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TECHNOLOGICAL ADVANCES AND COSTING

PEER-REVIEWED EXCELLENCE IN NURSE LIFE CARE PLANNING SINCE 2006

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A Message from the President

Dear Colleagues,

As we enter the "dog days of summer" and adapt to the return of our unrelenting friends – heat and humidity – I write this for our Summer AANLCP Journal issue. As I think about this time of year, my thoughts keep returning to a question that shapes so much of our daily practice; how do we keep our work product both clinically sound and financially defensible as healthcare, medicine, nursing, and the tools of our own profession seem to be changing daily?

This issue's focus, Technological Advances and Costing, could not be timelier. Over the past several years, the pace of change we have seen in our industry has in many ways exceeded the pace of change in the reference materials and costing methodologies many of us learned early in our careers. As life care planners, our credibility rests on our ability to project the true, current cost of future medical needs, and that means our costing methodology and resources have to evolve at the same speed as clinical practice itself.

These are exactly the kinds of rapidly changing challenges that this Summer issue begins to address. Our contributing authors examine technological advances and costing-related topics that we hope will offer practical guidance for supporting our methodology and practices, so it withstands scrutiny in deposition and at trial. Technology is rapidly reshaping not only what future care looks like, but also the standards against which past care is judged.

Thank you, as always, for the rigor and integrity you bring to our work. Our client partners, patients, their families, and the courts who rely on our plans are trusting us to get the numbers right regardless of the rapidity of changes that surround us. I'm grateful to serve alongside a membership so committed to doing exactly that.

So, my wish for you is a safe and hopefully relaxing rest of your summer. Please take care of yourselves and each other, and don't forget to focus on some quality family time before the kids return to school.

With sincere appreciation for each of you,

Craig
President, AANLCP

Craig Felty, RN, BSN, MBA, FACHE, FIG LCP-C, FIG MCP-C

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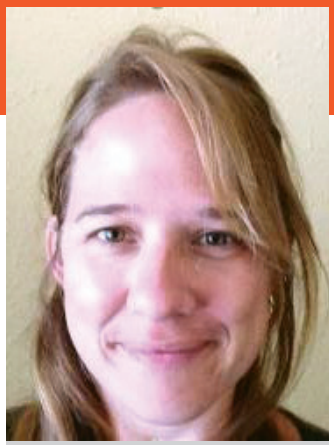
From the Editor



Vanessa Richie
JNLCP Editor
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With the end of summer comes a flurry of activities. Technology can be so beneficial, especially when it comes to monitoring traffic and keeping up with all the one-off events that occur at this time of year. Especially if all we want to do is to sit by a pool or body of water and escape the heat without significantly increasing the power bill.

Technology has some pretty amazing benefits. It's a tool that, when used properly, can really make life easy. Unfortunately, we are still in the early days of a lot of new technological advances, making it more like the Wild West as people use it for things that the inventors and developers hadn't even considered. With so many rules and regulations in place, adapting newer technologies is done much more slowly and with a lot more caution in fields like medicine. That makes it particularly tricky when it comes to costing for a patient's lifetime.

This issue provides a look into some of the newer technologies and how they are affecting costing, as well as how they are changing the way life care planners use them effectively. From using AI safely and effectively to modifications to video game hardware that can double for daily tasks and games to guidance on some of the trickier aspects of costing, we hope you find something that will help you in your daily work.

Have a safe and relaxing end of summer.

Cheers,

Vanessa Richie, Editor

Information for Authors

Information for Authors

AANLCP® invites interested nurses and allied professionals to submit article queries or manuscripts that educate and inform the Nurse Life Care Planner about current clinical practice methods, professional development, and the promotion of Nurse Life Care Planning. Submitted material must be original. Manuscripts and queries may be addressed to the Editor. Authors should use the following guidelines for articles to be considered for publication.

Text

- Manuscript length: 1500-3000 words
- Use Word© format (.doc, .docx) or Pages (.pages)
- Submit only original manuscript not under consideration by other publications
- Put the title and page number in a header on each page (using the Header feature in Word)
- Place author name, contact information, and article title on a separate title page
- Use APA style (Publication Manual of the American Psychological Assoc. current edition)

Art, Figures, Links

- All photos, figures, and artwork must be in JPG or PDF format (JPG preferred for photos).
- Line art must have a minimum resolution of 1000 dpi, halftone art (photos) a minimum of 300 dpi, and combination art (line/tone) a minimum of 500 dpi.
- Each table, figure, photo, or art must be submitted as a separate file, labeled to match its reference in text, with credits if needed (e.g., Table 1, Common nursing diagnoses in SCI; Figure 3, Time to endpoints by intervention, American Cancer Society, 2019). Graphic elements embedded in a word processing document cannot be used.
- Live links are encouraged. Please include the full URL for each.

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Manuscript Review Process

Submitted articles are peer reviewed by Nurse Life Care Planners with diverse backgrounds in life care planning, case management, rehabilitation, and nursing. Acceptance is based on manuscript content, originality, suitability for the intended audience, relevance to Nurse Life Care Planning, and quality of the submitted material. If you would like to review articles for this journal, please contact the Editor.

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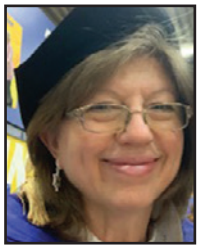
Contributors to this Issue

Erica Thomas, M.S., CCC-SLP

Erica Thomas, M.S., CCC-SLP, is a speech-language pathologist, forensic communication consultant, and founder of EJT Communication Consultant LLC. With more than 10 years of clinical experience, she specializes in adult neurogenic communication disorders, cognitive-communication impairment, and dysphagia across populations including traumatic brain injury, stroke, Parkinson's disease, and dementia.

As a forensic speech-language pathologist, she provides communication-focused record reviews, evaluations, and expert consultation in matters involving traumatic brain injury, medical malpractice, capacity, and elder care. She brings a clinical lens to life care planning by examining how cognitive-communication, speech, voice, and swallowing impairments affect independence, rehabilitation needs, and long-term support planning.

Erica earned her Bachelor of Science degree from The Pennsylvania State University and her Master of Science degree in Speech-Language Pathology from Emerson College. She holds the Certificate of Clinical Competence from ASHA, is licensed in multiple states, and maintains LSVT LOUD and SPEAK OUT! certifications.



Nellie Kreimer, BSN

Ms. Kreimer holds a bachelor of science degree in nursing (BSN) from New York University School of Nursing. During her 27 years of nursing, Ms. Kreimer has worked in a variety of settings, but her passion for public health, close patient contact, patient advocacy, and holistic approach to patient care have steered her towards the field of visiting nursing. Ms. Kreimer holds two masters degrees, one in Health Law Administration from Bellevue University, and the second in Health Law and Policy from Hofstra School of Law. As a strong patient advocate, Ms. Kreimer inteds to collaborate with pertinent stakeholders and to bring about necessary modifications to the current healthcare delivery practices, especially for the disabled and disadvantaged populations. As intermediaries between the healthcare and the legal systems, and the disabled individuals, the nurse life care planners (NLCPs) have the necessary knowledge and skills to advocate for the population that they serve, and facilitate access to quality, evidence-based healthcare, and necessary supportive and assistive devices, treatments and therapies across the life span of the individual.

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Drew Redepenning is a Biomedical Engineer, Assistive Technology Practitioner, and Resident Physician who has been involved in the field of assistive technology for over eight years, in both clinical and research capacities. He specializes in environmental controls and adaptive video gaming. Drew is currently a Physical Medicine and Rehabilitation resident physician at the University of Pittsburgh Medical Center, where he has worked to expand their adaptive video gaming services and serves as the co-director of the Empowered Esports program. He has contributed to the development of national educational resources (https://www.gamingreadapted.com/) and has presented multiple national educational sessions in the area of adaptive video gaming. He formerly worked as the Lead Assistive Technology Specialist at Courage Kenny Rehabilitation Institute in Minnesota and currently contracts as an Assistive Technology Specialist for Technology for Home.

