pain self-efficacy questionnaire: Taking pain into account. *European Journal of Pain, 11*(2), 153-163. <https://www.nimh.nih.gov/health/publications/chronic-illness-mental-health/index.shtml>

- O'Connell, M. E., Boat, T., & Warner, K. E. (2009). *Preventing mental, emotional, and behavioral disorders among young people: Progress and possibilities* (Vol. 7). National Academies Press.
- Pinquart, M., & Shen, Y. (2011). Anxiety in children and adolescents with chronic physical illnesses: A meta-analysis. *Acta Paediatrica*, *100*(8), 1069–1076. <https://doi-org.une.idm.oclc.org/10.1111/j.1651-2227.2011.02223.x>
- Price, J. H., Khubchandani, J., Price, J. A., Whaley, C., & Bowman, S. (2016). Reducing premature mortality in the mentally ill through health promotion programs. *Health Promotion Practice*, *17*(5), 617–622. <https://doi-org.une.idm.oclc.org/10.1177/1524839916656146>
- Pyatak, E. (2011). Participation in occupation and diabetes self-management in emerging adulthood. *American Journal of Occupational Therapy*, *65*(4), 462–469.
- Reed, M. E., Huang, J., Brand, R. J., Neugebauer, R., Graetz, I., Hsu, J., ... & Grant, R. (2019). Patients with complex chronic conditions: Health care use and clinical events associated with access to a patient portal. *PLoS ONE*, *14*(6), 1–13. <https://doi-org.une.idm.oclc.org/10.1371/journal.pone.0217636>
- Robert Wood Johnson Foundation. Work matters for health. (2008). Brief No. 4. <http://www.commissiononhealth.org/PDF/0e8ca13d-6fb8-451d-bac8-7d15343aacff/Issue%20Brief%204%20Dec%2008%20-%20Work%20and%20Health.pdf>
- Schmitt, A., Gahr, A., Hermanns, N., Kulzer, B., Huber, J., & Haak, T. (2013). The Diabetes Self-Management Questionnaire (DSMQ): Development and evaluation of an instrument to assess diabetes self-care activities associated with glycaemic control. *Health & Quality*

*of Life Outcomes*, 11(1), 138. <https://doi-org.une.idm.oclc.org/10.1186/1477-7525-11-138>

Skinner, H. (1982). The drug abuse screening test. *Addictive Behaviors* 7(4), 363–371.

Sonu, S., Post, S., & Feinglass, J. (2019). Adverse childhood experiences and the onset of chronic disease in young adulthood. *Preventive Medicine*, 123, 163–170.  
<https://doi:10.1016/j.ypmed.2019.03.032>.

U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Healthy people 2030. <https://health.gov/healthypeople/objectives-and-data/social-determinants-health>

Van Cleave, J., Gortmaker, S. L., & Perrin, J. M. (2010) Dynamics of obesity and chronic health conditions among children and youth. *JAMA*, 303(7) 623–630.  
<https://doi.org/10.1001/jama.2010.104>

World Health Organization. (n.d.). *Premature death among people with severe mental disorders*.  
[https://www.who.int/mental\\_health/management/info\\_sheet.pdf](https://www.who.int/mental_health/management/info_sheet.pdf)

World Health Organization. (2001). *The World Health Report 2001: Mental health: New understanding, new hope*. <https://www.who.int/whr/2001/en/>

Wu, L.-T., Zhu, H., & Ghitza, U. E. (2018). Multicomorbidity of chronic diseases and substance use disorders and their association with hospitalization: Results from electronic health records data. *Drug and Alcohol Dependence*, 192, 316–323. <https://doi-org.une.idm.oclc.org/10.1016/j.drugalcdep.2018.08.013>

**AJOT position paper "Occupational Therapy Practice  
Guidelines for Adults with Chronic Conditions"**

# Occupational Therapy Practice Guidelines for Adults With Chronic Conditions

Beth Fields, Stacy Smallfield

**Importance:** Demand is increasing for occupational therapy practitioners to help the growing population of adults with chronic conditions manage their conditions.

**Objective:** This Practice Guideline, which is informed by systematic reviews of the literature on the use of self-management interventions, is meant to guide occupational therapy practitioners' clinical decision making when working with community-dwelling adults with chronic conditions. The chronic conditions included heart disease, chronic lung conditions, diabetes, and kidney disease. The self-management interventions addressed ADLs and sleep and rest; IADLs; education, work, volunteering, leisure, and social participation; and the caregiver role.

**Method:** We reviewed, discussed, and integrated the clinical recommendations developed from four systematic reviews, supporting literature, and expert opinion to provide recommendations for practice.

**Results:** A total of 102 articles were included in the systematic reviews, which served as the primary basis for the practice recommendations.

**Conclusions and Recommendations:** Strong to moderate evidence supports clinical recommendations for the use of self-management interventions when working with clients with chronic conditions. We recommend the use of a multimodal approach that includes three components—education, goal setting, and problem solving—over an extended period to assist clients in establishing self-management habits and routines. On the basis of emerging evidence and expert opinion, we recommend that occupational therapy practitioners consider using a prevention approach, helping clients establish habits and routines, and emphasizing shared goal setting when addressing clients' self-management of chronic conditions.

**What This Article Adds:** This Practice Guideline provides a summary of strong to moderate evidence that supports clinical recommendations for the use of self-management interventions with clients with chronic conditions. When guided by this evidence, occupational therapy practitioners are better able to help clients meet their occupational challenges.

Fields, B., & Smallfield, S. (2022). Practice Guidelines—Occupational therapy practice guidelines for adults with chronic conditions. *American Journal of Occupational Therapy*, 76, 7602397010. <https://doi.org/10.5014/ajot.2022/762001>

The prevalence and cost of chronic disease in the United States are experiencing rapid growth. Approximately 6 in 10 American adults have at least one chronic disease, such as heart disease, lung conditions, diabetes, or kidney disease, that lasts a year or more and limits functional daily activities (Centers for Disease Control and Prevention [CDC], 2020).

Chronic disease often requires ongoing medical attention, raising annual health care costs. In 2016, chronic disease in the United States represented more than \$1 trillion in direct health care expenditures (Waters & Graf, 2018). Several factors have contributed to the growth in the prevalence and cost of chronic disease,

including the rising age of the population and disease-specific risk factors such as poor nutrition and sleep, tobacco use, lack of physical activity, and failure to attend annual health care visits. In effect, many adults with chronic disease experience disability (Hung et al., 2012).

Froehlich-Grobe et al. (2016, p. 600) noted that adults “living with both chronic diseases and disability are at a substantially increased risk for poor health status,” which takes a toll on not only their own engagement in meaningful daily activities (occupations), but that of their caregivers (i.e., family members and friends) as well. Researchers have found

that family members who provide support to adults with chronic conditions report greater physical distress, lower life satisfaction, and greater limitations in daily activities compared with noncaregivers (Grossman & Webb, 2016; Institute of Medicine, 2012).

Although chronic diseases are among the most common and costly health problems, their functional implications may be mitigated through health management interventions that occupational therapy practitioners provide. Health management interventions focus on “developing, managing, and maintaining health and wellness routines, including self-management, with the goal of improving or maintaining health to support participation in other occupations” (American Occupational Therapy Association [AOTA], 2020b, p. 32) and are within the scope of occupational therapy practice. This Practice Guideline provides a summary of self-management interventions supported by current research to address commonly reported occupational challenges for community-dwelling adults with chronic conditions. Several descriptions of self-management guided the development of this Practice Guideline, including “the ability of the individual, in conjunction with family, community, and healthcare professionals, to manage symptoms, treatments, lifestyle changes, and psychosocial, cultural and spiritual consequences of health conditions” (Richard & Shea, 2011, p. 261); healthy lifestyle behaviors undertaken by individuals for optimal growth and development (Dickson et al., 2008); and preventive strategies performed to promote or maintain health (Dickson et al., 2008).

Occupational therapy practitioners have opportunities to favorably influence the trajectory of chronic disease and resulting disability, thereby maximizing the independence of adults and easing the burden on their caregivers (Liu et al., 2018). Occupational therapy is uniquely positioned to address self-management from a holistic perspective, taking into account a client’s intrinsic factors (cognitive, psychological, physical, sensory, emotional, and spiritual) and extrinsic influences (culture, social determinants of health, social support and capital, the built and natural environment, and policy) while considering the roles and activities in which the client participates.

The four systematic reviews (Kaldenberg et al., 2020; Kearney et al., 2021a, 2021b; Rouch et al., 2021; Smallfield et al., 2021) whose findings are reported in this Practice Guideline addressed four common, non-communicable, chronic physical conditions that are modifiable through health behaviors: heart disease, chronic lung conditions, diabetes, and kidney disease (see the CDC [2021] list of most common chronic conditions). Cancer, stroke, arthritis, and Alzheimer’s disease were excluded because AOTA has published specific practice guidelines for those conditions (see Braveman & Hunter, 2017; Piersol & Jensen, 2017; Poole et al., 2017; Wolf & Nilsen, 2015). The practice guideline for adults with stroke (Wolf & Nilsen, 2015)

did not address interventions for caregivers, so the review question on caregiver interventions includes caregivers of people with stroke.

## Systematic Review Questions

This Practice Guideline is based on the following four questions:

1. What is the evidence for the effectiveness of self-management interventions within the scope of occupational therapy practice to improve the performance of ADLs and sleep and rest among community-dwelling adults with chronic conditions (Smallfield et al., 2021)?
2. What is the evidence for the effectiveness of self-management interventions within the scope of occupational therapy practice to improve the performance of IADLs among community-dwelling adults with chronic conditions (Kearney et al., 2021a, 2021b)?
3. What is the evidence for the effectiveness of self-management interventions within the scope of occupational therapy practice to improve the performance of education, work, volunteering, leisure, and social participation among community-dwelling adults with chronic conditions (Kaldenberg et al., 2020)?
4. What is the evidence for the effectiveness of interventions within the scope of occupational therapy practice for caregivers of people with chronic conditions to facilitate their ability to maintain participation in the caregiver role (Rouch et al., 2021)?

## Goals of This Practice Guideline

Through this Practice Guideline, AOTA aims to help occupational therapy practitioners, as well as the people who manage, reimburse, or set policy regarding occupational therapy services, understand occupational therapy’s contribution in providing services to adults with chronic conditions. This guideline can also serve as a reference for health care professionals, health care facility managers, education professionals, education and health care regulators, third-party payers, managed care organizations, and those who conduct research to advance care of adults with chronic conditions.

This guideline was commissioned, edited, and endorsed by AOTA without external funding being sought or obtained. It was financially supported entirely by AOTA and was developed without any involvement of industry. AOTA supports systematic reviews on adults with chronic conditions as part of its Evidence-Based Practice (EBP) Project. AOTA’s EBP Project is based on the principle that the EBP of occupational therapy relies on the integration of information from three sources: (1) clinical experience and reasoning, (2) preferences of clients and their families, and (3) findings from the best available research.

All authors of the systematic reviews completed conflict-of-interest disclosures, with no conflicts noted. AOTA reviews practice guidelines every 5 years and updates them as needed to keep recommendations on each topic current according to criteria established by ECRI (2020). Guideline topics are evaluated for their currency by a multidisciplinary advisory group consisting of AOTA members, nonmember content experts, and external stakeholders. In addition, a preliminary search of the literature is conducted to determine whether an updated systematic review is warranted. The systematic review questions and search terms used for this Practice Guideline and the Practice Guideline itself were reviewed and revised on the basis of feedback from a group of content experts on adults with chronic conditions; this group included practitioners, researchers, educators, clients and consumer representatives, and policy experts. Reviewers who agreed to be identified are listed in the Acknowledgments section of this publication.

This Practice Guideline reports the findings from systematic reviews of published scientific research addressing focused topic-specific questions; interventions that did not emerge from the published literature or did not meet the inclusion criteria are not included. The occupational therapy practitioner makes the ultimate clinical judgment regarding the appropriateness of a given intervention considering a specific client's or group's circumstances, needs, and response to intervention; the practitioner's own expertise; and the evidence available to support the intervention. The goal of the Practice Guideline is to inform practitioners about the state of the evidence and to help guide them in translating the evidence to practice. We provide examples of how this evidence can inform practice in the "Case Illustrations and Algorithms" section.

## Clinical Recommendations for Occupational Therapy Interventions for Adults With Chronic Conditions

Clinical recommendations are the final phase of synthesis of systematic review findings. We graded the findings for each systematic review question in terms of how confident a practitioner can feel that using the interventions presented in the evidence will improve the outcomes of interest to their clients. The grade is based on the specificity of the intervention, number of studies supporting the intervention, levels of evidence of the studies, quality of the studies, and significance of the study findings. Interventions included in the clinical recommendations are specific to a population, and the articles that describe them provide sufficient detail to understand the intervention and the outcome of interest.

Describing the strength of clinical recommendations is an important part of communicating an intervention's efficacy to practitioners and other users.

The clinical recommendations for this practice guideline were evaluated and finalized by AOTA staff, the AOTA research methodologist, and systematic review and practice guideline authors. AOTA uses the grading methodology provided by the U.S. Preventive Services Task Force (2018) for clinical recommendations. The recommendations pertaining to each review question, along with the studies' level of evidence and supporting details, are presented in Tables 1–4.

For the purposes of this Practice Guideline, we considered only findings indicating an A, B, or D grade, the grades that best support clinical decision making:

- A: There is *strong evidence* that occupational therapy practitioners should routinely provide the intervention to eligible clients. Strong evidence was found that the intervention improves important outcomes and that benefits substantially outweigh harms.
- B: There is *moderate evidence* that occupational therapy practitioners could routinely provide the intervention to eligible clients. There is high certainty that the net benefit is moderate, or there is moderate certainty that the net benefit is moderate to substantial.
- D: It is recommended that occupational therapy practitioners *not* provide the intervention to eligible clients. At least fair evidence was found that the intervention is ineffective or that harms outweigh benefits. In these reviews, we did not find grade D evidence.

These grades are reported in Tables 1–4 and designated with green, indicating *should do* if appropriate (A), or yellow, indicating *consider doing* if appropriate (B). We do not report the results of interventions that had low strength of evidence or insufficient research support to determine an A, B, or D grade. None of the studies included in these reviews reported adverse events or harms related to the interventions evaluated.

The complete findings from the systematic reviews can be found in the applicable Critically Appraised Topics (Kaldenberg et al., 2020; Kearney et al., 2021a, 2021b) and articles in the *American Journal of Occupational Therapy* (Rouch et al., 2021; Smallfield et al., 2021).

## Translating Clinical Recommendations Into Practice

The purpose of clinical practice guidelines is to help practitioners translate pertinent research findings from systematic reviews into practice. When making decisions in practice, practitioners should integrate clinical recommendations based on the best available research, which are provided in this Practice Guideline, as well as their own clinical experience and reasoning and the preferences of clients and their families. Algorithms related to the clinical recommendations are provided to facilitate practitioners' clinical decision making and are presented at the end of each case.