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Summer Joy Laughhunn, BSN, RN is the founder of Sum-Joy Legal Nurse Consulting and a registered nurse with more than 20 years of diverse healthcare experience. Her clinical background includes emergency nursing, forensic nursing as a Sexual Assault Nurse Examiner (SANE), corrections, case management, infusion therapy, nursing leadership, and education. Summer partners with attorneys on medical malpractice, personal injury, and standards of care cases, translating complex medical records into clear, case-focused analyses. She is passionate about improving the intersection of healthcare and the legal system through education, collaboration, and patient advocacy. An active member of the American Association of Legal Nurse Consultants (AALNC), she is committed to advancing the legal nurse consulting profession by sharing knowledge, fostering collaboration, and promoting excellence in nursing practice. Outside of her professional work, she is an avid lifelong learner who enjoys traveling, exploring new communities, and spending quality time with her family. She is also passionate about mentoring others, advocating for survivors of violence, and finding meaningful ways to make a lasting difference in the lives of those she serves.

Clayton Stroope, RN, BSN, CLCP, CCM, LNCC

Clayton graduated from Samuel Merritt University in 2013 with a Bachelor of Science in Nursing. Following graduation, he worked at the VA Palo Alto Medical Center and Stanford Medical Center in several acute care patient units, including trauma, brain injury, plastics, burns, and spinal cord injury. After several years of working at the bedside, he transitioned to field case management for a multitude of national workers' compensation insurers. During this time, he received his Certified Case Manager (CCM) certification and Certified Life Care Planner (CLCP) certification. Clayton has since drafted and supervised the finalization of hundreds of life care plans and is currently providing life care planning and expert witness services for Stokes and Associates.

Dana Penilton, RN, BSN, CLCP, FIALCP, ICCCP(F)

Dana Penilton is a registered nurse with a Bachelor of Science degree from Oregon Health and Sciences University. With 39 years of clinical experience, Ms. Penilton began her career in critical care nursing. She transitioned into rehabilitation nursing, specializing in catastrophic injury case management and provision of life care plans for adult and pediatric evaluee's after sustaining catastrophic injuries, including birth injuries, child abuse injuries, traumatic brain injury, and spinal cord injury. For the past 30 years, she has been owner-president of an independent nurse consultation firm. Ms. Penilton holds dual fellowship designations from the International Association of Rehabilitation Professionals Life Care Planning Section (Fellow International Academy of Life Care Planning [FIALCP]) and from the College of Rehabilitation Professionals (International Cost of Care Professional Fellow [ICCCP(F)]. Ms. Penilton just completed serving as International Academy of Life Care Planners Costing Framework Development Project co-chair (2022-2026) and currently serves on the Journal of Nurse Life Care Planning Committee, International Academy of Life Care Planners 2026 Summit planning committee, and the International Cost of Care Professional Certification Exam Item Writing working group. She has been published in the peer-reviewed Journal of Life Care Planning, has presented at regional and national conferences, and was awarded the Denise Nelson Ambassador Award and Sheri Jasper Memorial Recognition Award.

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Laura Woodard, MA, CRC, CLCP, CCM, FIALCP

With over 30 years of experience, Laura Woodard is a pioneer in rehabilitation counseling and life care planning. After a distinguished career at ReEntry Rehabilitation Services, Inc., she co-founded VELCP with Liz Kattman in 2025.

Laura's expertise spans vocational assessment, life care planning, career guidance, case and trust management, and rehabilitation planning, all delivered with unwavering adherence to professional standards. She has served as chair of the International Academy of Life Care Planners (IALCP) and as IALCP representative to the International Association of Rehabilitation Professionals (IARP) board. From 2022 to 2026, she served as co-chair of the IALCP Costing Framework Development Project. She is currently the president of the Foundation for Life Care Planning and Rehabilitation Research (FLCPRR) board of directors. She has mentored life care planners and rehabilitation counselors and supervised staff.

Laura holds a Master of Arts in rehabilitation counseling from the University of Maryland and has completed advanced training in life care planning at the University of Florida. She is a Certified Rehabilitation Counselor (CRC), Certified Life Care Planner (CLCP), and Certified Case Manager (CCM). She has been recognized with the Life Care Planner Lifetime Achievement Award and the Sheri Jasper Memorial Recognition Award for her outstanding contributions to the field. Laura is also a Fellow of the International Academy of Life Care Planners (IALCP) and is actively involved in professional development, speaking engagements, and industry associations.

Dr. Lisa Busby Thomas, D.P.C, CRC, CLCP

Dr. Lisa Busby Thomas is a certified rehabilitation counselor and certified life care planner. She is an assistant professor in the doctoral counseling program and Education Specialist Coordinator in Counseling at Mississippi Christian University. She has over 25 years of experience providing rehabilitation services and forensic work in various states. She works in private practice with children and adults who have catastrophic injuries such as spinal cord injury, acquired brain injury, multiple traumas, orthopedic, burn, amputations, and other injuries or chronic health needs. In addition, she maintains an active caseload as a national subcontractor with the Veteran0s Administration throughout the U.S and has worked with thousands of veterans in addition to being a contractor for U.S. Department of Labor and the Office of Workers' Compensation Programs.

She is currently the President for the Mississippi Chapter of IARP. She is a board member of the Foundation for Life Care Planning and Rehabilitation Research (FLCPRR) and serves on the research and proposal review committee. Dr. Busby Thomas is well published in peer-reviewed journals, including the Journal of Life Care Planning and, The Rehabilitation Professional. She was awarded the Patricia McCollum FLCPRR Research Award in 2023. Dr. Busby Thomas has presented at numerous regional and national conferences in rehabilitation and life care planning.

BEYOND SPEECH PROBLEMS: DISTINGUISHING APHASIA, DYSARTHRIA, AND COGNITIVE-COMMUNICATION IMPAIRMENT

Clinical Implications for Life Care Planning in TBI, Stroke, Cerebral Palsy, and Ventilator-Dependent Populations

By: Erica Thomas, M.S., CCC-SLP

Keywords: Aphasia, Cognitive-Communication Impairment, Traumatic Brain Injury, Augmentative Alternative Communication (AAC)

Abstract

In populations involving traumatic brain injury (TBI), cerebrovascular accident (CVA), cerebral palsy (CP), and mechanical ventilator dependence, the descriptive term "speech problems" is clinically imprecise and forensically inadequate. Neurogenic communication deficits can disrupt three distinct neurological systems: linguistic processing (aphasia), motor speech execution (dysarthria/apraxia), and executive cognitive-linguistic function (cognitive-communication impairment). Each disorder possesses a unique neural mechanism, a discrete functional trajectory, specialized assistive technology requirements, and a distinct lifetime cost projection. This article provides life care planners with the requisite clinical framework to differentiate these disorders, evaluate their functional implications across diagnostic populations, and formulate precise, legally defensible life care plans. Augmentative and alternative communication (AAC) device taxonomies, current capital pricing benchmarks, and necessary ancillary technologies are reviewed, alongside an analysis of their implications for cost modeling, vocational capacity loss, and evidentiary reliability.

Introduction

In catastrophic injury litigation and life care planning practice, vague clinical terminology represents an evidentiary

liability. The reductionist phrase "speech problems" appears with notable frequency across medical records, acute rehabilitation summaries, and life care plan drafts. For clinicians, retaining counsel, and triers of fact who rely on these documents to assess damages and establish future care requirements, this descriptor lacks the clinical and forensic utility necessary to sustain cross-examination.

When a life care planner documents that a client exhibits speech problems and simply allocates a generic line item for speech therapy, critical clinical and economic variables remain unaddressed:

- Which specific neurological subsystem is impaired?
- What are the objective functional limitations of that impairment across environments?
- What specialized technology is required to facilitate functional communication?
- How will these communication needs evolve across the individual's remaining lifespan?

Neurogenic communication and cognitive-linguistic disorders secondary to TBI, CVA, CP, and tracheostomy/mechanical ventilation involve distinct pathophysiological mechanisms. These include language processing deficits (aphasia), motor speech execution failure (dysarthria or apraxia), and deficits in attention, memory, or executive function (cognitive-communication impairment).

These diagnoses are not interchangeable. Their neural substrates, functional presentations, clinical treatment models, and lifetime cost trajectories differ substantially. This article establishes a rigorous clinical framework to assist life care planners in differentiating these disorders, documenting their functional consequences, and constructing accurate, defensible lifetime cost projections.

Table 1. Differentiating the Three Neurogenic Communication SystemsNANDA-I 2024-2026

Feature	Aphasia	Dysarthria	Cognitive-Communication Impairment
System impaired	Language processing (encoding/ decoding)	Motor execution of speech	Executive/cognitive regulation of communication
Typical lesion	Language-dominant cortex and connecting white matter	UMN, LMN, cerebellar, brainstem, or cranial nerve	Frontal systems and diffuse axonal injury
Message intact?	No — the linguistic message itself is degraded	Yes — message intact, execution impaired	Yes — words intact, use and regulation impaired
Presenting sign	Anomia, paraphasia, impaired comprehension, alexia, agraphia	Slurred, strained, breathy, or unintelligible speech	Tangentiality, poor pragmatics, impaired safety judgment
Detected on brief exam?	Usually	Usually	Frequently missed
Primary technology need	AAC with language representation support; low-tech backup	SGD with alternative access; speaking valve if ventilated	Cognitive prosthetics, reminder systems, cueing software
Dominant cost driver	Therapy intensity and duration	Device, access hardware, and mounting replacement cycles	Supervision, job coaching, and lifelong cueing support

Note. UMN = upper motor neuron; LMN = lower motor neuron; AAC = augmentative and alternative communication; SGD = speech-generating device

Aphasia: When Language Itself Is Disrupted

Aphasia is an acquired impairment of language processing, not localized motor speech execution. This distinction is clinically precise and forensically significant. Aphasia typically results from focal damage to the language-dominant hemisphere (most frequently the left hemisphere), specifically involving Broca's area, Wernicke's area, or the white matter pathways (arcuate fasciculus) connecting them. While most frequently secondary to thromboembolic or hemorrhagic CVA, aphasia is also a prevalent sequela of moderate-to-severe TBI when diffuse axonal injury or focal contusions compromise language-dominant networks.

Clinical Note on Progressive Manifestations: In longitudinal

care considerations, Primary Progressive Aphasia—a neurodegenerative form of aphasia characterized by progressive linguistic deterioration—requires specialized planning, as its long-term care trajectory mirrors that of cortical dementias rather than stable focal injuries.

The core deficits of aphasia compromise the structural linguistic matrix: word retrieval (anomia), auditory comprehension, syntactic formulation, reading (alexia), and written expression (agraphia). Crucially, an individual with aphasia may possess entirely intact motor speech physiology. The deficit rests in the inability to decode incoming linguistic data or encode thoughts into grammatical, semantically correct verbal or written output. This stands in sharp contrast to dysarthria, where the internal linguistic message is fully intact, but the physical execution is disrupted.

Clinical Presentation

Aphasia syndromes are categorized based on fluency, comprehension, and repetition capabilities (Helm-Estabrooks et al., 2014):

- Non-Fluent Aphasia (Broca's): Characterized by halting, effortful, agrammatic, and telegraphic verbal output. Auditory comprehension remains relatively preserved, frequently leading to profound client frustration.
- Fluent Aphasia (Wernicke's): Characterized by speech that is fluent in prosody and phrase length but significantly impaired in semantic content. Output often includes paraphasias (word substitutions) and neologisms (nonsense words), paired with severely impaired auditory comprehension and lack of awareness regarding communication errors (anosognosia).
- Global Aphasia: Reflects severe, diffuse disruption across all language modalities, severely limiting both receptive and expressive communication.

For life care planning purposes, the specific diagnostic profile dictates the anticipated therapeutic intensity, the probability of a rehabilitation plateau, and the long-term necessity for augmentative communication support.

Functional and Legal Consequences of Aphasia

From a life care planning perspective, aphasia carries severe functional and legal consequences that must be explicitly accounted for in the narrative and cost charts:

- Medical Autonomy: Impairment of medical decision-making capacity and the ability to provide independent informed consent.
- Legal Participation: Reduced capacity to participate meaningfully in legal proceedings, depositions, and trial testimony.
- Financial Literacy: Compromised reading comprehension and mathematical processing, necessitating third-party fiduciary oversight or daily financial management assistance.
- Vocational Capacity: Complete or near-complete elimination of the ability to engage in employment or educational activities requiring linguistic transactions.
- Caregiver Burden: Substantial escalation in caregiver communication burden, directly translating to increased instructional hours and specialized attendant care.

When aphasia is poorly defined within a life care plan, these functional deficits are undervalued, leading to inadequate funding projections. Treatment typically mandates high-frequency, intensive speech-language pathology (SLP) intervention (2 to 5 sessions per week) during the acute and post-acute windows (American Speech-Language-Hearing Association, 2016), transitioning to maintenance outpatient therapy, life participation models, or communication group therapy to maintain skill generalization. In moderate-to-severe chronic presentations, high-tech AAC systems must be integrated into the lifetime cost chart.

Interdisciplinary Confirmation of the Aphasia Diagnosis

Because aphasia is frequently mislabeled in the record as confusion, memory loss, or generalized "speech problems," the life care planner should confirm the diagnosis against the opinions of the treating neurologist or brain injury medicine physician and the neuropsychologist, in addition to the speech-language pathologist. This collaboration serves three purposes.

- Diagnostic accuracy. Neuroimaging and neurological examination localize the lesion; the SLP characterizes the resulting linguistic profile. Concordance between the two substantially strengthens the evidentiary foundation of the plan.
- Test validity. Standardized neuropsychological batteries rely heavily on verbal instruction and verbal response. In the presence of aphasia, low scores may reflect language impairment rather than global cognitive decline. The neuropsychologist should document which instruments were selected or adapted to account for this, or the plan risks either overstating or understating cognitive need.
- Capacity and consent. Determinations regarding medical decision-making capacity, informed consent, and the need for surrogate or fiduciary oversight should reflect the combined findings of the physician, the neuropsychologist, and the SLP rather than any single discipline in isolation.

When these opinions diverge, the divergence should be identified and reconciled during plan development rather than surfacing for the first time during deposition.

Projecting Speech-Language Pathology Frequency and Duration

One of the most common vulnerabilities in a life care plan is a speech-language pathology line item that funds the acute and post-acute period generously but then terminates, or that carries a single undifferentiated annual figure across the remaining lifespan. Neurogenic communication disorders are, in most catastrophic cases, lifelong conditions that require intermittent professional contact well after the restorative phase has plateaued. Table 2 provides planning ranges commonly encountered across the phases of care.

Phase of Care	Typical Frequency	Typical Duration	Life Care Planning Note
Acute and inpatient rehabilitation	5–7 sessions per week (often daily; 30–60 minutes)	Length of the inpatient stay	Usually funded by the acute episode; establishes the baseline profile.
Post-acute restorative (outpatient or home health)	2–5 sessions per week	3–12 months, sometimes longer in severe aphasia	Highest-intensity restorative window; taper should be documented, not assumed.
Transitional / taper	1 session per week tapering to 1–2 per month	6–12 months following the restorative phase	Supports generalization into home, community, and vocational settings.
Long-term intermittent maintenance	12–24 sessions per year, commonly delivered in blocks of 6–12 sessions, 2–4 times per year	Lifetime	Episodic blocks are more defensible than a flat weekly figure and better reflect how maintenance therapy is actually delivered.
Periodic re-evaluation	1–2 comprehensive re-evaluations per year	Lifetime	More frequent in pediatric cases and at each developmental or vocational transition.
AAC device acquisition or replacement	8–16 sessions per device cycle	Each 3-to-5-year replacement cycle	Covers evaluation, trial, programming, vocabulary construction, and caregiver training.
Access-method transition	4–8 sessions per transition	As motor status changes	Triggered by progression, premature aging, growth, or orthopedic change.
Caregiver and communication-partner training	2–6 sessions per year	Lifetime	Fund separately; attendant turnover requires retraining.

Note. Ranges reflect commonly encountered planning parameters and are not a substitute for individualized clinical recommendation. Frequency should be anchored to the treating or evaluating speech-language pathologist's written recommendation, the documented response to prior therapy, the severity of the impairment, and the degree of technology dependence. A plan that cites a defensible source for its frequency assumption is far more durable on cross-examination than one that cites a convention

Dysarthria: When the Motor System Fails Speech Execution

Dysarthria is a neurogenic motor speech disorder resulting from structural or physiological disruption of the motor systems responsible for controlling the musculature of respiration, phonation, resonance, articulation, and prosody (Darley et al., 1969). The cognitive-linguistic message is intact; the neuromuscular execution of that message is impaired. Dysarthria can arise from damage to the central or peripheral nervous system, including cortical, subcortical, cerebellar, brainstem, or cranial nerve injuries, and is a common sequela of TBI, stroke, CP, and progressive neurological diseases (Duffy, 2019).