Table 1. Clinical Recommendations and Supporting Evidence: Self-Management Interventions to Address ADLs and Sleep and Rest Among Community-Dwelling Adults With Chronic Conditions

Grade/Evidence Level	Citation	Intervention Details
<b>Mind–Body Self-Care Education</b>		
A: Strong	<i>Recommendation:</i> Practitioners should consider using individual or group sessions of mind–body self-care education (6–7 wk in person, group or individual, with 3-mo follow-up) addressing sleep hygiene, nutrition, physical activity, and relaxation techniques to improve self-reported sleep outcomes (e.g., insomnia severity, sleep quality, wake after sleep onset, fatigue) for clients with heart disease or COPD or with at least 1 chronic disease.	
Level 1b	<a href="#">Ghavami et al. (2018)</a>	<i>Participants:</i> N 5 146 adults undergoing isolated coronary artery bypass grafting who had sleep problems (M age 5 55 yr; 23% female in control group, 27% female in intervention group) <i>Setting:</i> Unclear (Iran) <i>Intervention:</i> Self-care intervention consisting of 6 educational sessions on sleep hygiene, nutrition, and physical activity, 1.5 hr 2×/wk, then individualized consulting, 1×/wk for 3 mo <i>Outcome measure:</i> PSQI–Persian version
Level 1b	<a href="#">Kapella et al. (2011)</a>	<i>Participants:</i> N 5 23 adults with COPD and sleep disturbances (M age 5 63 yr; 17% female) <i>Setting:</i> Community-based group (United States) <i>Intervention:</i> Cognitive–behavioral therapy for insomnia including relaxation techniques, sleep hygiene, and techniques for managing sleep loss, 1×/wk for 6 wk <i>Outcome measures:</i> Sleep Impairment Index, PSQI, sleep diary, actigraphy, Dysfunctional Beliefs and Attitudes About Sleep Scale
Level 1b	<a href="#">Rybarczyk et al. (2001)</a>	<i>Participants:</i> N 5 243 adults with 6 or more primary care visits in the preceding year, diagnosis of ≥1 chronic illness, normal cognitive functioning, and psychosocial sequelae associated with chronic illness (M age 5 68 yr; 80% female) <i>Setting:</i> Community based (United States) <i>Intervention:</i> Instruction on mind–body wellness interventions, 1 2-hr session/wk for 8 wk; guest presentations by a nutritionist and a fitness instructor; and materials for home, including readings and relaxation tapes <i>Outcome measures:</i> Frequency of sleep difficulties item from the Medical Symptoms Checklist
<b>Foot Care Self-Management Education</b>		
A: Strong	<i>Recommendation:</i> Practitioners should consider using foot care self-management education (e.g., foot self-care, risk factors, hygiene, footwear, prevention, goal setting, problem solving), in addition to usual care, for adults with diabetes. Dose and administration methods may vary. A 9-mo program of texting tailored educational modules and a 4-session health education program plus biweekly follow-ups both significantly improved foot care behavior. A single in-person 15-min educational session significantly improved self-reported and observed foot care behavior.	
Level 1b	<a href="#">Dobson et al. (2018)</a>	<i>Participants:</i> N 5 366 adults with poorly controlled Type 1 or Type 2 diabetes (M age 5 47 yr; 49% female) <i>Setting:</i> Virtual (New Zealand) <i>Intervention:</i> Automated self-management support program of educational modules tailored by health care personnel to the individual’s needs and goals and delivered by text message, with optional additional modules on foot care. Clients received a variable number of text messages for up to 6 months. <i>Outcome measures:</i> Summary of Diabetes Self-Care Activities, foot care assessment

(Continued)



Table 1. Clinical Recommendations and Supporting Evidence: Self-Management Interventions to Address ADLs and Sleep and Rest Among Community-Dwelling Adults With Chronic Conditions (Cont.)

Grade/Evidence Level	Citation	Intervention Details
Level 1b	<a href="#">Ahmad Sharoni et al. (2018)</a>	<p><i>Participants:</i> N 5 76 adults diagnosed with diabetes, with or without diabetic foot problems, able to perform daily activities independently (M age 5 70 yr, 29% female)</p> <p><i>Setting:</i> Community (Malaysia)</p> <p><i>Intervention:</i> 12-wk group health education program consisting of 1 20- to 30-min education seminar on foot self-care behavior, including information on risk factors and complications, hygiene and inspection, skin and nail care, appropriate footwear, injury prevention, and when to seek a health care professional, followed by 3 weekly and 3 biweekly visits by a nurse and 2 20-min 1:1 follow-up visits by a researcher to share experiences, discuss feedback on goals, and assess obstacles</p> <p><i>Outcome measures:</i> Foot self-care behavior, foot care self-efficacy, foot care outcome expectation, knowledge of foot care</p>
Level 1b	<a href="#">Borges &amp; Ostwald (2008)</a>	<p><i>Participants:</i> N 5 142 adults with Type 2 diabetes receiving nonemergent care (M age 5 62 yr; 77% female)</p> <p><i>Setting:</i> Home (United States)</p> <p><i>Intervention:</i> Single 5-min foot exam assessing risk for lower extremity amputation plus 15 min of education to improve diabetes self-efficacy and foot self-care behaviors, including risk scores and the importance of daily foot self-care, barriers to performing foot self-care, and strategies to overcome barriers</p> <p><i>Outcome measures:</i> Foot Self-Care subscale of the Diabetes Knowledge Questionnaire–24, Foot Self-Care Observation Guide</p>
Level 3b	<a href="#">Fan et al. (2014)</a>	<p><i>Participants:</i> N 5 56 adults with Type 2 diabetes, no prior formal diabetes education, low risk for foot ulcers (M age 5 56 yr, 54% female)</p> <p><i>Setting:</i> Primary care (Canada)</p> <p><i>Intervention:</i> 3-wk intervention including a 1-hr 1:1 in-person session to discuss foot self-care strategies, a 1-hr 1:1 in-person session for hands-on practice of strategies, and 2 10-min telephone booster sessions for reinforcement and problem solving; content included awareness of risk factors, importance of annual exam, daily foot self-care, proper footwear, toenail care, and when to seek professional help</p> <p><i>Outcome measures:</i> foot self-care knowledge, foot self-care efficacy, and foot self-care behavior</p>
<b>Physical Training</b>		
B: Moderate	<p><i>Recommendation:</i> Practitioners could consider using physical training (e.g., aerobic and resistance exercise; 12-wk program, outpatient or home setting), with or without additional education on techniques to overcome ADL impairments, to address ADL issues and improve ADL performance for adults with heart disease or COPD.</p>	
Level 2b	<a href="#">Gary et al. (2011)</a>	<p><i>Participants:</i> N 5 24 adults with heart failure, onset ≥6 mo, left ventricular ejection fraction 15%–40%, using current cardiac medications ≥3 mo (M age 5 60 yr; 50% female)</p> <p><i>Setting:</i> Home (United States)</p> <p><i>Intervention:</i> Home visits consisting of a combined aerobic and resistance exercise program and individualized instruction and demonstration, 1 hr 3×/wk for 12 wk</p>

(Continued)

Table 1. Clinical Recommendations and Supporting Evidence: Self-Management Interventions to Address ADLs and Sleep and Rest Among Community-Dwelling Adults With Chronic Conditions (Cont.)

Grade/Evidence Level	Citation	Intervention Details
		<i>Outcome measures:</i> 10-Item Continuous Scale Physical Functional Performance Test, including ADL items of donning and doffing jacket and scarf pickup
Level 2b	<a href="#">Bendstrup et al. (1997)</a>	<p><i>Participants:</i> N 5 32 adults with moderate to severe COPD, stable condition for 4 wk (M age 5 65 yr; 44% female)</p> <p><i>Setting:</i> Outpatient rehabilitation (Denmark)</p> <p><i>Intervention:</i> Occupational therapy small-group intervention consisting of 2 sessions of education on techniques to overcome ADL impairments, physical training, education, and smoking cessation therapy, 1 hr 3×/wk for 12 wk</p> <p><i>Outcome measures:</i> ADL assessment consisting of 41 questions covering eating, personal care, dressing, bathing, going to the toilet, preparing meals, cleaning, washing clothes, shopping, social activities, and work</p>

Note. All studies had statistically significant positive outcomes related to the interventions discussed. ADLs 5 activities of daily living; COPD 5 chronic obstructive pulmonary disease; PSQI 5 Pittsburgh Sleep Quality Index.

### Clinical Reasoning Considerations

Very rarely will practitioners find an evidence-based intervention that perfectly fits their clinical setting and the client's specific needs. Practitioners need to consider several questions as they evaluate the research and consider whether they can use an intervention, or adapt it in a well-reasoned way, to meet the client's needs (Highfield et al., 2015):

1. Exactly what intervention do I need to provide?
  - 8 What types of client outcomes am I looking for?
  - 8 Do the studies I've located provide enough detail on the intervention so that I know what to do and how to do it?
2. How well do the conditions in which I will provide the intervention match those in the studies?
  - 8 What are the demographic characteristics (e.g., age, gender, diagnosis, comorbidities) of the participants in the research studies?
  - 8 In which setting (e.g., inpatient, home, community, school) did the studies take place?
  - 8 Do any contextual factors (e.g., resources, policies) that are different from those in the studies influence my ability to provide the intervention?
3. How flexible is the intervention, and how much can I modify or adapt it?
  - 8 If my setting or client population differs from those of the studies, can I modify or adapt the intervention without changing its integrity?
  - 8 If I modify or adapt the intervention, what client characteristics (e.g., comorbidities) do I need to consider?
  - 8 Can I be proactive and plan how to modify or adapt the intervention before I start implementing it?

- 8 Can I make minimal changes to the intervention, such as reordering the content of sessions, or does the need for substantial changes indicate I should select another intervention?

To modify or adapt evidence-based interventions to practice, practitioners must plan ahead and proactively think through the changes they need to make to fit the intervention to the client and practice setting. In addition, they must document how and why they altered the researched intervention so others in their setting know how to implement the intervention and why the changes were made. When practitioners adapt an intervention, it is no longer evidence based, but rather evidence informed. If extensive adaptations to the intervention are necessary, the intervention is probably not right for the client or setting. If the practitioner finds that the intervention does not suit the client, they should not use that intervention. Clinical interventions should be as similar as possible to interventions used in the research.

### Case Illustrations and Algorithms

Two case studies are presented to demonstrate how practitioners can use the evidence from the systematic reviews to inform their practice. We developed the cases using the evidence for the effectiveness of self-management interventions to promote performance and participation in occupations among community-dwelling adults with chronic conditions. To support the clinical decision making in the cases and ensure they fully represent current practice for adults with chronic conditions, we also describe other important resources, including the practitioner's expertise and the client's values and preferences.

Table 2. Clinical Recommendations and Supporting Evidence: Self-Management Interventions to Address IADLs Among Community-Dwelling Adults With Chronic Conditions

Grade/Evidence Level	Citation	Intervention Details
<b>Diabetes</b>		
<b>Long-Duration Group Interventions</b>		
A: Strong	<i>Recommendation:</i> Practitioners should consider providing long-duration (1×/wk for 1–3 mo) group interventions that include education (diagnosis, self-management), skills (action plan, goal setting, problem solving), and group process (social support, modeling) for adults with diabetes to improve outcomes such as HbA1c level, self-monitored blood glucose level, diet and decreased fatty food, and increased physical activity.	
Level 1b	<a href="#">Beverly, Fitzgerald, Brooks, et al. (2013)</a>	<i>Participants:</i> N 5 134 adults with Type 2 diabetes taking insulin or oral medication ≥1 yr (M age 5 59 yr; 51% female) <i>Setting:</i> Community based (United States) <i>Intervention:</i> U.S. Diabetes Conversation Maps program focused on diabetes self-management incorporating education, group discussion, goal setting, and plan development, 4 1-hr group sessions (number of sessions/week and duration not reported) <i>Outcome measures:</i> HbA1c levels
Level 1b	<a href="#">Fisher et al. (2018)</a>	<i>Participants:</i> N 5 301 adults with Type 1 diabetes for ≥1 yr, Type 1 Diabetes Distress Scale score >2, HbA1c level >7.5% (M age 5 45 yr; 69.1% female) <i>Setting:</i> Community based (United States) <i>Intervention:</i> 1-day group workshop and 4 1-hr online group meetings over 3 mo focusing on key factors in Type 1 diabetes causes and management and development of an action plan for glucose monitoring, new therapies, hypoglycemia, and travel <i>Outcome measures:</i> HbA1c levels, Type 1 Diabetes Distress Scale
Level 1b	<a href="#">Habibzadeh et al. (2017)</a>	<i>Participants:</i> N 5 90 adults with Type 2 diabetes ≥1 yr (M age 5 52 yr; 72.2% female) <i>Setting:</i> Community based (Iran) <i>Intervention:</i> Group discussion–based educational sessions focusing on barrier identification, individual strategies to promote behavior change, and lifestyle management, 60–90 min 1×/wk over 8 wk <i>Outcome measures:</i> Lin’s Self-Management Questionnaire, adherence to proposed diet, SMBG levels
Level 1b	<a href="#">Beverly, Fitzgerald, Sitnikov, et al. (2013)</a>	<i>Participants:</i> N 5 222 adults with Type 1 or Type 2 diabetes on insulin or oral medication ≥1 yr, no participation in diabetes education program in previous 6 mo (M age 5 52 yr; 50.4% female) <i>Setting:</i> Community based (United States) <i>Intervention:</i> Manual-based group diabetes education program focusing on self-care goal setting, behavior modeling, and problem solving to improve diabetes self-management; 5 sessions over 6 wk <i>Outcome measures:</i> Self-Care Inventory, SMBG levels, physical activity, self-controlled coping, diabetes self-efficacy
Level 1b	<a href="#">Lee et al. (2011)</a>	<i>Participants:</i> N 5 157 adults with unstable diabetes, HbA1c level ≥7% (M age NR; 62.4% female) <i>Setting:</i> Community based (Hong Kong) <i>Intervention:</i> Self-management course focused on problem solving, self-efficacy, group discussion, and action planning for behavior change in addition to knowledge and skill attainment, 1×/wk for 6 wk <i>Outcome measures:</i> HbA1c levels, waist-to-hip ratio, BMI, dietary habits (removal of fat), Diabetes Management Self-Efficacy

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Table 2. Clinical Recommendations and Supporting Evidence: Self-Management Interventions to Address IADLs Among Community-Dwelling Adults With Chronic Conditions (Cont.)

Grade/Evidence Level	Citation	Intervention Details
Level 1b	<a href="#">Cooper et al. (2008)</a>	<i>Participants:</i> N 5 89 adults with Type 2 diabetes ≥1 yr (M age 5 59 yr; 44% female) <i>Setting:</i> Community based (United Kingdom) <i>Intervention:</i> Diabetes Boxes intervention, designed by the researchers, that used visuals and analogies to address education, goal setting, and relaxation strategies, 2 hr 1×/wk for 8 wk <i>Outcome measures:</i> HbA1c levels, SMBG levels
Level 1b	<a href="#">Rygg et al. (2012)</a>	<i>Participants:</i> N 5 146 adults with physician-confirmed Type 2 diabetes, had a physician consultation in previous 3 yr (M age 5 66 yr; 45% female) <i>Setting:</i> Community based (Norway) <i>Intervention:</i> Group-based self-management training with education, skills training, and discussion; 15 hr total in 3 sessions over 6 wk <i>Outcome measures:</i> HbA1c levels, diabetes knowledge, self-care (foot inspection, avoidance of fatty foods, SMBG levels)
Level 1b	<a href="#">De Greef et al. (2010)</a>	<i>Participants:</i> N 5 41 adults diagnosed with Type 2 diabetes within previous 6 mo (M age 5 61.3 yr; 31.7% female) <i>Setting:</i> Community based (Belgium) <i>Intervention:</i> Group-based lifestyle intervention based on cognitive-behavioral therapy, including self-monitoring, social support, problem solving and barrier identification, action planning and goal setting, and a pedometer and pedometer diary; 5 1-hr sessions (Wk 2, 3, 5, 8, and 12) and 1 booster session in the 10 wk after last session (Wk 23) <i>Outcome measures:</i> HbA1c levels, physical activity
<b>Short-Duration Group Interventions</b>		
A: Strong	<i>Recommendation:</i> Practitioners should consider providing short-duration (1–3 days) group interventions including education (diagnosis, mindfulness) and skills development (action planning, problem solving) to improve HbA1c levels, SMBG levels, and dietary behavior for adults with diabetes.	
Level 1b	<a href="#">Gregg et al. (2007)</a>	<i>Participants:</i> N 5 81 adults with Type 2 diabetes who were patients at a low-income community health center (M age 5 50.9 yr; 46.9% female) <i>Setting:</i> Community based (United States) <i>Intervention:</i> 1-day workshop (duration not reported) combining education, acceptance, mindful thinking, and action planning based on goals and values <i>Outcome measures:</i> Diabetic control, physical activity, SMBG levels, Acceptance and Action Diabetes Questionnaire
Level 1b	<a href="#">Trouilloud &amp; Regnier (2013)</a>	<i>Participants:</i> N 5 120 (99 completed study) adults with physician-confirmed Type 2 diabetes (M age 5 56.7 yr; 48% female) <i>Setting:</i> Community based (France) <i>Intervention:</i> Patient-centered group intervention consisting of disease education and problem-solving activities; 8 2- to 3-hr sessions over 3 days <i>Outcome measures:</i> HbA1c levels, physical activity, dietary behavior, perceived competence to meet dietary recommendations
<b>Individualized, One-on-One Interventions</b>		
A: Strong	<i>Recommendation:</i> Practitioners should consider providing individualized 1:1 interventions (7 wk–12 mo) that provide self-management skills (action plan, goal setting, and problem solving) and education to improve diet and physical activity for adults with diabetes.	