Dysarthria Subtype	Neurological Site of Lesion	Primary Clinical Speech Characteristics
Spastic	Bilateral Upper Motor Neuron (UMN)	Slow rate, strained-strangled voice quality, imprecise consonants, hypernasality.
Ataxic	Cerebellar Control Circuit	Scanning speech (excess and equal stress), irregular articulatory breakdowns, vowel distortions, gait/speech dysmetria.
Flaccid	Lower Motor Neuron (LMN)	Breathiness, audible inspiration, hypernasality, nasal emission, muscle atrophy/fasciculations.
Mixed	Multiple Motor Systems (e.g., UMN & LMN)	Combined characteristics (frequent in severe TBI, hypoxic-ischemic encephalopathy, and brainstem trauma).

For the life care planner, the severity of the dysarthria is the primary economic driver. While mild dysarthria may require brief, periodic monitoring or compensatory strategy training, moderate-to-severe dysarthria necessitates sustained, long-term therapeutic oversight and alternative communication modalities (Yorkston et al., 2010). Severe dysarthria (particularly when secondary to brainstem trauma or paired with cognitive impairment) frequently requires full reliance on high-tech AAC systems.

Specialized population: Ventilator-Dependent Populations

Tracheostomy and mechanical ventilator-dependent populations represent a highly complex cohort requiring specialized equipment and professional consultation line items. When a tracheostomy tube is present and inflated, normal translaryngeal airflow is eliminated, rendering natural phonation impossible. Communication interventions for this population require dedicated allocations in the life care plan:

- Passy-Muir Speaking Valves (PMV): These one-way, closed-position valves attach to the tracheostomy tube hub, redirecting airflow through the vocal folds during exhalation to permit phonation. PMV assessment requires specialized SLP and respiratory therapy coordination to ensure airway patency and ventilator setting compatibility. Current capital costs range from $100 to $200 per valve (Passy-Muir Inc., 2024); however, due to strict infection control and material degradation protocols, life care plans must account for frequent replacement schedules (e.g., multiple valves per year) alongside the professional hours required for ongoing clinical monitoring.
- Ventilator-Compatible AAC Integration: For individuals unable to tolerate or clinically clear for a speaking valve, AAC hardware must be configured to integrate with ventilator circuits, specific wheelchair seating systems, and limited physical access methods. This requires custom mounting assemblies ($500 to $2,000) and regular professional adjustment.
- Electrolarynx Devices: These external, battery-powered transcervical or intraoral vibratory devices provide an artificial sound source for speech. While presenting a lower capital cost (approximately $800), they require explicit allocations for replacement batteries, charging bases, specialized training sessions, and backup devices, noting that some users reject them long-term due to the mechanical voice quality.

Cognitive-Communication Impairment: The Hidden Deficit

Cognitive-communication impairment is arguably the most frequently overlooked neurogenic communication deficit in life care planning, particularly when reviewing high-functioning individuals post-TBI (Darragh et al., 2020). These individuals do not present with slurred speech or structural aphasic errors; their surface-level conversational skills often appear preserved during brief, structured clinical evaluations. However, the underlying cognitive deficits profoundly disrupt real-world functional independence, safety, and vocational viability.

Cognitive-communication impairment is defined as an inability to execute effective communication due to underlying deficits in cognitive domains, including the following:

- Orientation & Attention: Sustained, selective, alternating, and divided attention.
- Memory: Short-term, long-term, working, and prospective memory (remembering to perform actions in the future).
- Visuospatial Processing: Impairments in spatial orientation and environmental navigation.
- Executive Functioning: Goal formulation, planning, organizing, sequencing, self-monitoring, and cognitive flexibility.

Real-World Manifestations

In a structured environment, an individual with a cognitive-communication impairment may articulate sentences flawlessly. When placed in an unscripted environment, however, they may fail to comprehend multi-step workplace instructions, mismanage household finances, misinterpret abstract language or social cues (pragmatic failure), exhibit poor impulse control, or fail to identify life-threatening safety hazards.

Pediatric Traumatic Brain Injury Considerations

In pediatric TBI populations, cognitive-communication deficits present an escalating trajectory. Because the prefrontal cortex and executive functioning networks continue to mature into early adulthood, with higher-order association cortex among the last regions to reach maturity (Gogtay et al., 2004), a frontal lobe injury sustained at age seven may present minimal functional disruption in a structured elementary school environment. This pattern is well described in the pediatric brain injury literature as "growing into deficit": skills that were not yet developed at the time of injury fail to emerge on schedule, so the functional consequences of an early injury often become more apparent, rather than less, with time (Anderson et al., 2011; Ewing-Cobbs et al., 2006).

However, as the individual transitions into middle school, high school, and independent adult environments where external cognitive supports are removed, the deficit manifests fully. Life care plans for pediatric TBI must include recurring provisions for the following:

- Comprehensive neuropsychological and cognitive-linguistic re-evaluations at major developmental transitions (e.g., transitions to middle school, high school, and post-secondary environments).
- Continuous private SLP intervention targeting executive function, social pragmatics, and academic/vocational adjustments.
- Specialized vocational rehabilitation and job coaching during transition phases.

AAC Devices: Categories, Technologies, and Cost Benchmarks

AAC refers to the diverse methodologies utilized to supplement or replace natural speech (Beukelman & Light, 2020). In life care planning, AAC represents a high-cost capital equipment category that suffers from frequent underestimation regarding replacement cycles, maintenance, and ancillary components.

1. Low-Tech AAC Systems

Low-tech systems utilize non-electronic components, such as picture exchange communication books, alphabet boards, and manual eye-gaze frames.

- Cost Benchmark: Base capital costs are minimal (typically under $500).
- Life Care Planning Considerations: These systems require substantial professional hours for customization, vocabulary updates, and caregiver training. They must be included in life care plans as vital non-electronic backup options for high-tech users or as primary communication modalities in acute or highly restrictive physical presentations.

2. Mid-Tech Speech-Generating Devices

Mid-tech speech-generating devices (SGDs) incorporate static displays with digitized (recorded) speech output, limited multi-level overlays, or single-switch step-scanning features.

- Cost Benchmark: $1,000 to $3,000 per device.
- Life Care Planning Considerations: These devices are indicated for individuals with highly predictable, routine communication needs or as stable transitional tools. Budget models must account for professional software programming, replacement overlays, battery replacements, and a 3-to-5-year replacement cycle.

3. High-Tech AAC Systems

High-tech systems comprise dedicated, medical-grade speech-generating devices (SGDs) featuring dynamic touch-screen displays, integrated synthetic text-to-speech engines, advanced word prediction software, and multi-modal access pathways. Prominent manufacturers include Tobii Dynavox (2024) and PRC-Saltillo (2024).

- Cost Benchmark: $8,000 to $15,000+
- Access Methodology Adjustments: Physical access methods dictate significant cost variations. Direct selection via touch or stylus may require simple hand guards, whereas severe motor impairment (e.g., quadriplegic CP, advanced ALS, or locked-in syndrome) requires complex access infrastructure:

  - Eye-Gaze / Eye-Tracking Modules: Specialized cameras and hardware calibration systems add substantial costs to the base device.
  - Switch-Scanning / Head-Tracking Hardware: Pneumatic switches (sip-and-puff), proximity switches, or infrared head-mouse systems.
- Mounting Infrastructure: mounting assemblies for power wheelchairs, standard beds, or rolling floor stands add $500 to $2,000 per assembly.
- Software and Support: Proprietary language system licenses (e.g., WordPower, LAMP Words for Life, Snap Core First) and annual technical support or extended warranty agreements must be budgeted as discrete items.
- Lifecycle: High-tech SGDs possess a strict 3-to-5-year replacement cycle due to intense daily wear, battery degradation, and operating system obsolescence.