(Continued)

Table 2. Clinical Recommendations and Supporting Evidence: Self-Management Interventions to Address IADLs Among Community-Dwelling Adults With Chronic Conditions (Cont.)

Grade/Evidence Level	Citation	Intervention Details
Level 1b	<a href="#">Clark et al. (2004)</a>	<i>Participants:</i> N 5 100 adults with Type 2 diabetes, BMI >25, able to participate in exercise (M age 5 59.5 yr; 42% female) <i>Setting:</i> Community based (United Kingdom) <i>Intervention:</i> Single 30-min session to develop tailored self-management plan, set goals, and provide motivational interviewing, followed by phone calls 1 wk, 3 wk, and 7 wk after session <i>Outcome measures:</i> Dietary behavior change, waist circumference, BMI
Level 1b	<a href="#">Farmer et al. (2009)</a>	<i>Participants:</i> N 5 453 adults with Type 2 diabetes, not on insulin, HbA1c level >6.2% (M age 5 65.7 yr; 42.6% female) <i>Setting:</i> Community based (United Kingdom) <i>Intervention:</i> Education on diet, physical activity, medication, behavior change techniques, and goal setting at initial visit with reinforcement and review at each follow-up visit, as well as blood glucose meter and self-monitoring diary with instructions on how often to test and when to contact physician, every 3 mo for 9 mo (duration not reported) <i>Outcome measures:</i> Cholesterol, SMBG levels
Level 1b	<a href="#">Yuan et al. (2016)</a>	<i>Participants:</i> N 5 108 adults with Type 2 diabetes ≥3 mo, independent in self-care (M age 5 58.7 yr; 50.4% female) <i>Setting:</i> Community based (China) <i>Intervention:</i> Individual case management–based behavior change intervention including skills training, problem solving, goal setting, and action planning; 1×/mo for 12 mo <i>Outcome measures:</i> Diet, physical activity, medication adherence
<b>Group + Individual Services</b>		
A: Strong	<i>Recommendation:</i> Practitioners should consider providing a combination of group (4–10 sessions) and individual (2–12 sessions) education sessions addressing diagnosis, self-management skills, and lifestyle change to reduce HbA1c levels for adults with diabetes.	
Level 1b	<a href="#">Cai &amp; Hu (2016)</a>	<i>Participants:</i> N 5 60 adults with self-reported diagnosis of Type 2 diabetes ≥1 yr, HbA1c level ≥7%, with a family member willing to participate (M age 5 65.3 yr for participants, M age 5 63.4 yr for family members; 61.4% female for participants) <i>Setting:</i> Community based and home (China) <i>Intervention:</i> Education to improve diabetes knowledge and self-management based on self-efficacy; 7 1-hr sessions with 2 1-hr home visits and 5 weekly 1-hr group sessions over 12 wk <i>Outcome measures:</i> HbA1c levels, BMI, waist circumference, diabetes knowledge, family support, diabetes management self-efficacy, diabetes self-care activities
Level 1b	<a href="#">Azami et al. (2018)</a>	<i>Participants:</i> N 5 142 adults with clinical diagnosis of Type 2 diabetes ≥6 mo, HbA1c level ≥8% (M age 5 54.2 yr; 65.5% female) <i>Setting:</i> Community based and telephone (Iran) <i>Intervention:</i> Usual care (individual diabetes self-management program, 20–30 min 1×/mo for 3 mo) plus 12-wk Diabetes Self-Management Education intervention consisting of motivational interviewing, information booklet, 4 10-min movie clips, 4 weekly group sessions (duration not reported), and weekly follow-up phone calls <i>Outcome measures:</i> HbA1c levels, triglyceride levels, blood pressure, weight, BMI, Diabetes Self-Management Efficacy, Perceived Therapeutic Efficacy Scale

Table 2. Clinical Recommendations and Supporting Evidence: Self-Management Interventions to Address IADLs Among Community-Dwelling Adults With Chronic Conditions (Cont.)

Grade/Evidence Level	Citation	Intervention Details
<b>Individual Phone Sessions</b>		
B: Moderate	<i>Recommendation:</i> Practitioners could consider providing individual phone sessions (up to 11 calls over 6 mo) to address barriers to and facilitators of self-management and to provide self-management strategies to improve HbA1c levels for adults with diabetes.	
Level 1b	<a href="#">Munshi et al. (2013)</a>	<i>Participants:</i> N 5 100 adults with Type 1 or Type 2 diabetes, HbA1c level >8% (M age 5 75.5 yr; 54% female) <i>Setting:</i> Home via telephone <i>Intervention:</i> 1:1 phone sessions to address barriers to and facilitators of self-management and optimization of self-care strategies; up to 11 phone calls over 6 mo <i>Outcome measures:</i> HbA1c levels, self-care inventory
<b>Pulmonary Conditions</b>		
<b>Group Education Sessions</b>		
B: Moderate	<i>Recommendation:</i> Practitioners could consider providing group sessions (3 90-min sessions) addressing diagnosis education, skills training, and self-management to increase self-efficacy and improve self-treatment behavior for adults with asthma.	
Level 1b	<a href="#">van der Palen et al. (2001)</a>	<i>Participants:</i> N 5 245 adults with asthma (M age 5 43.5 yr for intervention group, M age 5 45.2 yr for control group; 54.6% female) <i>Setting:</i> Community based (Netherlands) <i>Intervention:</i> Group discussion-based self-management education and skills training sessions and information about treating asthma exacerbations; 3 90-min sessions over 3 wk <i>Outcome measures:</i> Self-efficacy, self-treatment behavior
<b>Individual Sessions</b>		
B: Moderate	Practitioners could consider providing individual sessions (3 30-min sessions over 6 wk) addressing use of a daily peak flow meter and symptom monitoring diary to improve nighttime waking, self-management behavior, and perceived asthma control for adults with asthma.	
Level 1b	<a href="#">Janson et al. (2009)</a>	<i>Participants:</i> N 5 84 adults with moderate to severe asthma (M age 5 38.25 yr; 53.6% female) <i>Setting:</i> Community based (United States) <i>Intervention:</i> 1:1 self-management education sessions addressing use of a daily electronic peak flow meter and symptom monitoring diary; 3 30-min sessions over 6 wk <i>Outcome measures:</i> Nighttime waking, self-management behavior, perceived asthma control
<b>Combined Group and Individual Sessions</b>		
B: Moderate	<i>Recommendation:</i> Practitioners could consider providing combined group and individual sessions (1×/wk for 7 wk) addressing self-management skills and peer support to improve forced vital capacity and understanding of peak flow monitoring and to reduce asthma triggers for adults with asthma.	
Level 1b	<a href="#">Tousman et al. (2011)</a>	<i>Participants:</i> N 5 45 adults with asthma (M age 5 53 yr; 67.4% female) <i>Setting:</i> Community based (United States) <i>Intervention:</i> Learner-centered self-management program consisting of a brief individual counseling session followed by group discussion and self-management behavior homework assignment; 2 hr 1×/wk for 7 wk <i>Outcome measures:</i> Forced vital capacity, reduced asthma triggers, asthma understanding, peak flow monitoring, handwashing, physical activity, Asthma Self-Efficacy Scale score ( <a href="#">Wigal et al., 1993</a> ), Patient Activation Measure score ( <a href="#">Hibbard et al., 2005</a> )

(Continued)

Table 2. Clinical Recommendations and Supporting Evidence: Self-Management Interventions to Address IADLs Among Community-Dwelling Adults With Chronic Conditions (Cont.)

Grade/Evidence Level	Citation	Intervention Details
<b>Cardiac Conditions</b>		
B: Moderate	<i>Recommendation:</i> Practitioners could consider providing individual services, in person or in person with phone follow-ups (4–18 contacts over 2–6 mo), addressing supports of and barriers to physical activity, goal setting, physical activity diary, and diagnosis education to increase physical activity and medication adherence and reduce BMI, weight, and blood pressure for adults with cardiac conditions (congestive heart failure, hypertension).	
<b>Individual Services</b>		
Level 1b	<a href="#">Wang et al. (2017)</a>	<i>Participants:</i> N 5 62 adults with Class II–IV congestive heart failure, responsive to treatment, in stable condition, able to participate in exercise (M age 5 63.4 yr; gender NR) <i>Setting:</i> Community (China) <i>Intervention:</i> PRECEDE model–based individual intervention addressing predisposing, enabling, and reinforcing factors for self-management; 1 60- to 90-min session/wk for 9 wk <i>Outcome measures:</i> Weight, symptom monitoring, diet, medication adherence items of the European Heart Failure Self-Care Behaviour Scale
Level 1b	<a href="#">Alsaleh et al. (2016)</a>	<i>Participants:</i> N 5 156 adults with coronary heart disease, able to participate in exercise, access to mobile phone (M age 5 57.8 yr; 46.1% female) <i>Setting:</i> Community based and telephone (Jordan) <i>Intervention:</i> Behavioral intervention using motivational interviewing techniques to discuss and address patients' barriers to physical activity, highlight perceived facilitators of active lifestyles, and increase self-efficacy for physical activity and goal setting, as well as use of a physical activity diary; 1 face-to-face consultation, 6 phone consultations, and 18 one-way text message prompts over 6 mo <i>Outcome measures:</i> Blood pressure, weight, BMI, physical activity (frequency, duration, intensity), Exercise Self-Efficacy Scale
<b>Group-Based Care</b>		
B: Moderate	<i>Recommendation:</i> Practitioners could consider providing group-based care (2.5-hr sessions 1×/wk over 5 wk) including diagnosis education, goal setting, action planning, self-monitoring skills, and group support to improve blood pressure, cholesterol levels, BMI, and physical activity for adults with hypertension.	
Level 1b	<a href="#">Xue et al. (2008)</a>	<i>Participants:</i> N 5 140 adults with mild to moderate hypertension (M age 5 57.45 yr; 58.5% female) <i>Setting:</i> Community based (China) <i>Intervention:</i> Group-based self-management intervention consisting of education, skills training, goal setting, exercise, self-monitoring, and group facilitation; 2.5-hr sessions 1×/wk for 5 wk <i>Outcome measures:</i> Blood pressure, total cholesterol, BMI, waist circumference, physical activity
<b>Kidney Disease</b>		
B: Moderate	<i>Recommendation:</i> Practitioners could consider providing individual sessions (1 60-min in-person session plus follow-up phone calls) addressing action plans, goal setting, and diagnosis education to improve self-management skills, self-efficacy, and kidney disease knowledge for adults with chronic kidney disease not on dialysis.	
Level 1b	<a href="#">Nguyen et al. (2019)</a>	<i>Participants:</i> N 5 135 adults with Stage 3–5 chronic kidney disease, not on dialysis (M age 5 48.9 yr; 50% female) <i>Setting:</i> Community based (Vietnam) <i>Intervention:</i> Self-management program consisting of a 1-hr 1:1 session on using self-efficacy theory to improve self-

(Continued)

**Table 2. Clinical Recommendations and Supporting Evidence: Self-Management Interventions to Address IADLs Among Community-Dwelling Adults With Chronic Conditions (Cont.)**

Grade/Evidence Level	Citation	Intervention Details
		management and 2 follow-up phone calls at Wk 4 and 12 to reinforce the action plan, assess goals, and address barriers, as well as a booklet on goal setting and education <i>Outcome measures:</i> Self-management skills, self-efficacy, and kidney disease knowledge

*Note.* All studies had statistically significant positive outcomes related to the interventions discussed. BMI **5** body mass index; HbA1c **5** hemoglobin A1c; NR **5** not reported; SMBG **5** self-monitored blood glucose.

Algorithms based on the developed clinical recommendations were developed by the authors and AOTA staff to assist practitioners in identifying appropriate interventions for people with chronic conditions. Each algorithm includes decision points and actions for practitioners to take. When using algorithms to inform clinical decision making, it is important for practitioners to consider each potential intervention in relation to the client’s individual goals, interests, habits, routines, and environment. Practitioners should choose interventions that strongly align with or are supportive of these factors in the context of the client’s occupational profile.

### Case Study 1: Salomé

Salomé is a 60-yr-old woman with multiple chronic conditions, including chronic obstructive pulmonary disease (COPD), congestive heart failure, morbid obesity, hypertension, and elevated cholesterol. Salomé lives in a low-income, subsidized two-bedroom apartment with her partner, Jan, who works night shifts.

Salomé complains of poor sleep and is easily fatigued when completing meal preparation and cleanup tasks and light household cleaning. She recently had an exacerbation of her COPD that required an overnight stay in the hospital. After discharge, she was referred to home health occupational therapy services to address self-management of her multiple chronic conditions, specifically the decline in her activity tolerance and ability to care for herself at home.

### Occupational Therapy Initial Evaluation and Findings

Using AOTA’s (2021b) Occupational Profile Template as a guide, Salomé’s occupational therapist conducted an initial evaluation, which revealed the following:

- Salomé is currently on 1 L of oxygen via nasal cannula. She has a home oxygen concentrator located in the living room with extended oxygen tubing that allows her to move around the apartment.

**Table 3. Clinical Recommendations and Supporting Evidence: Self-Management Interventions to Promote Education, Work, Volunteering, Leisure, and Social Participation Among Community-Dwelling Adults With Chronic Conditions**

Grade/Evidence Level	Citation	Intervention Details
B: Moderate	<i>Recommendation:</i> Practitioners could consider using a multimodal physical activity intervention (1 2-hr in-person session and telephone follow-up at 1 wk and 1 mo after) using tailored computer technology and health counseling to improve leisure and social participation for adults with Type 2 diabetes.	
Level 1b	King et al. (2006)	<i>Participants:</i> N <b>5</b> 335 community-based adults with Type 2 diabetes (M age <b>5</b> 61.5 yr; 50.2% female) <i>Setting:</i> Community based via telephone (United States) <i>Intervention:</i> Self-management group intervention consisting of 2 participant-selected physical activities from a list of moderate-level activities with specific frequency and duration specified, tailored interactive CD-ROM technology, 1:1 health counseling (1 2-hr session), and telephone follow-up support (1 wk and 1 mo after in-person sessions), as well as a tailored health newsletter, instruction on resistance band exercises, problem solving, goal setting, ways to increase physical activity (e.g., exercise, gardening), and an integrated diet plan. <i>Outcome measures:</i> Community Healthy Activities Model Program for Seniors physical activity questionnaire

*Note.* All studies had statistically significant positive outcomes related to the interventions discussed.



Table 4. Clinical Recommendations and Supporting Evidence: Interventions for Caregivers of People With Stroke to Maintain Their Participation in the Caregiver Role

Grade/Evidence Level	Citation	Intervention Details
<b>Problem-Solving Interventions</b>		
B: Moderate	<i>Recommendation:</i> Practitioners could consider using problem-solving training consisting of education and a multistep strategy for addressing pressing problems to improve depression in caregivers of people with stroke. The dose may vary from a single 3-hr training followed by 7 40-min telephone calls for community-based caregivers to 3 individualized in-person sessions followed by 7 weekly individual telephone sessions for caregivers transitioning a stroke survivor from the acute care hospital back home.	
Level 1b	<a href="#">Grant et al. (2002)</a>	<i>Participants:</i> N 5 74 caregivers (M age 5 56 yr; 91% female) <i>Setting:</i> Community based (United States) <i>Intervention:</i> Education in and facilitation of the use of the positive problem orientation strategy; single 3-hr training session and 7 40- to 45-min telephone calls <i>Outcome measures:</i> SF-36, PSI, CSQ, CES-D, PCS, CBS
Level 2b	<a href="#">Grant (1999)</a>	<i>Participants:</i> N 5 30 caregivers (M age 5 56 yr; gender NR) <i>Setting:</i> Community based (United States) <i>Intervention:</i> Education and facilitation on the use of a problem-solving strategy to apply to the most pressing problems; single 3-hr individualized training session and 7 20- to 45-min individualized telephone sessions <i>Outcome measures:</i> SF-36, PSI, CSQ, CES-D, PCS, CBS
Level 3b	<a href="#">King et al. (2007)</a>	<i>Participants:</i> N 5 15 caregivers (M age 5 62.3 yr; 67% female); N 5 15 care receivers (M age 5 66.2; 40% female) <i>Setting:</i> Hospital with telephone follow-up (United States) <i>Intervention:</i> Education and training in problem orientation, problem solving, and cognitive-behavioral therapy; 3 individualized sessions in the hospital and 7 weekly 45- to 60-min individualized telephone sessions <i>Outcome measures:</i> CES-D, Profile of Mood States Tension Anxiety subscale, Bakas Caregiving Outcomes Scale, Healthy Caregiving Scale, PCS
<b>High-Dose Group Interventions</b>		
B: Moderate	<i>Recommendation:</i> Practitioners could consider using high-dose group-based interventions (2 hr session 1×/wk for 8 wk, followed by 10 2-hr sessions 1×/mo or 15 90-min sessions bimonthly) focused on coping strategies, problem-solving skills, and disease-specific education to improve depression and quality of life in caregivers of people with stroke.	
Level 1b	<a href="#">Toseland et al. (2004)</a>	<i>Participants:</i> N 5 104 caregivers (M age 5 69.3 yr; 69% female); N 5 106 care receivers (M age 5 72.6; 28% female) <i>Setting:</i> Community-based (United States) <i>Intervention:</i> Group education and coaching for caregivers on the application of problem-solving skills and coping strategies; 8 weekly 2-hr sessions followed by 10 monthly 2-hr sessions <i>Outcome measures:</i> GHQ, Social Provisions Scale, SF-36, Montgomery Borgotta Caregiver Burden Scale, Pressing Problems Index (developed for the study), Knowledge and Use of Community Services Scale, Self-Appraisal of Change (developed for the study)

(Continued)

Table 4. Clinical Recommendations and Supporting Evidence: Interventions for Caregivers of People With Stroke to Maintain Their Participation in the Caregiver Role (Cont.)