Ancillary Technologies in Neurogenic Communication Management

Comprehensive cost modeling requires looking beyond the primary communication device to account for necessary ancillary technologies:

- Cognitive Rehabilitation Platforms & Software: Digital platforms targeting processing speed, working memory, and executive functioning (e.g., Constant Therapy, BrainHQ)(Sohlberg & Turkstra, 2011). While basic consumer applications are nominal, clinically supervised, medical-grade software subscriptions cost $10 to $150 per month, and must be paired with periodic SLP oversight hours.
- Environmental Control Units (ECUs) and Smart-Home Integration: The term environmental control unit refers to an older generation of dedicated, single-purpose hardware that allowed a person with limited motor function to operate lighting, climate control, door locks, beds, televisions, telephones, and nurse-call or medical alert systems. Standalone ECUs are now rarely specified, because mainstream smartphones, tablets, and laptops perform most of these functions, and because current speech-generating devices (SGDs — the dedicated, medical-grade communication devices described in the preceding section) can be configured to control a consumer smart-home ecosystem directly through infrared, Bluetooth, or Wi-Fi. For life care planning purposes, the line item has shifted rather than disappeared. What must still be funded is the integration layer: smart hubs, switch-accessible controllers, infrared and radio-frequency transmitters, smart plugs, smart locks, mounting for the controlling device, and the professional programming hours required to link that layer to the client's SGD and access method. A dedicated ECU may still be indicated where the client cannot operate a consumer interface, where a facility restricts network-connected devices, or where nurse-call and bed controls are not compatible with consumer platforms. Complete configurations range from $500 to $5,000, with an approximate five-year replacement cycle, and require reprogramming allocations after each device replacement or access-method change.
- Remote Caregiver Monitoring Platforms: Cloud-based software allowing remote caregivers or speech pathologists to monitor device usage, update vocabulary structures, and perform remote troubleshooting.
- Access Method Transition Allocations: As motor presentation alters over time—due to secondary orthopedic changes in CP, premature aging, or pediatric maturation—users shift access methods (e.g., transitioning from physical touch to switch-scanning or eye-gaze). Each transition demands a discrete line item for a comprehensive AAC re-evaluation, new peripheral hardware procurement, and intensive therapeutic training for the client and care team.

Application Across Diagnostic Populations

There are many diagnoses where speech problems may be a symptom or result. However, the following are the physical health issues that are most likely to cause speech impairments.

Stroke

Left-hemisphere CVAs routinely present with focal language disruption (aphasia) with varying degrees of preserved motor speech execution. Conversely, right-hemisphere CVAs present a converse profile: highly articulate, fluent speech that lacks pragmatic appropriateness, safety awareness, and cognitive organization. Bilateral or brainstem CVAs frequently induce severe dysarthria or anarthria (complete loss of speech) with fully preserved language processing.

Life care plans must reject generic "speech therapy" recommendations in favor of targeting the exact diagnostic profile, adjusting the therapy delivery model based on whether the goal is restorative linguistic training or compensatory technology management.

Cerebral Palsy

Spastic quadriplegic CP frequently results in severe, profound dysarthria due to damaged upper motor neuron pathways. Crucially, cognitive functioning, linguistic processing, and reading comprehension may remain fully intact. These individuals are often highly literate and communicatively sophisticated but entirely reliant on high-tech AAC hardware to interface with the world.

Life care plans for these individuals must project high-tech SGD costs over a full, non-injured life expectancy, incorporating escalating access adjustments (e.g., upgrading to eye-gaze control) as premature aging, fatigue, and secondary scoliosis affect fine-motor control. Athetoid CP, characterized by fluctuating muscle tone, requires dual-system planning: allocating funding for portable mid-to-high-tech

hardware to manage communication during periods of high fatigue or physical stress, alongside traditional therapies.

Traumatic Brain Injury

TBI is uniquely disruptive because it frequently produces a combined, multi-system impairment: aphasia from focal contusions, dysarthria from cranial nerve or brainstem trauma, and cognitive-communication deficits from diffuse axonal injury. Cost modeling for this population requires concurrent, non-duplicative allocations for language rehabilitation, motor speech execution coaching, and structured cognitive-linguistic interventions.

Procedure Coding for Communication-Related Life Care Plan Line Items

Life care plan line items are more defensible, and far easier for an economist or a billing reviewer to price, when each recommended service is tied to the procedure code under which it is actually delivered. Table 3 lists the codes most frequently associated with the evaluation and treatment of neurogenic communication disorders and with augmentative and alternative communication.

Code	Descriptor	Life Care Planning Application
92521	Evaluation of speech fluency	Fluency and neurogenic stuttering presentations.
92522	Evaluation of speech sound production	Dysarthria and apraxia evaluation.
92523	Evaluation of speech sound production with evaluation of language comprehension and expression	The comprehensive evaluation code for combined motor speech and language deficits; typical in TBI and stroke.
92524	Behavioral and qualitative analysis of voice and resonance	Voice and resonance changes, including post-tracheostomy presentations.
96105	Assessment of aphasia with interpretation and report, per hour	Standardized aphasia batteries supports the diagnostic specificity discussed above.
92507	Treatment of speech, language, voice, communication, and/or auditory processing disorder; individual	The core individual therapy code for restorative and maintenance blocks.
92508	Treatment of speech, language, voice, communication, and/or auditory processing disorder; group, two or more individuals	Community reintegration and aphasia group programming.
97129 / 97130	Therapeutic interventions that focus on cognitive function and compensatory strategies; initial 15 minutes / each additional 15 minutes	Cognitive-communication treatment; the time-based structure should be reflected in the cost model.
92607	Evaluation for prescription of speech-generating augmentative and alternative communication device, face-to-face with the patient; first hour	The formal comprehensive AAC evaluation. This is the code that supports a high-tech SGD recommendation.
92608	Evaluation for prescription of speech-generating AAC device; each additional 30 minutes	Comprehensive AAC evaluations routinely exceed one hour; budget additional units.
92609	Therapeutic services for the use of speech-generating device, including programming and modification	Recurring programming, vocabulary construction, and caregiver training after each device acquisition or replacement.

Code	Descriptor	Life Care Planning Application
92605 / 92618	Evaluation for prescription of non-speech-generating AAC device; first hour / each additional 30 minutes	Low-tech and mid-tech systems, including backup communication boards.
92606	Therapeutic service(s) for the use of non-speech-generating device, including programming and modification	Customization and updating of low-tech and mid-tech systems.
92597	Evaluation for use and/or fitting of voice prosthetic device to supplement oral speech	Electrolarynx and related prosthetic voicing options in ventilator-dependent and laryngectomy populations.
E2500–E2599 (HCPCS)	Speech-generating devices, accessories, and mounting systems	Durable medical equipment coding for the device, mounts, and peripherals; use to anchor capital costs and replacement cycles.

Note. CPT® is a registered trademark of the American Medical Association. Codes and descriptors should be verified against the current CPT and HCPCS Level II editions and against applicable payer policy at the time the plan is written, as descriptors and time increments are revised periodically. Coding is included here to support cost sourcing and internal consistency, not to establish billing or reimbursement advice.

Implications for Life Care Plan Development

The clinical and technical framework outlined above has practical consequences only if it is translated into the structure of the life care plan itself. Moving from diagnosis to defensible documentation, however, requires more than appropriate terminology; it requires a comprehensive and specified process for reviewing the medical record, specifying technology needs, and modeling costs across the individual's lifespan.

For the life care planner, translating this clinical taxonomy into a defensible document requires adherence to three professional standards:

Diagnostic Precision in Evidentiary Record Review

The life care planner must audit the historical medical record with high specificity. If treating neurology or SLP records describe "speech therapy indicated" without differentiating between language, motor execution, or cognitive deficits, a clinical gap exists. The planner must clarify these diagnoses via consultation with treating providers or through independent clinical evaluation to ensure the plan's foundation is scientifically sound.

Individualized Technology Assessment

Allocating a generic "communication device" line item without specifying the access method, software infrastructure, mounting configuration, and backup systems creates an easily challenged projection during litigation. A formal, comprehensive AAC evaluation executed by a speech-language pathologist specializing in assistive technology represents the standard of practice necessary to defend the inclusion of high-tech communication infrastructure. Best practice further includes a supervised device trial, in which the individual works directly with a speech-language pathologist using the candidate device or devices over a defined trial period before procurement is recommended. A documented trial establishes that the specific device and access method were tested against the client's actual motor, visual, and cognitive profile, and it converts the device recommendation from a catalog selection into a clinical finding. In litigated matters, retaining counsel should be advised early that the trial period is a necessary component of the evaluation, not an optional convenience, because a device recommendation made without a trial is among the first line items challenged on cross-examination.

Lifespan Cost Modeling Architecture

Every high-tech communication system requires a multi-tiered cost entry that includes:

- The base device capital cost (3-to-5-year replacement cycle).
- Specialized mounting hardware and peripheral access components.
- Software licensing fees and technical support agreements.
- Recurring professional SLP allocation blocks for device re-programming, vocabulary adjustment, and caregiver training following every hardware replacement cycle.

In catastrophic litigation contexts, the lifetime cost projection for AAC hardware, software, and maintenance infrastructure alone frequently reaches a six-figure sum. When combined

with specialized therapeutic maintenance, regular re-evaluations, and cognitive support software, communication impairment represents one of the most financially significant, yet frequently underrepresented, components of a comprehensive care projection.

Conclusion

Neurogenic communication disorders secondary to TBI, stroke, CP, and mechanical ventilator dependence involve distinct neurological pathways, leading to separate functional limitations, therapeutic models, and long-term cost trajectories. Aphasia degrades the linguistic system itself; dysarthria disrupts the motor execution of speech; cognitive-communication impairment compromises the executive functions required to navigate real-world linguistic transactions. These conditions are not synonymous, and they cannot be accurately or ethically accounted for under a single, generic clinical line item.

For the practicing life care planner, precision in disorder differentiation is an absolute clinical and forensic obligation. Precise identification ensures that the injured individual's functional deficits are fully recognized, that their technological requirements are accurately funded, and that the resulting lifetime cost projections withstand rigorous legal and cross-examination scrutiny. The fundamental question is not simply whether speech-language pathology services are indicated, but rather which communication system is impaired, how that impairment limits real-world autonomy, and what specific technological array is required to sustain communication participation across the lifespan.

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Medication Management in the Age of Digital Health Technology

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Keywords: Medication Management, Technology for Medications, Safe Medication Administration

NURSING DIAGNOSES TO CONSIDER
NANDA-I 2024-2026

1) Ineffective health maintenance behaviors 2) Ineffective health self-management 3) Readiness for enhanced health self-management

Introduction

Medication therapy is vital in disease process management, in prevention of complications, in achieving expected clinical objectives, and in promotion of optimal health outcomes. Patient-centered goals focus on maximizing therapeutic benefit while minimizing the risk of medication-related harm (MRH), also known as adverse drug event(s) (ADEs). Taking an accurate dose of the correct medication, at the right time, and via the right route are fundamental to safe and effective pharmacotherapy (Yao et al., 2025). Despite improvements in medication safety protocols and use of evidence-based practice guidelines, reduced therapeutic effectiveness, and preventable MRH/ADE impact more than 1.3 million, or approximately 3% of medication recipients across diverse healthcare settings (Yao et al., 2025; Insani et al., 2025).

In the United States, nearly 125,000 deaths and 10% of hospitalizations occur due to medication errors and ADEs (Ding et al., 2022). Poor medication compliance and medication errors increase the risk of ADEs, leading to an additional 1.5 million emergency department visits and 500 thousand hospitalizations (Centers for Disease Control and Prevention, 2024). Increased health care utilization raises healthcare costs, drains scarce resources, and strains the healthcare system in the United States (Thomas et al., 2025; Yao et al., 2025). The World Health Organization (WHO, 2023) reports that the global cost of preventable medication-related injuries is estimated at $42 billion, while in the United States, the healthcare costs of medication non-adherence, medication errors, ADEs, and over-utilization of healthcare services and resources are approximately $528.4 billion annually (Klein, 2020).

Medication errors attributable to provider(s) are most likely to occur during the prescribing and the dispensing phases, and due to miscommunication or misinformation. Patient-related medication errors may be attributed to cognitive and/or physical impairments, low health literacy, high medication costs, failure to refill medications on a timely basis, compliance hesitancy, and lack of caregiver assistance (Ghassab-Abdollahi et al., 2024). Although prevalent across diverse health care settings, medication errors are more likely to occur in the home care environment due to lack of professional oversight, overestimation of the patient's ability to self-administer medications safely, and lack of caregiver availability (Tan et al., 2025).

Strengthening medication therapy oversight, including but not limited to medication management and reconciliation by registered nurses(RNs), inter-disciplinary collaboration between healthcare providers and pharmacists, use of tele-monitoring, and effective communication with medication recipients and/or their caregivers can reduce the risk of MRH (Alhur et al., 2024; Mason et al., 2022). Digital health technology (DHT) is instrumental in mitigating medication errors, improving medication adherence, decreasing ADEs, and reducing hospitalizations and ED visits (Insani et al., 2025). DHT includes a variety of smart medication reminding applications (apps) with compliance tracking and electronic pill dispensers that can be pre-programmed to deliver the right medication at the right time, with a lock system that prevents accidental double-dosing. Many local and national pharmacies provide blister (multi-dose) and unit-dose medication packaging, also known as "adherence packaging," that significantly improve medication compliance and reduce the risk of medication errors.

Certified Nurse Life Care Planners (CNLCP's) and Certified Life Care Planners (CLCPs) implement evidence-based methodology to develop life care plans that promote health and well-being, improve and restore function, minimize complications, and enhance quality of life. One of the functions of CNLCPs/CLCPs includes cost projection of medications over the subject's lifetime. This process should incorporate medication management strategies that include, but are not limited to DHT, consulting services (pharmacy, nursing, case management, and others as appropriate) in order to promote medication safety, and minimize the risk of ADEs and other health-related complications.

Technology-based Interventions for Medication Adherence and Safety

The risk of medication errors is increased if an individual is taking multiple medications at different times of the day, especially if alterations in memory, perception, or cognition are evident. Medication management smart applications enhance adherence by sending medication reminders at the designated times. The following medication management applications (Apps) are available either through the Apple App Store (IOS) or Google Play (Android):

- Medisafe (medisafeapp.com) - User-friendly, free of charge, unless an upgrade to the premium package is preferred. The cost of Medisafe Premium depends on how many features are chosen. Once the user enters the name of the medication, the dose, the frequency, and the time of administration, the app sends reminders and alerts at the time indicated. The app tracks compliance and allows family and/or designated stakeholders to get alerts when a dose is missed.
- Dosecast: My Pill Reminder App (https://www.montunosoftware.com/about/) -Reminders can be set up to accommodate daily, every 2-3 days, weekly, bimonthly, or any other schedule of administration. Additionally, the app sends reminders for medication refills, tracks medication compliance, and shares this information with designated stakeholders, including the individual's healthcare provider.
- EveryDose - an "Intelligent Medication Cloud" is an AI-enabled system that facilitates accuracy in medication administration and seamless patient-physician communication. The app sends reminders to take medications, sends alerts on refills, tracks progress and compliance, provides education on medication interactions, side effects, and potential adverse effects (https://www.everydose.ai/app/).
- MyTherapy Pill Reminder (mytherapyapp.com) - provides medication reminders and compliance tracking, medication refills, health tracking, and seamless communication with the healthcare team.
- Medications Apple App - Can be downloaded from the App Store on the iPhone(IOS 16) or Apple Watch (0.9 or higher). Once the medications and/or supplements are entered, the user can enter preferred reminders for timing of administration. The app user can document when a dose has been taken, and as such, compliance can be tracked. The app has a patient education feature, with drug side effects and adverse effects, interactions, and instructions on when to follow up with the healthcare team.
- CareClinic (https://careclinic.io) - Tracker/Reminder is a "health management app that is available on the App Store. The app has a reminding medication feature, tracking compliance, and "tracking symptoms, including vital signs, health, and other metrics, that can be shared with the healthcare provider.

It is important to note that this is not an all-inclusive list of DHT for medication management, and other apps may be more appropriate for the subject of the life care plan. Furthermore, the individual's preferences, technology literacy, and ability to incorporate specific technology into the user's daily routine must be considered. In the event that the individual cannot self-administer medications or use the app as indicated, formal and/or informal caregivers can use the app as a reminder tool.

Medication Dispensing Devices

Electronic pill boxes dispense the correct medication at the correct time and are especially effective in managing multiple medications, including prescribed and over-the-counter medications, and supplements. These dispensers have been used effectively in medication management in long-term care facilities, hospitals, and in-home care settings. A variety of electronic pill boxes are available depending on specific needs and preferences of the user or caregiver. The electronic pill boxes have a lock system that prevents accidental double-dosing. The following devices are included as an example, as it is beyond the scope of this article to include every available medication dispenser.