Grade/Evidence Level	Citation	Intervention Details
Level 2b	<a href="#">Wilz &amp; Barskova (2007)</a>	<i>Participants:</i> N 5 124 caregivers (M age 5 65 yr; 72% female); N 5 124 care receivers (M age 5 67 yr; 28% female) <i>Setting:</i> Community based (Germany) <i>Intervention:</i> Group education and support sessions focused on expressing emotions and social sharing, problem solving, acceptance and commitment therapy, and disease-specific information; 15 90-min structured sessions every other month <i>Outcome measures:</i> Beck Anxiety Inventory, Beck Depression Inventory, World Health Organization Quality of Life Questionnaire Brief version
<b>Group Education Interventions</b>		
B: Moderate	<i>Recommendation:</i> Practitioners could consider using a group education intervention (2–7 1-hr sessions in the hospital) addressing stroke knowledge, available resources, recovery, prevention, and adaptation of daily living skills to improve stroke knowledge in caregivers of people with stroke.	
Level 2b	<a href="#">Rodgers et al. (1999)</a>	<i>Participants:</i> N 5 176 caregivers (M age 5 59 yr; 69% female), N 5 204 care receivers (M age 5 75 yr; 52% female) <i>Setting:</i> Hospital (United Kingdom) <i>Intervention:</i> Group education and discussion about stroke, available resources, recovery, and prevention; 7 1-hr sessions over 6 wk <i>Outcome measures:</i> SF–36, knowledge of stroke, GHQ–30
Level 3b	<a href="#">Louie et al. (2006)</a>	<i>Participants:</i> N 5 32 caregivers (M age 5 49 yr; 66% female); N 5 54 care receivers (M age 5 72 yr; 94% female) <i>Setting:</i> Hospital (Hong Kong) <i>Intervention:</i> Group education and discussion on how to adapt daily living skills; 2 1-hr sessions <i>Outcome measures:</i> Relatives' Stress Scale, knowledge of proper handling and caring skills (developed for this study), SF–36 Chinese (Hong Kong) version
<b>Safe Transfer and Handling Techniques</b>		
B: Moderate	<i>Recommendation:</i> Practitioners could consider providing hands-on training in safe transfer and handling techniques (3–5 30- to 45-min inpatient sessions with 1 follow-up home session or 3 2- to 2.5-hr inpatient sessions with 3 follow-up telephone sessions) to improve quality of life and reduce perceived burden in caregivers of people with stroke.	
Level 1b	<a href="#">Kalra et al. (2004)</a>	<i>Participants:</i> N 5 300 caregivers (M age NR; gender NR), N 5 300 care receivers (M age 5 76; 47% female) <i>Setting:</i> Stroke rehabilitation unit (United Kingdom) <i>Intervention:</i> Caregiver training including instruction on secondary conditions associated with stroke and handling techniques, hands-on training, and frequent feedback; 3–5 30- to 45-min sessions plus 1 follow-through home session <i>Outcome measures:</i> Frenchay Activities Index, Hospital Anxiety and Depression Scale, CBS, EuroQol visual analog scale (version not specified)
Level 2b	<a href="#">Oupra et al. (2010)</a>	<i>Participants:</i> N 5 140 caregivers (M age 5 44; 71% female); N 5 140 care receivers (M age NR; gender NR) <i>Setting:</i> Hospital (Thailand) <i>Intervention:</i> Didactic stroke education sessions on nursing skills and education, physical handling, and caregiver health with hands-on training for family caregivers, as well as an information packet; 3 120- to 150-min sessions

(Continued)

**Table 4. Clinical Recommendations and Supporting Evidence: Interventions for Caregivers of People With Stroke to Maintain Their Participation in the Caregiver Role (Cont.)**

Grade/Evidence Level	Citation	Intervention Details
		<i>Outcome measures:</i> GHQ–28 Thai version, Caregiver Strain Index

*Note.* All studies had statistically significant positive outcomes related to the interventions discussed. CBS **5** Caregiver Burden Scale; CES–D **5** Center for Epidemiologic Studies Depression Scale; CSQ **5** Client Satisfaction Questionnaire; GHQ **5** General Health Questionnaire; GHQ–12 **5** Short General Health Questionnaire; GHQ–30 **5** General Health Questionnaire 30-item version; NR **5** not reported; PCS **5** Preparedness for Caregiving Scale; PSI **5** Problem-Solving Inventory; SF–36 **5** 36-item Short Form Survey.

- Salomé normally wakes in the early morning when Jan returns home from work. She is often not able to get back to sleep. She reports that on average she sleeps 5 hr or less most nights.
- Salomé is no longer able to manage paid employment because of her chronic conditions and is on a fixed disability income. She used to work as a cashier at a local grocery store.
- Jan, who works overnight shifts in environmental services for a large office building, returns to the apartment in the early morning hours. She sleeps until about noon and leaves for work in the early evening.
- Salomé is not able to leave her apartment as much as she would like because of her low activity tolerance and need for portable oxygen. She reports that she wants someone to assist her when in the community, and Jan expresses discomfort with managing the portable oxygen because she is unfamiliar

with it and fears running out of oxygen when they are away from home.

- Salomé enjoys reading the newspaper each morning while she drinks coffee, caring for her cat, talking to friends on the telephone, reading books and magazines from the library, and watching movies, both at home and in the theater.
- Because of Salomé’s COPD, she stopped smoking 5 yr ago; however, Jan continues to smoke outside the apartment.

Additional findings from the evaluation are provided in [Table 5](#).

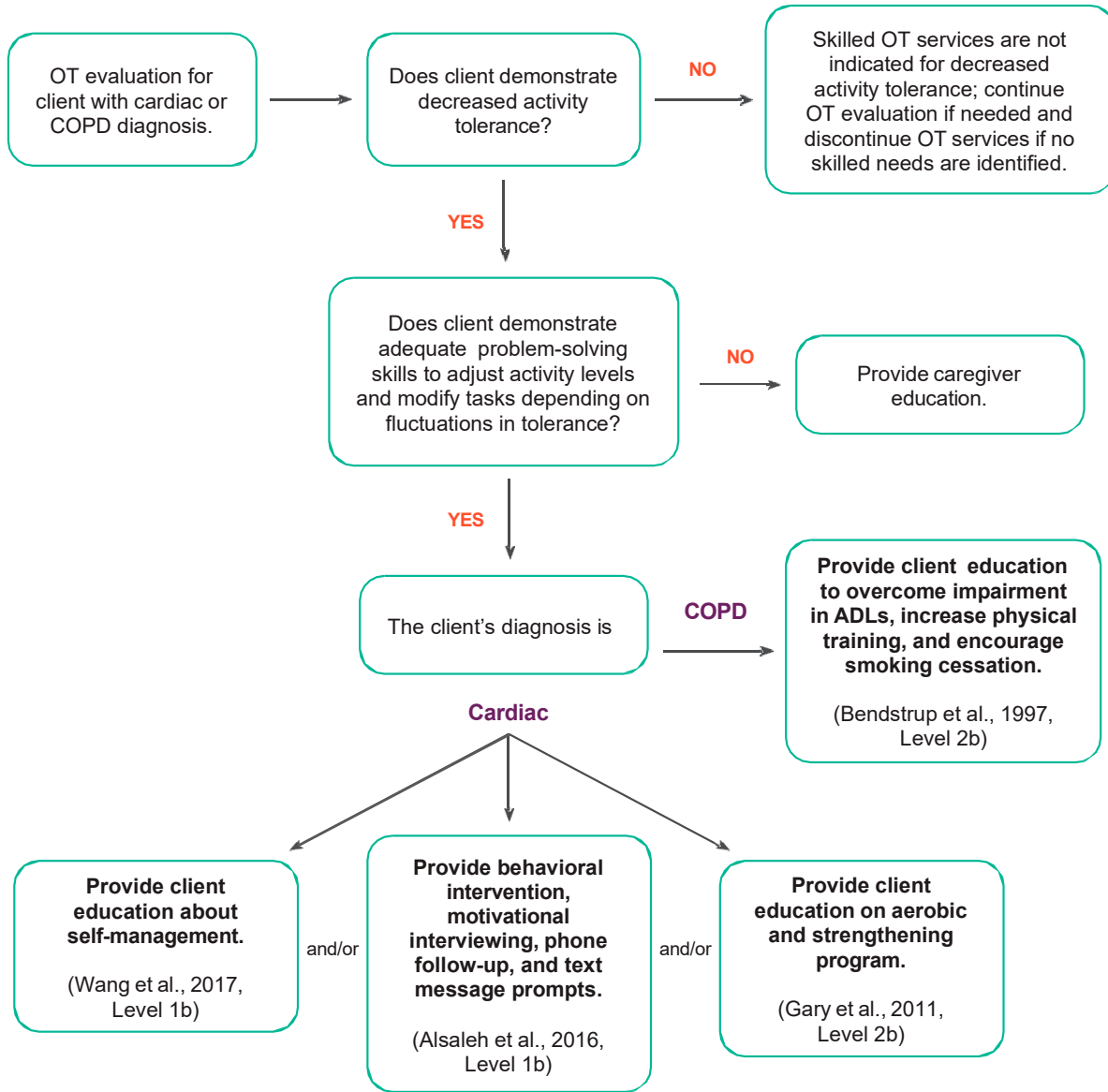
### Occupational Therapy Interventions

Salomé participated in nine scheduled occupational therapy sessions over 2 mo, including the initial evaluation and reevaluation at discharge. After the initial evaluation, the occupational therapist used

**Table 5. Assessment Findings for Salomé**

Assessment	Findings
Canadian Occupational Performance Measure (COPM; <a href="#">Law et al., 2019</a> )	<ul style="list-style-type: none"> <li>▪ The practitioner uses the COPM to complete Salomé’s occupational profile (<a href="#">AOTA, 2021b</a>). Salomé is dissatisfied with her sleep quality and with her ability to complete activity without becoming tired and short of breath, leave her apartment, and manage her health. Her Performance score is 3/10, and her Satisfaction score is 4/10.</li> </ul>
Clinical observation of occupations and interview	<ul style="list-style-type: none"> <li>▪ Salomé is independent in dressing, eating, and grooming, but she needs extra time to complete dressing and grooming tasks because of her need for rest breaks. She completes tasks from a seated position when possible.</li> <li>▪ She requires frequent seated rest breaks while completing a light meal prep task. She tolerates standing during the task for 3 min at a time before taking a seated break.</li> <li>▪ She moves around the apartment on her own but requires supervision when getting in and out of the tub—shower using a tub transfer bench.</li> </ul>
Geriatric Depression Scale (GDS; <a href="#">Yesavage et al., 1982–1983</a> )	<ul style="list-style-type: none"> <li>▪ The GDS is a 15-item screening tool for depression. A score of 0–5 indicates normal mood, and a score &gt;5 indicates depression.</li> <li>▪ Salomé scores 5 on the GDS, indicating borderline risk for depression.</li> </ul>
Pittsburgh Sleep Quality Index (PSQI; <a href="#">Buysse et al., 1989</a> )	<ul style="list-style-type: none"> <li>▪ The PSQI is a measure of sleep quality. Global PSQI scores range from 0 to 21, with higher scores indicating lower sleep quality.</li> <li>▪ Salomé scores 19 on the PSQI, indicating poor sleep quality.</li> </ul>

Figure 1. Decision-making algorithm for interventions to increase activity tolerance among clients with heart disease or chronic lung conditions.



**Note.** Occupational therapy practitioners should always consider the client’s personal preferences, access to resources, and interests when developing the plan of care and selecting interventions. ADLs = activities of daily living; COPD = chronic obstructive pulmonary disease; OT = occupational therapy.

the activity tolerance algorithm displayed in Figure 1 to develop a plan of care that used a multicomponent approach to enhance Salomé’s self-management of her multiple chronic conditions. This approach included client and caregiver education, health management, resource advocacy, and training in problem-solving strategies. Goals included improved tolerance for activity within the apartment, sleep, health management, and participation in leisure and social activities. The sections that follow describe evidence-based interventions that could be implemented with Salomé by either an occupational therapist or an occupational therapy assistant.

### Sleep and Health Management Intervention

Three sessions were focused on addressing sleep and enhancing Salomé’s activity tolerance during the day. The occupational therapy practitioner provided education regarding sleep hygiene and the benefits of a regular sleep routine (Kapella et al., 2011; Rybarczyk et al., 2001). Salomé determined that her poor sleep was in part attributable to waking early when Jan returned home. The practitioner discussed the option of sleeping in separate bedrooms to make it less likely that Salomé wakes when Jan returns home. They also discussed the option of Jan using night lights instead of room lights in the early morning hours. Additionally, the practitioner demonstrated a variety of

mindfulness and relaxation techniques to Salomé, who provided return demonstration. Salomé selected one of the strategies to implement when she prepared for sleep and when she woke in the middle of the night.

The practitioner also discussed the benefits of a routine physical activity schedule to promote overall well-being. Together, they reviewed a seated aerobic and strengthening exercise program that Salomé could integrate into her daily routine (Bendstrup et al., 1997; Gary et al., 2011). Salomé provided return demonstration of the exercise routine. As they considered Salomé's daily activities and existing performance patterns, they determined that she would first try the strategy of completing the exercises each day before reading the newspaper and drinking her coffee to integrate the exercise into her routine.

### *Individual Self-Management Intervention*

For the next two sessions, Salomé continued to address her self-management skills (Wang et al., 2017). The practitioner introduced Salomé to keeping an activity diary to aid in tracking her sleep, exercise program, medication adherence, and activity tolerance. The activity diary also included space for reflection on her mood. Once Salomé was oriented to the diary, she participated in a laundry task while self-monitoring her tolerance for the activity. Afterward, she completed her first diary entry, which included reflection on her tolerance for the activity and her overall mood. Between therapy visits, the practitioner consulted with Salomé every other week over the phone during the 2 months of occupational therapy services to review the activity diary and adjust activity levels and time use as needed—for example, adjusting the time of day when Salomé completed her household tasks to best align with her energy level.

### *Psychoeducation and Problem-Solving Intervention*

Two sessions centered on disease-specific education and problem-solving training with Salomé and Jan (Ågren et al., 2012; Tosland et al., 2004). The occupational therapy practitioner provided education on the functional limitations caused by Salomé's multiple chronic conditions, and the three collaborated on developing a strategy of steps to use when Salomé faced challenges that prevented engagement in occupations. This strategy included writing down the problem, developing a list of potential solutions, selecting the option that is most suitable to try first, implementing the option, and evaluating its effectiveness. Salomé and Jan then applied this problem-solving strategy to several barriers to Salomé's engagement in activities outside the apartment, including management of Salomé's portable oxygen and low activity tolerance. After discussing potential solutions, the practitioner guided Salomé and Jan in

practicing their selected option of using an oxygen cylinder shoulder bag during functional mobility from the apartment to their vehicle to enable them to plan participating in occasional community-based activities.

### *Discharge Summary*

Salomé met her goals after completing 8 wk of home health occupational therapy services. Salomé reported that she increased her satisfaction with her sleep, which had resulted in more energy to participate in daytime activities, including her seated exercise program. She was also beginning to plan community-based activities with Jan on the weekends, which had improved their social relationship. They planned the activities together in advance to ensure that Salomé built in opportunities to take rest breaks when needed.

By discharge, Salomé and Jan had gone to the movie theater for an afternoon matinee and visited the public library to check out books Salomé could read at home. Salomé found the activity diary helpful for seeing the progress she had made in activity tolerance, and the telephone consultations between therapy visits kept her on track. Because Jan observed the effectiveness of the activity diary in improving Salomé's activity tolerance, she decided to add it to her daily routine as a strategy to reduce her smoking.

Salomé's scores on the Canadian Occupational Performance Measure improved from 3/10 to 7/10 for Performance and from 4/10 to 7/10 for Satisfaction (Law et al., 2019). Her Geriatric Depression Scale score improved 2 points to a score of 3, indicating no depressive symptoms (Yesavage et al., 1982–1983). Her global score on the Pittsburgh Sleep Quality Index improved from 19/21 to 10/21 (Buysse et al., 1989), indicating improved sleep quality. Salomé reported she was now consistently getting 6.5 hr of uninterrupted sleep each night and felt refreshed when she woke up. She reported completing her seated physical activity program 5 days per week for 30 min at a time with 3 rest breaks. She reported using energy conservation and problem-solving strategies to plan her days and varying her activities throughout the day and the week, to which she attributed her elevated mood. She reached out to her local senior center and was now receiving Meals on Wheels, which she saved for the evening to avoid having to prepare a meal while Jan was at work.

### *Case Study 2: Jordan*

Jordan is a nonbinary 75-yr-old who was referred to outpatient occupational therapy because of the recent progression of diabetic neuropathy in their lower extremities secondary to long-standing Type 2 diabetes mellitus, resulting in a fall. Jordan is a retired university professor emeritus of mathematics. They live alone in an urban neighborhood near campus in a townhome. Jordan manages the home

and is not responsible for snow removal or lawn care. Their daily routine includes sleeping in, meeting retired colleagues for coffee, working on scholarly activities for several hours each day at their campus office, and caring for their cat. Jordan's hobbies include cooking for weekend dinner parties with friends and reading. Before the diabetic neuropathy worsened, Jordan enjoyed walking to campus when the weather allowed. Jordan was referred to occupational therapy for self-management of their diabetes and diabetic neuropathy.

## Occupational Therapy Initial Evaluation and Findings

Using AOTA's (2021b) Occupational Profile Template as a guide, Jordan's occupational therapist conducted an initial evaluation, which revealed the following:

- Jordan is independent in functional mobility, dressing, eating, and showering.
- They have been sedentary since the recent fall.
- Jordan does not have issues with balance or home safety. They describe their home as being very accessible. They had purposefully purchased the townhome 10 yr previously to allow them to age in place. The townhome has one level with a no-step entry and has decorative grab bars installed near the toilet and in the walk-in shower.
- Jordan enjoys entertaining friends by making fun cocktails and cooking extravagant meals.

Over the past several months, Jordan has noticed numbness and tingling in their feet. Jordan recognizes

the need to take better care of their feet and would like to learn strategies for preventing further foot complications. They also want to find ways to exercise but prefer to do it in a group. Additional findings from the evaluation are provided in Table 6.

## Occupational Therapy Interventions

Jordan attended six occupational therapy outpatient visits over 6 wk. All visits were delivered in person at the clinic. Using the diabetes foot care algorithm displayed in Figure 2, the practitioner and Jordan collaboratively focused their plan of care on diabetic foot care strategies and group-based education and exercise. The sections that follow describe evidence-based interventions that could be implemented with Jordan by either an occupational therapist or an occupational therapy assistant. Target outcomes included improved performance of ADLs and participation in leisure and social activities.

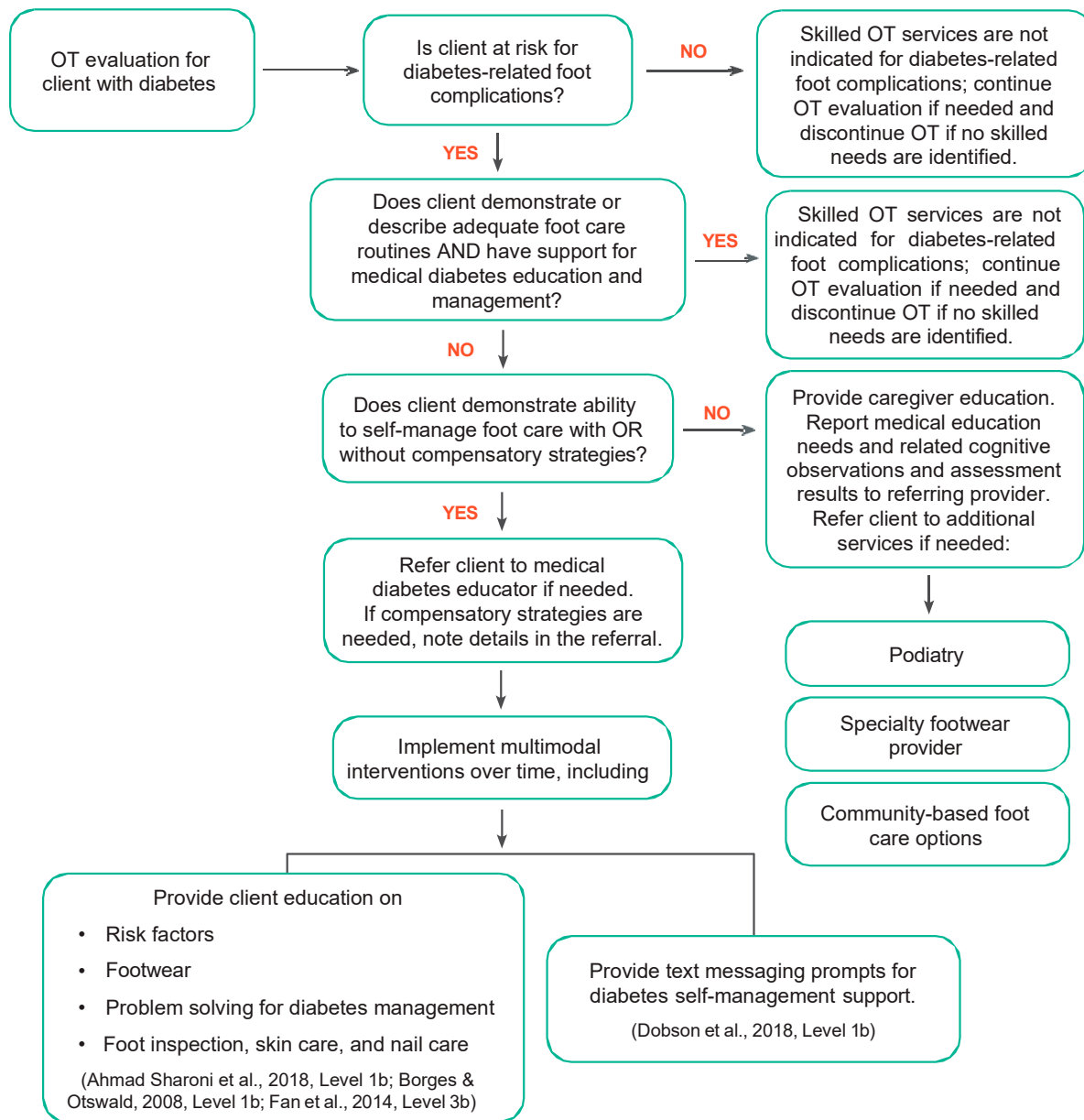
### Diabetic Foot Care Intervention

The occupational therapy practitioner educated Jordan on foot self-care. In particular, the practitioner shared information on risk factors, appropriate footwear, when to call the doctor, and the importance of daily foot inspections. The practitioner taught Jordan problem-solving strategies for avoiding serious foot problems (Ahmad Sharoni et al., 2018; Borges & Ostwald, 2008; Fan et al., 2014). For example, the practitioner instructed Jordan to do a daily skin and nail

Table 6. Assessment Findings for Jordan

Assessment	Findings
Canadian Occupational Performance Measure (Law et al., 2019)	<ul style="list-style-type: none"> <li>▪ Jordan's Performance and Satisfaction scores are 4/10. They are unhappy with their performance in health management and physical activity.</li> </ul>
Observation of occupations	<ul style="list-style-type: none"> <li>▪ Jordan demonstrates their morning hygiene and grooming routine using the outpatient clinic's simulated apartment. Jordan's routine does not include caring for skin or nails, and they verbalize that they rarely perform these tasks.</li> </ul>
Problem Areas in Diabetes (PAID; Polonsky et al., 1995)	<ul style="list-style-type: none"> <li>▪ The PAID is a 20-item questionnaire used to assess diabetes distress, with higher scores indicating greater distress.</li> <li>▪ Jordan scores 37.5/100, indicating a moderate level of distress.</li> </ul>
Tinetti Assessment Tool (Tinetti, 1986)	<ul style="list-style-type: none"> <li>▪ The Tinetti Assessment Tool is a task-performance measure of balance and gait, with lower scores indicating greater risk of falls.</li> <li>▪ Jordan scores 15/16 on the 9-item balance component, indicating low risk for loss of balance.</li> </ul>
Semmes–Weinstein monofilament foot testing	<ul style="list-style-type: none"> <li>▪ Jordan responds to the 3.61 monofilament size, indicating diminished light touch.</li> </ul>
Fear of Falling Questionnaire–Revised (FFQ–R; Bower et al., 2015)	<ul style="list-style-type: none"> <li>▪ The FFQ–R is a 15-item multidimensional self-report measure of fear of falling, with higher scores indicating greater fear.</li> <li>▪ Jordan scores 15/60, indicating little fear of falling.</li> </ul>

Figure 2. Decision-making algorithm for interventions to prevent diabetes foot complications.



**Note.** Occupational therapy practitioners should always consider the client's personal preferences, access to resources, and interests when developing the plan of care and selecting interventions. OT **5** occupational therapy.

inspection of their feet. Jordan recognized that their nails were discolored and brittle. To help Jordan understand the problem, the practitioner shared that discoloration could be a result of a fungal infection and encouraged them to schedule a call with a podiatrist and do some online research on available treatments. The practitioner also provided Jordan with information on an automated text messaging program called SMS4BG (Dobson et al., 2018). This program was designed to help motivate people with diabetes to engage in healthy behaviors, such as daily foot inspections. Jordan learned that they could receive the motivational messages for free by signing up for the program online.

### Group-Based Self-Management and Exercise Intervention

Every Thursday morning for an hour, the occupational therapy practitioner led a group-based diabetes self-management program focused on goal setting, physical activity, and healthy eating (Gregg et al., 2007; Trouiloud & Regnier, 2013). Jordan decided to participate in the program for five of their six occupational therapy visits. During this time, Jordan connected with others who had diabetes. As a group, they engaged in resistance band exercises and shared healthy recipes (King et al., 2006). The practitioner was familiar with community resources and assembled a list of local support groups for people with Type 2 diabetes to share with the group. Participation in

these support groups can create a sense of community and empower people to improve or maintain their health and wellness (Self-Management Resource Center, 2021).

## Discharge Summary

After participating in occupational therapy interventions in six outpatient visits, Jordan met their established goals. Jordan's COPM scores improved from 4/10 to 8/10 in both Performance and Satisfaction. Their Problem Areas in Diabetes score (Polonsky et al., 1995) improved from 37.5/100 to 12.5/100, indicating reduced diabetes distress. Jordan reported that they had resumed walking to campus on a more regular basis. They had also started preparing the healthy recipes they learned from the self-management program for their friends during weekend dinner parties. Although Jordan had not yet joined a support group in the community, they had established a routine of meeting up with new friends from the self-management program at a local YMCA to exercise twice a week. Jordan had also incorporated a daily feet check into their hygiene and grooming routine. They now trimmed their nails regularly, washed and dried their feet every day, and inspected their feet for any sores or changes to the skin.

## Strengths and Limitations of the Current Body of Evidence

### Strengths

Systematic reviews explore specific clinical questions that are guided by a priori question development and a review process protocol. No systematic review can address all aspects of a topic; systematic review authors make decisions on which aspects to include and exclude before conducting the review. Additionally, the literature search may miss relevant articles; using best practice methodology can reduce this bias. We attempted to follow best practices at every step of the process, in part by getting input at all stages from practitioners, researchers, consumers, and experts in the topic areas included in the review.

The review questions that form the basis for this practice guideline were developed with an intentional focus on occupation-based outcomes. Because occupation-based outcomes are the goal of occupational therapy, these were the outcomes reported in the reviews. Additionally, AOTA has published systematic reviews and practice guidelines for diagnoses such as stroke, Alzheimer's disease, and arthritis; we did not include those diagnoses in this review to avoid overlap. Gaps in the research supporting particular interventions does not mean that practitioners should not use those interventions. Rather, it means that the evidence is insufficient to support evidence-based practice and that practitioners should instead rely on expert knowledge to guide practice. Such knowledge

can come from practitioners' own training and experience or from connecting with experts in an area to gather their opinions. In the sections that follow, we pinpoint important gaps in the evidence for interventions that practitioners can consider using as appropriate.

### Limitations: Gaps in the Evidence

Gaps in knowledge exist when the information in the literature about interventions is insufficient, imprecise, inconsistent, or biased (Robinson et al., 2011). Gaps also exist when the information in the literature is not sufficient to answer a clinical question. Therefore, practitioners must combine current evidence with expert opinion and their own training and experience to provide the best care possible.

Practitioners need to think about the elements of evidence-based practice as they evaluate this guideline in light of gaps in the literature related to their clinical practice. Practitioners should consider the following questions when they identify these gaps (Gutenbrunner & Nugraha, 2020):

1. What evidence exists?
  - What are the best practices associated with providing services to this client population?
  - What interventions are contraindicated for this population?
  - What outcomes am I hoping to achieve with this client?
  - Does evidence exist in another field or discipline related to interventions and desired outcomes that are within the scope of occupational therapy practice with this client population?
2. What are my client's preferences and values?
  - Does my client prefer one intervention over another?
  - Are available resources, cost, or time influencing my client's preference?
  - How might the intervention I am considering affect my client's performance patterns and roles?
  - Does my client find the intervention I am considering meaningful?
3. What experience and expertise do I have that can help guide my decisions?
  - What types of interventions have I used previously that were effective with similar clients or populations?
  - What types of interventions have I used previously that were ineffective with similar clients or populations?
  - What potential risks does the intervention I am considering pose to my client or this client population?
  - What types of interventions to address this client's concerns and challenges were part of my occupational therapy education?



4. Will the health care system or organization be supportive of this intervention?
  - 8 How will I document this intervention?
  - 8 How will I document the outcomes associated with this intervention?
  - 8 Is it likely that this intervention will be reimbursed?

Overall, the results from the systematic reviews on chronic conditions support occupational therapy practitioners' use of a multimodal approach to help adults manage one or more chronic conditions. This approach must include education, goal setting, and problem-solving components delivered over an extended period of time. The clinical recommendations from the systematic reviews may be incomplete because of insufficient, imprecise, inconsistent, or biased evidence. Therefore, the following sections present additional information and suggestions related to occupational therapy's role in addressing self-management of chronic conditions with adult clients. These sections are based on existing or emerging evidence, expert opinion, or both.

### *Prevention Approach*

Much of the evidence in the systematic reviews is focused on strategies adults can use to improve or maintain health behaviors after diagnosis with one or more chronic conditions. However, the evidence provides no strategies that focus on prevention. The risk of having more than one chronic condition increases with age (Vogeli et al., 2007); therefore, adults must be provided with strategies for preventing not only the progression of their current chronic conditions, but also the onset of additional chronic conditions. Occupational therapy practitioners can intervene at the primary, secondary, and tertiary prevention levels using occupation-based interventions. AOTA (2020a) developed a position statement on occupational therapy's role in the promotion of health and well-being that provides examples of occupation-based primary, secondary, and tertiary prevention interventions.