- Hero Dispensing Platform includes the smart dispensing unit, the Hero app, and the membership at $29.99 monthly with a pre-paid plan, or $59.99 monthly without a pre-paid plan. The HERO smart dispensing unit can be set up for up to a 90-day supply of medications (https://herohealth.com).
- Electronic Pill Box is a smart pill dispenser available from Amazon. The cost of the 28-day dispenser is $143.99 app not included). The box has light and sound alerts to remind the individual to take medications. The Ideerfit 84-day Automatic Pill Dispenser with App is $499 for a 4-tray, and $599 for a 6-tray dispenser with light and sound reminders.
- E-pill Medtime SAFE and e-pill CompuMed SAFE are two smart pill dispensers that hold 15 tablets, and 25 tablets, respectively. Both units have light and sound alerts/ reminders, however, the former has AC (alternating current adapter plug) connection and no battery power, while the later has AC connection and back-up battery. Other designs include MedTime Station, MedTime Station Pro, Med-O-Wheel Safe, MedSmart Voice Pro, CompuMed, and CompuMed Safe. Prices range from $290-$1,189 depending on the model (https://www.epill.com/dispenser.html).
- MedaCube Automatic Pill Dispenser- at a cost of $2,499, the MedaCube can be loaded up with 16 medications for 90 days. The medications are sorted based on frequency and timing of administration. The unit comes with an AC adapter and battery backup and U.S.-based online support (https://www.medacube.com/products/medacube-automatic-pill-dispenser?srsltid=AfmBOopBZ_cM5_Nz9ikAqI8kYvSX8st5Z5AJfa7c0NhbyQzlOQ4DZCAA).

Pharmacy-based Medication Management

Aside from reminder apps and automatic medication dispensers, many on-line, and some community pharmacies offer blister packaging and/or unit packaging of medications. Instead of traditional bottle dispensing, the medications are separated into small, daily packs, or blister cards clearly displaying the medication name, the dose, the frequency, and the time of administration. For individuals taking multiple medications daily (polypharmacy) to treat multiple chronic conditions, individual packets, as well as blister packaging, reduce the frequency of missed doses, accidental double-dosing, or mixing up multiple medications.

The following is a list of some national and local pharmacies that provide packet and blister medication packaging:

- PillPack by Amazon Pharmacy: "A full-service online pharmacy that pre-sorts medications into daily packets. The pharmacy is licensed in all 50 states, coordinates with insurance, and offers 24/7 access to licensed pharmacists, and delivers medications and refills (https://www.pillpack.com/) https://www.pillpack.com/videos/a-new-kind-of-pharmacy-2020
- ACCUPACK (https://accupacrx.com/onlinepharmacies/) provides full pharmacy services, including individual packets/blister packaging of medications, monthly refills, delivery, online access, consultation with pharmacist. However, Accupacrx is not licensed in all 50 states, and it must be contacted directly to check if it ships to the state in question.
- Powell Pharmacy-Ohio-based, offers "compliance packaging" in individual packets and blister packs for prescription, over-the-counter medications and supplements. (https://powellpharmacy.com/personalized-packaging/)
- Locost Pharmacy-Located in Savanah, Georgia, this pharmacy offers convenient individual and blister packs, plus free delivery and online access to the pharmacy 24x7. (https://locostpharmacy.com/multi-dose-packaging).

The CNLCPs/LCPs should search for pharmacies that provide blister and unit dose medicationpre-packaging in the subject of the life care plan state of residence. In addition to prepackaged medications, many pharmacies provide Medication Therapy Management (MTM). The MTM process involves a one-on-one pharmacist- to-patient interface that includes an initial evaluation of the medication regimen, discussion of therapeutic effect, side effects, adverse reactions, safe use, and periodic re-evaluations of medication therapy. The pharmacist may contact the patient's primary physician or instruct the patient as to what to discuss with the healthcare providers (ACCP; CDC, 2025).

Nursing-based Medication Management

Polypharmacy and complex medication regimens increase the risk of adverse drug events and medication-induced injury in cognitively intact as well as cognitively impaired individuals, although the risk is higher in the latter. Alteration in mental acuity not only affects the elderly, but also persons with chronic diseases (especially poorly controlled metabolic states), traumatic and acquired brain injuries, post-traumatic stress disorder (PTSD), anxiety, depression, mental illness, insomnia, neurodegenerative disorders, and others.

Cognitive decline induced by medication side effects or adverse reactions is frequently underdiagnosed (Reimers et al., 2024), and often leads to "prescription cascades," where the decreased mental acuity is treated as an independent disorder (Yao et al., 2025; Wilder et al., 2022).

Medication side effects, from minor to major, impact physical and mental health, general well-being, and increase the risk of falls for medication recipients (Wilder et al., 2022). Medication reconciliation is essential in effective and safe medication management, and registered professional nurses (RNs) are educated, trained, and licensed to perform medication reconciliation across multiple healthcare settings. RNs educate patients, families, and other pertinent stakeholders on safe use of prescribed and over-the-counter medications, including side effects, adverse effects, and interactions. RNs are accustomed to and knowledgeable in effective communication and collaboration with healthcare providers regarding medication management.

Another important task that a registered nurse can perform is oversight and supervision of formal and informal caregivers (as per state laws and regulations) and identifying the type of medication administration tasks that can be delegated to non-skilled workers. For example, in the state of New York, the home health aide (HHA) can only remind a cognitively intact medication recipient to take their medications. For patients with complex medication regimens or cognitive and physical impairments. "Advanced Home Health Aide (AHHA)" may be needed to assist in actual medication administration under the supervision of a registered nurse as dictated by the state regulations (https://www.op.nysed.gov/professions/licensed-practical-nurses/advanced-home-health-aides).

Implications for Life Care Planners

Incorporating strategies for safe medication administration management is within the scope of practice of CNLCPs and CLCPs. Alongside monitoring of specific medication-related biomarkers, it is crucial to address how medications will be administered (individual, family, family-employed substitute, home health aide), and who will be responsible for monitoring compliance, side effects, adverse events, and communicating with the primary care providers (individual, family, RN, nurse case manager services, or others). Incorporation of home health aide (HHA) to assist with medication reminding or assistance with actual administration should be considered if an individual is suffering from cognitive or physical impairments, takes 5 or more medications daily, or has physical limitations that impede safe use of medications. Supervision of HHAs by an RN is mandated by state laws and must be considered in the life care plan development.

Cognitive impairments ranging from forgetfulness to difficulties with perception, understanding, or following instructions, confusion, difficulties with language or communication, dementia, and other neurocognitive disorders will affect safe medication use. Likewise, physical impairments including, but not limited to decreased vision and hearing, limited dexterity, deficit in fine motor skills, pain, weakness, tremors, lack of coordination, and other physical limitations must be considered in medication management strategies. Nursing services should be recommended to monitor medication compliance, side effects, adverse reactions, and therapeutic effects of medications, and in medication reconciliation.

When searching for pharmacies, either national or local, it is advisable to select the ones that offer either unit or blister packaging in order to optimize safe medication administration and minimize potential errors. When searching for long-term care or assisted living facilities, inquiries should be made regarding individualized medication pre-packaging, DHT protocols and implementation, and seamless access to pharmacies and healthcare providers. The CNLCPs and CLCPs can access valuable information regarding medication management and safety through the following:

- Emergency Care Research Institute (ECRI, federally certified safety organization).
- Institute for Safe Medication Practice (ISMP under ECRI). The ISMP provides guidelines on "Targeted Medication Safety Best Practices.
- Agency for Healthcare Quality and Research (AHRQ), Centers for Disease Control and Prevention (CDC).
- National Institutes of Health (NIH).
- U.S. Food and Drug Administration (FDA).
- Partners in Care Foundation: developers of "Home Med," a national digital platform to track medications and prevent adverse drug effects for older adults in home care settings (https://www.picf.org/innovations-at-work/homemeds/).
- National Coordination Council for Medication Error Reporting and Prevention (MERP) provides education and safety alerts for consumers and healthcare providers. Free access is available for healthcare providers, patients, families, and other stakeholders (https://www.nccmerp.org).
- The U.S. FDA MedWatch: The FDA Safety Information and Adverse Event Reporting Program provides a platform to report adverse events and to obtain information on medication-related adverse events (https://www.fda.gov/safety/medwatch-fda-safety-information-and-adverse-event-reporting-program)

Conclusion

Medication errors and medication-related harm are on the rise in the United States. Despite improvements in medication safety protocols and use of evidence-based practice guidelines, reduced therapeutic effectiveness, and preventable MRH/ADE impact more than 1.3 million, or approximately 3% of medication recipients across

diverse healthcare settings (Yao et al., 2025; Insani et al., 2025). Polypharmacy (taking 5 or more medications daily), multiple comorbidities, cognitive and physical impairments, complex medication schedules, miscommunication, and misinformation have been cited as risk factors in significant medication-related injury. Technology-based interventions have demonstrated utility in improving medication management, and in minimizing the risk of adverse events, and decreasing medication errors. Digital Health Technology (DHT) includes smart medication reminding applications (apps) and electronic pill box dispensers. Blister and unit-dose packaging of medications, instead of traditional medication bottles, has proven to be effective in decreasing confusion and stress in daily medication management and minimizing medication errors. Medication Therapy Management (MTM) is a pharmacy-provided service that involves a face-to-face encounter between the patient and the pharmacist to discuss medication regimen, potential side effects and adverse reactions, and therapeutic goals. Registered nurses provide medication reconciliation, patient and caregiver education, and oversight of therapeutic efficacy, medication side effects, adverse reactions, diminished therapeutic effect, and communicating with the healthcare providers when adjustments in medication regimen are needed. In addition, RNs are skilled and licensed in supervision of paraprofessional personnel (such as HHA or AHHA) that are involved in medication reminding and assistance with administration.