### *Habits and Routines*

Much of the evidence in the systematic reviews does not explicitly connect self-management interventions to habits and routines, likely because most interventionists in the literature were not occupational therapy practitioners. Occupational therapy practitioners are skilled at assessing and addressing clients' performance patterns, which "are the acquired habits, routines, roles, and rituals used in the process of engaging consistently in occupations and can . . . help establish [healthy] lifestyles" (AOTA, 2020b, p. 12). The evidence-based Lifestyle Redesign<sup>®</sup> program, for example, provides occupational therapy practitioners with practical guidance on helping adults enact a personalized and sustainable daily routine that promotes health and well-being (Jackson et al., 1998). Research

on the Lifestyle Redesign program has demonstrated the program's ability to enhance health and quality of life among community-dwelling older adults (Juang et al., 2018; Uyeshiro Simon & Collins, 2017).

### *Shared Goal Setting*

Much of the evidence in the systematic reviews is focused on helping clients develop individual self-management goals. Studies on goal setting infrequently included family and caregivers in the process. Social support has been found to help adults build "the skills and confidence they need to lead healthier lives" (Agency for Healthcare Research and Quality, 2020, para. 6). Family and caregivers often help adults identify personal barriers and incorporate problem-solving techniques into their daily lives (Jordan, 2014). Occupational therapy practitioners can take advantage of a variety of tools, such as goal-setting worksheets, to help improve clients' self-management support. The Institute for Healthcare Improvement (2021) has provided a list of tips for setting and documenting collaborative self-management goals for adults with chronic conditions.

### *ADLs and Medication Management*

Much of the evidence in the systematic reviews does not specifically address ADLs beyond diabetic foot care. ADLs in general are commonly addressed in occupational therapy intervention (AOTA, 2020b; Laposha & Smallfield (2020), and yet relatively little evidence in the reviews relates self-management of chronic conditions to improved ADL performance. In much of the research, reported outcomes for ADL and IADL performance were combined; future research teasing ADL and IADL outcomes apart would enhance knowledge and intervention in these areas. Similarly, medication management is an important component of self-management of chronic conditions and is within the occupational therapy scope of practice (AOTA, 2020b; Schwartz & Smith, 2017); additional research is needed that focuses on the distinct value of occupational therapy interventions in promoting medication management for adults living with chronic conditions.

### *Young Adults*

Much of the research in the systematic reviews was conducted with middle-aged and older adult participants. This finding may be attributed to how young adults transition through U.S. health systems (Butler, 2021). Many young adults with chronic conditions must learn to navigate the complexity of medical services and insurance coverage when they move from pediatric to adult care. Many also transition to college, where parents have less oversight and involvement in their health care. To better address the needs of young adults with one or more chronic conditions, occupational therapy practitioners can advocate for the


creation of child–adult transitional teams within their settings. They can also participate in the political system by writing or calling members of Congress to promote legislation that covers transition planning and services. AOTA offers practitioners tips and tools for taking action to support this underrepresented population (AOTA, 2021a).

## Summary

This Practice Guideline summarizes the current evidence to inform occupational therapy practitioners' clinical decision making regarding self-management interventions for adults with heart disease, chronic lung conditions, diabetes, and kidney disease. This guideline can also be used to inform occupational therapy educational curricula and professional development and to guide the future research agenda on adults with chronic conditions.

On the basis of the systematic review findings, occupational therapy practitioners are encouraged to routinely use a multimodal approach in interventions with adults with chronic conditions. Multimodal interventions include education, goal setting, and problem-solving components provided over an extended period of time to help clients establish self-management habits and routines. Practitioners should also consider the following when planning and delivering services:

- Using standardized performance-based assessments in addition to client self-report can capture a more holistic picture of the client's functional performance and more accurately measure outcomes of services.
- Including telehealth delivery modes in combination with in-person visits can promote clients' self-management and development of habits and routines.
- Collaborating with members of the interprofessional team, which includes health care practitioners, the client, and their caregivers, can help ensure delivery of a comprehensive and integrated plan of care.

Occupational therapy is uniquely positioned to address self-management from a holistic perspective, taking into account clients' characteristics, occupations, and surrounding environment. This Practice Guideline equips occupational therapy practitioners with a summary of the available evidence along with clinical recommendations for translating the evidence into practice when working with adult clients with chronic conditions. 

## Acknowledgments

The authors acknowledge and thank the following individuals for their participation in the content review and development of this publication:

### Practice Guideline Series Editors

Deborah Lieberman, MHSA, OTR/L, FAOTA, Vice President, Practice Improvement, and Staff Liaison

to the Commission on Practice, American Occupational Therapy Association, North Bethesda, MD  
Susan Cahill, PhD, OTR/L, FAOTA, Director of Evidence-Based Practice, American Occupational Therapy Association, North Bethesda, MD

### Practice Guideline Editor and Research Methodologist

Elizabeth G. Hunter, PhD, OTR/L, Assistant Professor, Graduate Center for Gerontology, College of Public Health, University of Kentucky, Lexington

### Algorithm Development and Knowledge Translation

Hillary Richardson, MOT, OTR/L, Practice Manager, Knowledge Translation, Evidence-Based Practice and Practice Improvement, American Occupational Therapy Association, North Bethesda, MD

### Reviewers

Emma Burry, BS (consumer representative); Susan Charnley, DrOT, OTR/L, CHT (consumer representative); Jennifer Kaldenberg, DrPH, MSA, OT, OTR, SCLV, FAOTA; Darby Kyler, OTD, OTR/L; Krysta M. Rives, EdD, MBA, COTA/L; Juleen Rodakowski, OTD, MS, OTR/L, FAOTA; Carol Siebert, OTD, OT/L, FAOTA; Chuck Willmarth, Vice President of Health Policy & State Affairs, American Occupational Therapy Association.

The authors acknowledge the following individuals for their contributions to the evidence-based systematic review: Hussain A. Alibrahim, MSOT, OTR/L; Clare Emmert, OTD, OTR; Lea Fang, OTD, OTR/L; Beth E. Fields, PhD, OTR/L; Jennifer Kaldenberg, DrPH, MSA, OTR, SCLV, FAOTA; Pamaelyn Kearney, EdD, MS, OTR/L; Darby Kyler, OTD, OTR/L; Natalie E. Leland, PhD, OTR/L, BCG, FAOTA, FGSA; Robin Newman, OTD, OTR, CLT, FAOTA; Juleen Rodakowski, OTD, MS, OTR/L; Stephanie A. Rouch, MOT, OTR/L; Kathleen M. Sutton, PT, DPT, PhD, MPH; Patricia Watford, OTD, MS, OTR/L.

Note: The authors of this Practice Guideline (Beth Fields and Stacy Smallfield) have signed a Conflict of Interest statement indicating that they have no conflicts that would bear on this work.

## References

- Agency for Healthcare Research and Quality. (2020). *Self-management support*. <https://www.ahrq.gov/ncepr/tools/self-mgmt/self.html>
- \*Ågren, S., Evangelista, L. S., Hjelm, C., & Strömberg, A. (2012). Dyads affected by chronic heart failure: A randomized study evaluating effects of education and psychosocial support to patients with heart failure and their partners. *Journal of Cardiac Failure*, 18, 359–366. <https://doi.org/10.1016/j.cardfail.2012.01.01422555264>
- \*Ahmad Sharoni, S. K., Abdul Rahman, H., Minhat, H. S., Shariff-Ghazali, S., & Azman Ong, M. H. (2018). The effects of self-efficacy enhancing program on foot self-care behaviour of older adults with diabetes: A randomised controlled trial in elderly care facility,

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\*Indicates articles included in the systematic reviews.

- Peninsular Malaysia. *PLoS One*, 13, e0192417. <https://doi.org/10.1371/journal.pone.019241729534070>
- \*Alsaleh, E., Windle, R., & Blake, H. (2016). Behavioural intervention to increase physical activity in adults with coronary heart disease in Jordan. *BMC Public Health*, 16, 643. <https://doi.org/10.1186/s12889-016-3313-527460675>
- American Occupational Therapy Association. (2020a). Occupational therapy in the promotion of health and well-being. *American Journal of Occupational Therapy*, 74, 7403420010. <https://doi.org/10.5014/ajot.2020.743003>
- American Occupational Therapy Association. (2020b). Occupational therapy practice framework: Domain and process (4th ed.). *American Journal of Occupational Therapy*, 74(Suppl. 2), 7412410010. <https://doi.org/10.5014/ajot.2020.74S2001>
- American Occupational Therapy Association. (2021a). *Everyday advocacy decision guide*. <https://www.aota.org/advocacy/everyday-advocacy/everyday-advocacy-decision-guide>
- American Occupational Therapy Association. (2021b). The Association—Improve your documentation and quality of care with AOTA's updated Occupational Profile Template. *American Journal of Occupational Therapy*, 75, 7502420010. <https://doi.org/10.5014/ajot.2021.752001>
- \*Azami, G., Soh, K. L., Sazlina, S. G., Salmiah, M. S., Aazami, S., Mozafari, M., & Taghincjad, H. (2018). Effect of a nurse-led diabetes self-management education program on glycosylated hemoglobin among adults with type 2 diabetes. *Journal of Diabetes Research*, 2018, 4930157. <https://doi.org/10.1155/2018/493015730225268>
- \*Bendstrup, K. E., Ingemann Jensen, J., Holm, S., & Bengtsson, B. (1997). Out-patient rehabilitation improves activities of daily living, quality of life and exercise tolerance in chronic obstructive pulmonary disease. *European Respiratory Journal*, 10, 2801-2806. <https://doi.org/10.1183/09031936.97.101228019493664>
- \*Beverly, E. A., Fitzgerald, S. M., Brooks, K. M., Hultgren, B. A., Ganda, O. P., Munshi, M., & Weinger, K. (2013). Impact of reinforcement of diabetes self-care on poorly controlled diabetes: A randomized controlled trial. *Diabetes Educator*, 39, 504-514. <https://doi.org/10.1177/014572171348683723640303>
- \*Beverly, E. A., Fitzgerald, S., Sitnikov, L., Ganda, O. P., Caballero, A. E., & Weinger, K. (2013). Do older adults aged 60-75 years benefit from diabetes behavioral interventions? *Diabetes Care*, 36, 1501-1506. <https://doi.org/10.2337/dc12-111023315603>
- \*Borges, W. J., & Ostwald, S. K. (2008). Improving foot self-care behaviors with Pies Sanos. *Western Journal of Nursing Research*, 30, 325-341, discussion 342-349. <https://doi.org/10.1177/019394590730310417607055>
- Bower, E. S., Wetherell, J. L., Merz, C. C., Petkus, A. J., Malcarne, V. L., & Lenze, E. J. (2015). A new measure of fear of falling: Psychometric properties of the Fear of Falling Questionnaire Revised (FFQ-R). *International Psychogeriatrics*, 27, 1121-1133. <https://doi.org/10.1017/S1041610214001434>
- Braveman, B., & Hunter, E. G. (2017). *Occupational therapy practice guidelines for cancer rehabilitation with adults* (AOTA Practice Guidelines Series). AOTA Press. <https://doi.org/10.7139/2017.978-1-56900-409-8>
- Butler, S. M. (2021). How the health system overlooks young adults with chronic conditions. *JAMA Health Forum*, 2(6), e211685. <https://doi.org/10.1001/jamahealthforum.2021.1685>
- Buysse, D. J., Reynolds, C. F., 3rd, Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index (PSQI): A new instrument for psychiatric practice and research. *Psychiatry Research*, 28, 193-213. [https://doi.org/10.1016/0165-1781\(89\)90047-42748771](https://doi.org/10.1016/0165-1781(89)90047-42748771)
- \*Cai, C., & Hu, J. (2016). Effectiveness of a family-based diabetes self-management educational intervention for Chinese adults with Type 2 diabetes in Wuhan, China. *Diabetes Educator*, 42, 697-711. <https://doi.org/10.1177/014572171667432527831523>
- Centers for Disease Control and Prevention. (2020, November 17). *About chronic diseases*. <https://www.cdc.gov/chronicdisease/about/index.htm>
- Centers for Disease Control and Prevention. (2021, May 14). *Chronic diseases in America*. <https://www.cdc.gov/chronicdisease/resources/infographic/chronic-diseases.htm>
- \*Clark, M., Hampson, S. E., Avery, L., & Simpson, R. (2004). Effects of a tailored lifestyle self-management intervention in patients with Type 2 diabetes. *British Journal of Health Psychology*, 9, 365-379. <https://doi.org/10.1348/135910704155706615296683>
- \*Cooper, H., Booth, K., & Gill, G. (2008). A trial of empowerment-based education in Type 2 diabetes—Global rather than glycaemic benefits. *Diabetes Research and Clinical Practice*, 82, 165-171. <https://doi.org/10.1016/j.diabres.2008.07.01318804887>
- \*De Greef, K., Deforche, B., Tudor-Locke, C., & De Bourdeaudhuij, I. (2010). A cognitive-behavioural pedometer-based group intervention on physical activity and sedentary behaviour in individuals with Type 2 diabetes. *Health Education Research*, 25, 724-736. <https://doi.org/10.1093/her/cyq01720338978>
- Dickson, V. V., Deatrack, J. A., & Riegel, B. (2008). A typology of heart failure self-care management in non-elders. *European Journal of Cardiovascular Nursing*, 7, 171-181. <https://doi.org/10.1016/j.ejcnurse.2007.11.00518178132>
- \*Dobson, R., Whittaker, R., Jiang, Y., Maddison, R., Shepherd, M., McNamara, C., . . . Murphy, R. (2018). Effectiveness of text message based, diabetes self management support programme (SMS4BG): Two arm, parallel randomised controlled trial. *BMJ*, 361, k1959. <https://doi.org/10.1136/bmj.k195929773539>
- ECRI. (2020). *ECRI Guidelines Trust*. <https://guidelines.ecri.org/>
- \*Fan, L., Sidani, S., Cooper-Brathwaite, A., & Metcalfe, K. (2014). Improving foot self-care knowledge, self-efficacy, and behaviors in patients with Type 2 diabetes at low risk for foot ulceration: A pilot study. *Clinical Nursing Research*, 23, 627-643. <https://doi.org/10.1177/105477381349128223823459>
- \*Farmer, A. J., Wade, A. N., French, D. P., Simon, J., Yudkin, P., Gray, A., . . . Neil, H. A. W.; DiGEM Trial Group. (2009). Blood glucose self-monitoring in Type 2 diabetes: A randomised controlled trial. *Health Technology Assessment*, 13(15). <https://doi.org/10.3310/hta1315019254484>
- \*Fisher, L., Hessler, D., Polonsky, W. H., Masharani, U., Guzman, S., Bowyer, V., . . . Wu, P. (2018). T1-REDEEM: A randomized controlled trial to reduce diabetes distress among adults with Type 1 diabetes. *Diabetes Care*, 41, 1862-1869. <https://doi.org/10.2337/dc18-039129976567>
- Froehlich-Grobe, K., Jones, D., Businelle, M. S., Kendzor, D. E., & Balasubramanian, B. A. (2016). Impact of disability and chronic conditions on health. *Disability and Health Journal*, 9, 600-608. <https://doi.org/10.1016/j.dhjo.2016.04.00727216441>
- \*Gary, R. A., Cress, M. E., Higgins, M. K., Smith, A. L., & Dunbar, S. B. (2011). Combined aerobic and resistance exercise program improves task performance in patients with heart failure. *Archives of Physical Medicine and Rehabilitation*, 92, 1371-1381. <https://doi.org/10.1016/j.apmr.2011.02.02221878207>
- \*Ghavami, H., Safarzadeh, F., & Asl, R. G. A. (2018). Effect of self-care interventions on sleep quality in post-coronary artery bypass grafting patients: A single-center, randomized-controlled study. *Turkish Journal of Thoracic and Cardiovascular Surgery*, 26, 550-556. <https://doi.org/10.5606/tgkdc.dergisi.2018.1678932082796>
- \*Grant, J. S. (1999). Social problem-solving partnerships with family caregivers. *Rehabilitation Nursing*, 24, 254-260. <https://doi.org/10.1002/j.2048-7940.1999.tb02192.x10754919>
- \*Grant, J. S., Elliott, T. R., Weaver, M., Bartolucci, A. A., & Giger, J. N. (2002). Telephone intervention with family caregivers of stroke survivors after rehabilitation. *Stroke*, 33, 2060-2065. <https://doi.org/10.1161/01.STR.0000020711.38824.E312154263>

- Gregg, A., Callaghan, G., Hayes, S., & Glenn-Lawson, J. (2007). Improving diabetes self-management through acceptance, mindfulness, and values: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 75*, 336-343. <https://doi.org/10.1037/0022-006X.75.2.336>
- Grossman, B. R., & Webb, C. E. (2016). Family support in late life: A review of the literature on aging, disability, and family caregiving. *Journal of Family Social Work, 19*, 348-395. <https://doi.org/10.1080/10522158.2016.1233924>
- Gutenbrunner, C., & Nugraha, B. (2020). Decision-making in evidence-based practice in rehabilitation medicine: Proposing a fourth factor. *American Journal of Physical Medicine and Rehabilitation, 99*, 436-440. <https://doi.org/10.1097/PHM.000000000000139432149819>
- \*Habibzadeh, H., Sofiani, A., Alilu, L., & Gillespie, M. (2017). The effect of group discussion-based education on self-management of adults with Type 2 diabetes mellitus compared with usual care: A randomized control trial. *Oman Medical Journal, 32*, 499-506. <https://doi.org/10.5001/omj.2017.9529218127>
- Hibbard, J. H., Mahoney, E. R., Stockard, J., & Tusler, M. (2005). Development and testing of a short form of the patient activation measure. *Health Services Research, 40*, 1918-1930.
- Higgins, J. P. T., Sterne, J. A. C., Savovič, J., Page, M. J., Hróbjartsson, A., Boutron, I., . . . Eldridge, S. A. (2016). Revised tool for assessing risk of bias in randomized trials. *Cochrane Database of Systematic Reviews*. <https://doi.org/10.1002/14651858.CD201601>
- Higgins, J. P. T., Thomas, J., Chandler, J., Cumpston, M., Li, T., Page, M. J., & Welch, V. A. (Eds.). (2019). *Cochrane handbook for systematic reviews of interventions* (2nd ed.). Wiley. <https://doi.org/10.1002/9781119536604>
- Highfield, L., Hartman, M. A., Mullen, P. D., Rodriguez, S. A., Fernandez, M. E., & Bartholomew, L. K. (2015). Intervention mapping to adapt evidence-based interventions for use in practice: Increasing mammography among African American women. *BioMed Research International, 2015*, 160103. <https://doi.org/10.1155/2015/16010326587531>
- Hung, W. W., Ross, J. S., Boockvar, K. S., & Siu, A. L. (2012). Association of chronic diseases and impairments with disability in older adults: A decade of change? *Medical Care, 50*, 501-507. <https://doi.org/10.1097/MLR.0b013e318245a0e0>
- Institute for Healthcare Improvement. (2021). *Set and document self-management goals collaboratively with patients who have chronic conditions*. <http://www.ihl.org/resources/Pages/Changes/SetandDocumentSelfManagementGoalsCollaborativelywithPatients.aspx>
- Institute of Medicine. (2012). *Living well with chronic illness: A call for public health action*. National Academies Press. <https://doi.org/10.17226/13272>
- Jackson, J., Carlson, M., Mandel, D., Zemke, R., & Clark F. (1998). Occupation in Lifestyle Redesign: The Well Elderly Study Occupational Therapy Program. *American Journal of Occupational Therapy, 52*, 326-336. <https://doi.org/10.5014/ajot.52.5.326>
- \*Janson, S. L., McGrath, K. W., Covington, J. K., Cheng, S. C., & Boushey, H. A. (2009). Individualized asthma self-management improves medication adherence and markers of asthma control. *Journal of Allergy and Clinical Immunology, 123*, 840-846. <https://doi.org/10.1016/j.jaci.2009.01.05319348923>
- Jordan, L. (2014). *Self-management goals made simple*. <https://silo.tips/download/self-management-goals-made-simple-excerpts-from-2014-pcmh-pre-conference>
- Juang, C., Knight, B. G., Carlson, M., Schepens Niemiec, S. L., Vigen, C., & Clark, F. (2018). Understanding the mechanisms of change in a lifestyle intervention for older adults. *Gerontologist, 58*, 353-361. <https://doi.org/10.1093/geront/gnw152>
- Kaldenberg, J., Newman, R., & Emmert, C. (2020). *Self-management interventions for social and leisure participation among community-dwelling adults with chronic conditions: Systematic review of related literature from 1995-2018* [Critically Appraised Topic]. American Occupational Therapy Association. <https://www.aota.org/-/media/Corporate/Files/Secure/Practice/CCL/Productive%20Aging/Chronic-Conditions-CAT-Social-Leisure.pdf>
- \*Kalra, L., Evans, A., Perez, I., Melbourn, A., Patel, A., Knapp, M., & Donaldson, N. (2004). A randomised controlled trial of caregiver training in stroke patients. *BMJ, 328*, 1099. <https://doi.org/10.1136/bmj.328.7448.109915130977>
- \*Kapella, M. C., Herdegen, J. J., Perlis, M. L., Shaver, J. L., Larson, J. L., Law, J. A., & Carley, D. W. (2011). Cognitive behavioral therapy for insomnia comorbid with COPD is feasible with preliminary evidence of positive sleep and fatigue effects. *International Journal of Chronic Obstructive Pulmonary Disease, 6*, 625-635. <https://doi.org/10.2147/COPD.S2485822162648>
- Kearney, P., Watford, P., & Sutton, K. (2021a). *Self-management interventions for people with chronic pulmonary, cardiac, or kidney conditions* [Critically Appraised Topic]. American Occupational Therapy Association. <https://www.aota.org/-/media/Corporate/Files/Secure/Practice/CCL/Productive%20Aging/CC-CAT-Pulm-Card-Kidney.pdf>
- Kearney, P., Watford, P., & Sutton, K. (2021b). *Self-management interventions for people with diabetes* [Critically Appraised Topic]. American Occupational Therapy Association. <https://www.aota.org/-/media/Corporate/Files/Secure/Practice/CCL/Productive%20Aging/CC-CAT-IADL-Diabetes.pdf>
- \*King, D. K., Estabrooks, P. A., Strycker, L. A., Toobert, D. J., Bull, S. S., & Glasgow, R. E. (2006). Outcomes of a multifaceted physical activity regimen as part of a diabetes self-management intervention. *Annals of Behavioral Medicine, 31*, 128-137. [https://doi.org/10.1207/s15324796abm3102\\_416542127](https://doi.org/10.1207/s15324796abm3102_416542127)
- \*King, R. B., Hartke, R. J., & Denby, F. (2007). Problem-solving early intervention: A pilot study of stroke caregivers. *Rehabilitation Nursing, 32*, 68-76. <https://doi.org/10.1002/j.2048-7940.2007.tb00154.x17432635>
- Law, M., Baptiste, S., Carswell, A., McColl, M., Polatajko, H., & Pollock, N. (2019). *Canadian Occupational Performance Measure* (5th ed., rev.). COPM Inc.
- Laposh, I., & Smallfield, S. (2020). Examining the occupational therapy definition of self-care: A scoping review. *Occupational Therapy in Health Care, 34*, 99-115. <https://doi.org/10.1080/07380577.2019.1703238>
- \*Lee, A., Siu, C.-F., Leung, K.-T., Lau, L. C. H., Chan, C. C. M., & Wong, K.-K. (2011). General practice and social service partnership for better clinical outcomes, patient self efficacy and lifestyle behaviours of diabetic care: Randomised control trial of a chronic care model. *Postgraduate Medical Journal, 87*, 688-693. <https://doi.org/10.1136/pgmj.2011.11888521693570>
- Liu, C., Chang, W.-P., & Chang, M. C. (2018). Occupational therapy interventions to improve activities of daily living for community-dwelling older adults: A systematic review. *American Journal of Occupational Therapy, 72*, 7204190060. <https://doi.org/10.5014/ajot.2018.031252>
- \*Louie, S. W. S., Liu, P. K. K., & Man, D. W. K. (2006). The effectiveness of a stroke education group on persons with stroke and their caregivers. *International Journal of Rehabilitation Research, 29*, 123-129. <https://doi.org/10.1097/01.mrr.0000191851.03317.f016609323>
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G.; The PRISMA Group. (2009). Preferred Reporting Items for Systematic Reviews and

- Meta-Analyses: The PRISMA statement. *PLoS Medicine*, 6(7), e1000097. <https://doi.org/10.1371/journal.pmed.1000097>
- \*Munshi, M. N., Segal, A. R., Suhl, E., Ryan, C., Sternthal, A., Giusti, J., . . . Weinger, K. (2013). Assessment of barriers to improve diabetes management in older adults: A randomized controlled study. *Diabetes Care*, 36, 543–549. <https://doi.org/10.2337/dcl2-130323193208>
- National Heart, Lung, and Blood Institute. (2014). *Quality assessment tool for before–after (pre–post) studies with no control group*. <https://www.nhlbi.nih.gov/health-topics/study-quality-assessment-tools>
- \*Nguyen, N. T., Douglas, C., & Bonner, A. (2019). Effectiveness of self-management program in people with chronic kidney disease: A pragmatic randomized controlled trial. *Journal of Advanced Nursing*, 75, 652–664. <https://doi.org/10.1111/jan.1392430537153>
- \*Oupra, R., Griffiths, R., Pryor, J., & Mott, S. (2010). Effectiveness of supportive educative learning programme on the level of strain experienced by caregivers of stroke patients in Thailand. *Health and Social Care in the Community*, 18, 10–20. <https://doi.org/10.1111/j.1365-2524.2009.00865.x19519873>
- Oxford Centre for Evidence-Based Medicine. (2009). *Oxford Centre for Evidence-Based Medicine: Levels of evidence (March 2009)*. <https://www.cebm.ox.ac.uk/resources/levels-of-evidence/oxford-centre-for-evidence-based-medicine-levels-of-evidence-march-2009>
- Piersol, C. V., & Jensen, L. (2017). *Occupational therapy practice guidelines for adults with Alzheimer’s disease and related major neurocognitive disorders*. AOTA Press. <https://doi.org/10.7139/2017.978-1-56900-408-1>
- Polonsky, W. H., Anderson, B. J., Lohrer, P. A., Welch, G., Jacobson, A. M., Aponte, J. E., & Schwartz, C. E. (1995). Assessment of diabetes-related distress. *Diabetes Care*, 18, 754–760. <https://doi.org/10.2337/diacare.18.6.7547555499>
- Poole, J. L., Siegel, P., & Tencza, M. (2017). *Occupational therapy practice guidelines for adults with arthritis and other rheumatic conditions*. AOTA Press. <https://doi.org/10.7139/2017.978-1-56900-438-8>
- Richard, A. A., & Shea, K. (2011). Delineation of self-care and associated concepts. *Journal of Nursing Scholarship*, 43, 255–264. <https://doi.org/10.1111/j.1547-5069.2011.01404.x21884371>
- Robinson, K. A., Saldanha, I. J., & McKoy, N. A. (2011). Development of a framework to identify research gaps from systematic reviews. *Journal of Clinical Epidemiology*, 64, 1325–1330. <https://doi.org/10.1016/j.jclinepi.2011.06.009>
- \*Rodgers, H., Atkinson, C., Bond, S., Suddes, M., Dobson, R., & Curless, R. (1999). Randomized controlled trial of a comprehensive stroke education program for patients and caregivers. *Stroke*, 30, 2585–2591. <https://doi.org/10.1161/01.STR.30.12.258510582982>
- Rouch, S. A., Fields, B. E., Alibrahim, H. A., Rodakowski, J., & Leland, N. E. (2021). Evidence for the effectiveness of interventions for caregivers of people with chronic conditions: A systematic review. *American Journal of Occupational Therapy*, 75, 7504190030. <https://doi.org/10.5014/ajot.2021.042838>
- \*Rybarczyk, B., DeMarco, G., DeLaCruz, M., Lapidus, S., & Fortner, B. (2001). A classroom mind/body wellness intervention for older adults with chronic illness: Comparing immediate and 1-year benefits. *Behavioral Medicine*, 27, 15–27. <https://doi.org/10.1080/0896428010959576811575169>
- \*Rygg, L. Ø., Rise, M. B., Grønning, K., & Steinsbekk, A. (2012). Efficacy of ongoing group based diabetes self-management education for patients with Type 2 diabetes mellitus: A randomised controlled trial. *Patient Education and Counseling*, 86, 98–105. <https://doi.org/10.1016/j.pcc.2011.04.00821592715>
- Schwartz, J. K., & Smith, R. O. (2017). The Issue Is—Integration of medication management into occupational therapy practice. *American Journal of Occupational Therapy*, 71, 7104360010. <https://doi.org/10.5014/ajot.2017.01503228661388>
- Self-Management Resource Center. (2021). *Our programs*. <https://www.selfmanagementresource.com/programs>
- Smallfield, S., Fang, L., & Kyler, D. (2021). Self-management interventions to improve activities of daily living and rest and sleep for adults with chronic conditions: A systematic review. *American Journal of Occupational Therapy*, 75, 7504190010. <https://doi.org/10.5014/ajot.2021.046946>
- Tinetti, M. E. (1986). Performance-oriented assessment of mobility problems in elderly patients. *Journal of the American Geriatrics Society*, 34, 119–126. <https://doi.org/10.1111/j.1532-5415.1986.tb05480.x3944402>
- \*Toseland, R. W., McCallion, P., Smith, T., & Banks, S. (2004). Supporting caregivers of frail older adults in an HMO setting. *American Journal of Orthopsychiatry*, 74, 349–364. <https://doi.org/10.1037/0002-9432.74.3.34915291711>
- \*Tousman, S. A., Zeitz, H., Bond, D., Stewart, D., Rackow, R., Greer, R., . . . Ganjwala, P. (2011). A randomized controlled behavioral trial of a new adult asthma self-management program. *Journal of Asthma and Allergy Educators*, 2, 91–96. <https://doi.org/10.1177/2150129710395752>
- Trouilloud, D., & Regnier, J. (2013). Therapeutic education among adults with Type 2 diabetes: Effects of a three-day intervention on perceived competence, self-management behaviours and glycaemic control. *Global Health Promotion*, 20(Suppl. 2), 94–98. <https://doi.org/10.1177/1757975913483331>
- U.S. Preventive Services Task Force. (2018). *Grade definitions*. <https://www.uspreventiveservicestaskforce.org/Page/Name/grade-definitions>
- Uyeshiro Simon, A., & Collins, E. R. (2017). Lifestyle Redesign® for chronic pain management: A retrospective clinical efficacy study. *American Journal of Occupational Therapy*, 71, 7104190040. <https://doi.org/10.5014/ajot.2017.025502>
- \*van der Palen, J., Klein, J. J., Zielhuis, G. A., van Herwaarden, C. L., & Seydel, E. R. (2001). Behavioural effect of self-treatment guidelines in a self-management program for adults with asthma. *Patient Education and Counseling*, 43, 161–169. [https://doi.org/10.1016/S0738-3991\(00\)00155-511369149](https://doi.org/10.1016/S0738-3991(00)00155-511369149)
- Vogeli, C., Shields, A. E., Lee, T. A., Gibson, T. B., Marder, W. D., Weiss, K. B., & Blumenthal, D. (2007). Multiple chronic conditions: Prevalence, health consequences, and implications for quality, care management, and costs. *Journal of General Internal Medicine*, 22(Suppl. 3), 391–395. <https://doi.org/10.1007/s11606-007-0322-118026807>
- \*Wang, Q., Dong, L., Jian, Z., & Tang, X. (2017). Effectiveness of a PRECEDE-based education intervention on quality of life in elderly patients with chronic heart failure. *BMC Cardiovascular Disorders*, 17, 262. <https://doi.org/10.1186/s12872-017-0698-829037148>
- Waters, H., & Graf, M. (2018). *The cost of chronic disease in the U.S.* Milken Institute. <https://milkeninstitute.org/sites/default/files/reports-pdf/ChronicDiseases-HighRes-FINAL.pdf>
- Wigal, J., Stout, C., Brandon, M., Winder, J. A., McConaughy, K., Creer, T. L., & Kotses, H. (1993). The Knowledge, Attitude, and Self-Efficacy Asthma Questionnaire. *Chest*, 104, 1144–1148. <https://doi.org/10.1378/chest.104.4.1144>
- \*Wilz, G., & Barskova, T. (2007). Evaluation of a cognitive behavioral group intervention program for spouses of stroke patients. *Behaviour Research and Therapy*, 45, 2508–2517. <https://doi.org/10.1016/j.brat.2007.04.01017555707>
- Wolf, T. J., & Nilsen, D. M. (2015). *Occupational therapy practice guidelines for adults with stroke*. AOTA Press.
- \*Xue, F., Yao, W., & Lewin, R. J. (2008). A randomised trial of a 5 week, manual based, self-management programme for hypertension delivered in a cardiac patient club in Shanghai. *BMC Cardiovascular Disorders*, 8, 10. <https://doi.org/10.1186/1471-2261-8-1018460201>
- Yesavage, J. A., Brink, T. L., Rose, T. L., Lum, O., Huang, V., Adey, M., & Leirer, V. O. (1982–1983). Development and validation of a geriatric depression screening scale: A preliminary report. *Journal of Psychiatric Research*, 17, 37–49. [https://doi.org/10.1016/0022-3956\(82\)90033-47183759](https://doi.org/10.1016/0022-3956(82)90033-47183759)

\*Yuan, X., Wang, F., Fish, A. F., Xue, C., Chen, T., Liu, C., & Lou, Q. (2016). Effect of case management on glycemic control and behavioral outcomes for Chinese people with Type 2 diabetes: A 2-year study. *Patient Education and Counseling*, 99, 1382–1388. <https://doi.org/10.1016/j.pcc.2016.03.01027005564>

Beth Fields, PhD, OTR/L, BCG, is Assistant Professor, Department of Kinesiology Occupational Therapy Program, University of Wisconsin–Madison; [befields2@wisc.edu](mailto:befields2@wisc.edu)

Stacy Smallfield, DrOT, MSOT, OTR/L, BCG, FAOTA, is Associate Director and Capstone Coordinator, Division of Occupational Therapy, College of Allied Health Professions, University of Nebraska Medical Center, Omaha.

## Appendix: Overview of the Systematic Review Methods and Findings

The systematic reviews completed for this Practice Guideline were conducted according to the Cochrane Collaboration methodology (Higgins et al., 2019) and are reported consistent with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009).

### Review Questions

1. What is the evidence for the effectiveness of self-management interventions within the scope of occupational therapy practice to improve the performances of ADLs and sleep and rest among community-dwelling adults with chronic conditions?
2. What is the evidence for the effectiveness of self-management interventions within the scope of occupational therapy practice to improve the performance of IADLs among community-dwelling adults with chronic conditions?
3. What is the evidence for the effectiveness of self-management interventions within the scope of occupational therapy practice to improve the performance of education, work, volunteering, leisure, and social participation among community-dwelling adults with chronic conditions?
4. What is the evidence for the effectiveness of interventions within the scope of occupational therapy practice for caregivers of people with chronic conditions to facilitate their ability to maintain participation in the caregiver role?

### Search Terms, Inclusion and Exclusion Criteria, and Databases Searched

Table A.1 summarizes the search strategy for this systematic review. Inclusion criteria were as follows:

- Peer-reviewed journal articles
- Publication in English (unless review authors were able to translate)
- Publication dates from January 1995 to December 2018
- Evidence at Level 1b, 2b, or 3b (see “Levels of Evidence” section)
- Interventions within the scope of occupational therapy practice
- Participants who were adults aged >18 yr)
- Participants residing in the community, a retirement home, or assisted living

- Participants with heart disease, chronic lung conditions, diabetes, or kidney disease, as well as caregivers of adults with stroke for Question 4.

Exclusion criteria were as follows:

- Dissertations, theses, presentations, and proceedings
- Published outside the date range of the review
- Evidence at Level 4 or 5
- Interventions outside the scope of occupational therapy practice
- Average age of participants <18 yr
- Participants residing in a skilled nursing facility
- Participants with acute or chronic conditions covered in another American Occupational Therapy Association (AOTA) practice guideline (e.g., stroke [except caregivers for Question 4], Alzheimer’s disease, arthritis, cancer)
- Older adults in the hospital not being discharged to the community.

The following databases were searched:

- MEDLINE
- PsycINFO
- CINAHL
- OTseeker
- Cochrane databases

### Levels of Evidence

Each article evaluated in the reviews was assigned a level of evidence using the [Oxford Centre for Evidence-Based Medicine \(2009\)](#) framework:

- Level 1a: Systematic review of homogeneous RCTs (e.g., similar population, intervention) with or without meta-analysis
- Level 1b: Well-designed individual RCT (not a pilot or feasibility study with a small sample size)
- Level 2a: Systematic review of cohort studies
- Level 2b: Individual prospective cohort study, low-quality RCT (e.g., <80% follow-up or low number of participants, pilot or feasibility study), ecological study, or two-group non-randomized study
- Level 3a: Systematic review of case-control studies
- Level 3b: Individual retrospective case-control study, one-group nonrandomized pretest-posttest study, or cohort study
- Level 4: Case series (or low-quality cohort or case-control study)
- Level 5: Expert opinion without explicit critical appraisal.

Table A.1. Search Strategy for the Systematic Reviews on Self-Management Interventions for Adults With Chronic Conditions

Category	Key Search Terms
Population	adult (18+), elderly, older adult, seniors
Diagnosis and conditions	cardiovascular disease, chronic disease, chronic illness, chronic respiratory problems, heart disease, hypertension, kidney disease, Type 2 diabetes
Study and trial designs	behavioral interventions, behavior change, best practices, case control, case report, case series, clinical guidelines, clinical trial, cohort, comparative study, controlled clinical trial, cross over, cross-sectional, double-blind, energy conservation, epidemiology, evaluation study, evidence-based, evidence synthesis, feasibility study, follow-up, health technology assessment, intervention, longitudinal, main outcome measure, meta-analysis, multicenter study, observational study, outcome and process assessment, pilot, practice guidelines, prospective, random allocation, randomized controlled trials, retrospective, sampling, single subject design, standard of care, systematic literature review, systematic review, treatment outcome, time management, validation study
All questions	acquiring information, activity patterns, advocating, behavior change, body image, chronic care model, chronic disease management, chronic disease self-management, client education, communication, comorbidities, coping strategies, daily routines, decision making, dependence, depression, diabetic diet, diet, disease management, empowerment, exercise, exercise adherence, fatigue, goal setting, group education, group self-management program, habit, habits, health behavior, health beliefs, health education, health knowledge, health literacy, health maintenance, health management, health promotion, healthy attitudes, identity, lifestyle, lifestyle interventions, lifestyle redesign, managing symptoms, medication compliance, medication errors, medication management, menu planning, mindfulness, motivation, multimorbidity, multiple morbidity, nutrition, nutrition education, obesity, on-line, pacing, pain, patient education, peer support, physical activity, physical fitness, planning, prevention, priorities, prioritizing, problem solving, routines, secondary prevention, sedentary behavior, self-efficacy, self-esteem, self-management, self-management education program, self-worth, smoking cessation, stigma, strategies, stress, stress management, substance-related disorders, technology, telehealth, therapeutic exercise, tobacco use cessation, values, weight control, weight loss, well-being, wellness, wellness programs
Interventions—ADLs, rest and sleep	activities of daily living, adaptive device, adaptive equipment, bathing, bowel and bladder management, daily living activities, dressing, durable medical equipment, eating, feeding, functional mobility, grooming, hearing aids, incontinence, mobility, mobility aid, oral hygiene, personal care, personal device care, personal healthcare device, personal hygiene, self-care, self-feeding, self-help devices, sexual activity, sexual behavior, sexual education, showering, toilet hygiene, toileting bedtime routine, fatigue, insomnia, napping, relaxation, rest, sleep, sleep apnea, sleep deprivation, sleep hygiene, sleep medication, sleep participation, sleep preparation, sleep quality
Interventions—IADLs	activity therapy, assistive devices, assistive devices and communication, assistive technology, child rearing, communication skills training, community mobility, computer literacy, cooking, daily activities, driving, electronic security systems, emergency preparation, energy conservation,

(Continued)

Table A.1. Search Strategy for the Systematic Reviews on Self-Management Interventions for Adults With Chronic Conditions (Cont.)

Category	Key Search Terms
	falls, fall prevention, financial management, financial skills, food preparation, grandparent, grandparenting, habit training, home maintenance, home management, household maintenance, household management, household security, housekeeping, instrumental activities, instrumental activities of daily living, laundry, meal planning, meal preparation, medication management, medication routine, menu planning, money management, pets, religious activities, religious service attendance, routines, safety, shopping, telephone, transportation, walking
Interventions—Education, work, volunteering, leisure, social participation	adult education, civic engagement, civic participation, community service, continuing education, distance education, education, employment, employment interests, employment pursuits, informal education, job, job holder, job search, labor, labor force, lifelong learning, phased retirement, productive activities, retired senior volunteer program (RSVP), retirement, retirement planning, retirement preparation, return to work, vocation, vocational training, volunteer, volunteer exploration, volunteerism, volunteer participation, volunteer work, wage earner, work, worker, work role, work transition activity participation, career, clubs, computer application, computer tablet, computer tablet technology, computer use, crafts, family relations, friends, friendships, games, hobbies, hobby, interpersonal relations, leisure, leisure activities, leisure exploration, leisure participation, mobile application, mobile device, mobile phone, neighbor relations, peer, personal support, political, reading, recreation, relationships, religious, senior center, smartphone use, social activity, social adjustment, social capital, social environment, social interaction, social isolation, socialization, socializing, social participation, social skills, social support, sports, travel
Interventions—Caregiver role	caregiver, caregiver appraisal, caregiver burden, caregiver confidence, caregiver depression, caregiver education, caregiver participation, caregiver perception, caregiver routines, caregiver quality of life, caregivers, caregiver strategies, caregiver stress, caregiver support, caregiver training, caregiver upset, caregiving, care of others, care partner, carer, education, family caregiver, family member, psychoeducation, psychosocial intervention, skill-building, spouse, training

Note. ADLs 5 activities of daily living; IADLs 5 instrumental activities of daily living.

### Article Screening and Data Extraction

The medical librarian conducted the search and removed duplicates, and the review teams (of at least two authors) screened titles and abstracts on the basis of the inclusion criteria. Reviewers resolved any differences by discussion and, if necessary, consultation with a third party (an AOTA Evidence-Based Project team member) until consensus was reached. The review teams then obtained and reviewed the full-text articles to determine inclusion or exclusion. They extracted data from the included studies in an evidence table, which summarized each study's methods, risk-of-bias evaluation, participants, intervention setting, intervention and control conditions, outcome measures, and results.

### Quality of the Evidence and Risk of Bias

Two members of each review team independently assigned quality ratings to each study and collaborated to reach consensus. The review teams evaluated risk of bias on the basis of study design (controlled or noncontrolled trial). For studies that included a control group (randomized or non-randomized), they used the Cochrane tool (Higgins et al., 2016), and for noncontrolled trials, they used a tool developed by the National Heart, Lung, and Blood Institute (2014).

### Strength of Evidence

Each systematic review team grouped the evidence into themes and determined the strength of the



Table A.2. Strength of Evidence (Level of Certainty) Designations

Level	Description
Strong	<ul style="list-style-type: none"> <li>▪ Two or more Level 1a or 1b studies</li> <li>▪ The available evidence usually includes consistent results from well-designed, well-conducted studies. The findings are strong, and they are unlikely to be strongly called into question by the results of future studies.</li> </ul>
Moderate	<ul style="list-style-type: none"> <li>▪ At least 1 Level 1a or 1b high-quality study or multiple moderate-quality studies (e.g., Level 2a or 2b, Level 3a or 3b).</li> <li>▪ The available evidence is sufficient to determine the effects on health outcomes, but confidence in the estimate is constrained by such factors as                             <ul style="list-style-type: none"> <li><input type="checkbox"/> number, size, or quality of individual studies and</li> <li><input type="checkbox"/> inconsistency of findings across individual studies.</li> </ul> </li> <li>▪ As more information (other research findings) becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion related to the usefulness of the intervention.</li> </ul>
Low	<ul style="list-style-type: none"> <li>▪ Small number of low-level studies, flaws in the studies, etc.</li> <li>▪ The available evidence is insufficient to assess effects on health and other outcomes of relevance to occupational therapy. Evidence is insufficient because of                             <ul style="list-style-type: none"> <li><input type="checkbox"/> limited number or size of studies;</li> <li><input type="checkbox"/> important flaws in study design or methods;</li> <li><input type="checkbox"/> inconsistency of findings across individual studies; or</li> <li><input type="checkbox"/> lack of information on important health outcomes.</li> </ul> </li> <li>▪ More information may allow estimation of effects on health and other outcomes of relevance to occupational therapy.</li> </ul>

**Note.** The determination of strength of evidence is based on the guidelines of the [U.S. Preventive Services Task Force \(2018\)](#).

evidence for each theme. The strength-of-evidence designations are outlined in [Table A.2](#) and are based on the guidelines of the [U.S. Preventive Services Task Force \(2018\)](#). Strength-of-evidence designations are a synthesis of level of evidence, quality of evidence (risk of bias), and findings of the studies (e.g., significance). Synthesizing these three elements of the evidence enabled the review authors to determine the level of certainty that the interventions discussed in the articles resulted in the outcomes shown.

### Overview of Search Results

The searches located 17,967 citations and abstracts for Questions 1–3 and 12,216 for Question 4. The research methodologist completed the first step of eliminating references on the basis of the titles, removing duplicates and studies clearly not within the parameters of the review (e.g., date of publication, population, intervention). This step reduced the number of citations to 3,345 for Questions 1–3

and 533 for Question 4, which were given to the review teams.

Teams of two or more reviewers with expertise in the content areas carried out the systematic reviews. The review teams completed the next step of eliminating articles on the basis of the abstracts, retrieved the full-text versions of potential articles, and determined final inclusion in the reviews on the basis of the inclusion and exclusion criteria.

A total of 102 studies were included in the systematic reviews, including 50 Level 1b, 42 Level 2b, and 10 Level 3b studies. [Table A.3](#) lists the number of studies included in each review and their levels of evidence. Citations for the systematic review articles and critically appraised topics are as follows:

- Kaldenberg, J., Newman, R., & Emmert, C. (2020). *Self-management interventions for social and leisure participation among community-dwelling adults with chronic conditions*:

Table A.3. Number of Articles Included in the Systematic Reviews, by Topic

Review Question Topic	Level of Evidence			Total
	1b	2b	3b	
1. ADLs and sleep and rest	6	5	4	15
2. IADLs	30	6	0	36
3. Education, work, volunteering, leisure, and social participation	1	2	0	3
4. Caregiver role	13	29	6	48
Total	50	42	10	102

**Note.** ADLs **5** activities of daily living; IADLs **5** instrumental activities of daily living.

*Systematic review of related literature from 1995–2018 [Critically Appraised Topic].* American Occupational Therapy Association. <https://www.aota.org/-/media/Corporate/Files/Secure/Practice/CCL/Productive%20Aging/Chronic-Conditions-CAT-Social-Leisure.pdf>

- Kearney, P., Watford, P., and Sutton, K. (2021). Self-management interventions for people with chronic pulmonary, cardiac, or kidney conditions [Critically Appraised Topic]. American Occupational Therapy Association. <https://www.aota.org/-/media/Corporate/Files/Secure/Practice/CCL/Productive%20Aging/CC-CAT-Pulm-Card-Kidney.pdf>
- Kearney, P., Watford, P., and Sutton, K. (2021). Self-management interventions for people with diabetes [Critically Appraised Topic]. American Occupational Therapy Association. <https://www.aota.org/-/media/Corporate/Files/Secure/Practice/CCL/Productive%20Aging/CC-CAT-IADL-Diabetes.pdf>
- Rouch, S. A., Fields, B. E., Alibrahim, H. A., Rodakowski, J., & Leland, N. E. (2021). Evidence for the effectiveness of interventions for caregivers of people with chronic conditions: A systematic review. *American Journal of Occupational Therapy*, 75, 7504190030. <https://doi.org/10.5014/ajot.2021.042838>
- Smallfield, S., Fang, L., & Kyler, D. (2021). Self-management interventions to improve activities of daily living and rest and sleep for adults with chronic conditions: A systematic review. *American Journal of Occupational Therapy*, 75, 7504190010. <https://doi.org/10.5014/ajot.2021.046946>