Certified Nurse Life Care Planners (CNLCPs) and Certified Life Care Planners (CLCPs) are in a unique position to include DHT recommendations in the life care plan as a strategy to decrease medication errors and omissions, to minimize the risk of adverse drug events (ADEs), and to promote safe medication practices.

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ADAPTIVE VIDEO GAMING:

Emerging Opportunities for Recreation, Function, and Life Care Planning

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Keywords: Adaptive Gaming Technology and Accessibility Settings, Gaming in Rehabilitation, Assistive Technology

NURSING DIAGNOSES TO CONSIDER
NANDA-I 2024-2026

1) Impaired physical mobility 2) Impaired social interaction 3) Social isolation

Introduction

Video gaming has become a popular leisure activity among the general population. Over the past 20 years, the number of adults who regularly play video games has doubled, and more than 80% of individuals born after 1980 are estimated to have some involvement in gaming (Engelstätter & Ward, 2022; Khan, 2023). In recent years, adaptive gaming has grown rapidly as companies and organizations increasingly focus on making video games more accessible for individuals with disabilities. Current adaptive gaming technology enables players not only to participate, but also to compete with those who use standard gaming equipment. A wide range of adaptive controllers are now available for individuals who cannot use a standard controller, from head-controlled sip-and-puff joysticks, which are operated by inhaling or exhaling into a mouthpiece, to customizable gaming interfaces that support external joysticks and accessibility switches (Tabacof et al., 2021). Advances in adaptive gaming technology and accessibility features have expanded opportunities for individuals with disabilities to participate in video gaming and connect with community resources that support access to adaptive equipment. This article provides an overview of adaptive gaming, describes the social and functional benefits of participation, identifies resources for connecting individuals with adaptive gaming services, and discusses the role life care planners can play in supporting access to this growing service.

Adaptive Video Gaming Solutions

A wide range of adaptive gaming technologies now exists to support video game participation among individuals with all types of ability. These solutions include adaptive controllers, controller modifications, and in-game accessibility settings that allow individuals with disabilities to customize gaming access based on their functional needs.

Adaptive controllers such as the Xbox Adaptive Controller, PlayStation Access Controller, and Hori Flex Controller allow users to create physically customized gaming setups by connecting external buttons/switches, large joysticks, and other alternative input devices. These controllers are particularly useful for gamers who have difficulty accessing the small buttons, joysticks, or triggers found on a standard controller due to limitations in fine motor control or coordination.

For individuals with more significant mobility limitations, devices such as the Quadstick provide an alternative method of game access using mouth-based controls. The Quadstick allows users to control gameplay through a combination of head or mouth movements to operate a joystick, along with sip-and-puff inputs through holes in an attached mouthpiece to activate in-game controls.

Additional options are also available for gamers who require one-handed access or minor modifications to standard controllers. Devices such as the Evil Controllers, One-Handed Controller, and the Azeron Cyro allow users to access game controls using one side of the body. Other controller adaptations may include modified button layouts, alternative joystick configurations, controller grips, or mounting solutions that improve positioning and access. Together, these adaptations allow gamers to further customize their controller setup to match their specific abilities and preferences. Table 1 lists several of the primary adaptive controllers and physical access solutions currently available for individuals with physical disabilities.

Table 1. Examples of Different Adaptive Gaming Solutions

Solution	Description
Quadstick Adaptive Controller	Head-controlled sip-and-puff joystick that allows gamers to play just using mouth controls.
Xbox Adaptive Controller	A hub that lets users plug in external adaptive joysticks and switches to build a custom controller setup.
PlayStation Access Controller	Accessible controller with nine remappable buttons, large joystick, and four ports to plug in additional external buttons and joysticks.
Hori Flex Controller	A hub that lets users plug in external adaptive joysticks and switches to build a custom setup. Built for the Nintendo Switch console.
Eye Gaze / Head Control	Play games via eye movement or head/facial tracking. More complex to set up and generally a last-resort option.
ByoWave Proteus Controller	Modular controller kit that allows users to assemble their own custom controller layout.
Pro Controllers	Standard controllers with advanced features (remappable back buttons, adjustable stick/trigger tension, swappable parts) for users needing minor modifications.
Simple Controller Adaptations	Grip aids, joystick modifications, and switch-adapted controllers for users with only minor access difficulties.
Lightweight Evil Controller	Reduced overall weight and lower button/trigger activation force for users who fatigue easily or can't generate the force to activate standard controls.
Azeron Cyro Controller	One-handed device that combines a mouse, joystick, and keyboard to allow all controls to be accessed with one hand for PC gaming.
One-Handed Evil Controller	Standard controller adapted for single hand use to allow all controls to be accessed on one side of the body.

In addition to adaptive hardware, many video games now include built-in accessibility settings designed to support motor access. Motor accessibility settings may include button remapping, adjustable joystick sensitivity, toggling controls, reduced need for rapid or repeated button presses, and settings that simplify or eliminate difficult input sequences. Increasingly, game developers are incorporating these features directly into games to make gameplay more accessible for individuals with physical disabilities and for those using adaptive controllers (Brown & Anderson, 2021). Table 2 provides a list of resources that can be used to identify games with accessibility features.

Table 2. Game Accessibility Resources.

Resource	Description	Link
AbleToPlay	Accessibility-first platform for gamers with disabilities to discover video games that fit their specific needs.	https://abletoplay.com/
Family Gaming Database	Connects individuals with video games through parent-friendly game information, curated game lists, and a Game Finder tool	https://www.familygamingdatabase.com/
Can I Play That?	Publishes reviews, news, and features covering the growing presence and adoption of accessibility features in the gaming industry.	https://caniplaythat.com/
Accessible Games Database	Catalog of games with accessibility specifications, filterable by gaming platform, genre, and accessibility features.	https://accessiblegamesdatabase.com/
Gaming Accessibility Nexus	Informs visitors about game options, mechanics, and other relevant details so they can evaluate whether a game fits their specific needs.	https://www.gameaccessibilitynexus.com/

Social and Psychological Benefits of Adaptive Gaming

Individuals with physical disabilities are less likely than those without physical disabilities to participate in leisure and recreational activities because of physical, social, and financial barriers (Hassett et al., 2021). Video gaming can provide a more accessible leisure option with many potential benefits. Compared with other recreational activities, adaptive gaming may be more affordable and can reduce transportation-related barriers, as individuals can play locally or with others online directly from the home environment. Although adaptive gaming equipment may involve some cost (Redepenning et al., 2025), it is often less expensive than the equipment required for participation in many other recreational activities, such as adaptive sports. Video gaming also allows individuals with different abilities to participate together in the same environment, since adaptive and standard controllers can be used simultaneously on the same console. This differs from many other adaptive recreational activities, where specialized equipment and rules can make shared participation between individuals with and without disabilities more difficult.

Research has linked adaptive video gaming to several benefits for individuals with physical disabilities, including improved quality of life, stronger social connections, and greater engagement in vocational activities (Redepenning, Bell, et al., 2024; Redepenning et al., 2023; Redepenning, Maddali, et al., 2024). Many individuals with disabilities use gaming for entertainment and relaxation, but it can also serve as a social bridge that allows people with different abilities to interact and play together (Redepenning et al., 2023). Accessible gaming can enable parents with disabilities to play with their children, friends, and siblings with different abilities to share activities. It also allows players to connect both locally and online. Another often-overlooked social benefit is the opportunity to discuss games with others and participate in a broader gaming community. Because gaming can be adapted to a wide range of abilities, it can be accessible to many individuals. For people with significant health needs, very limited mobility, or difficulty leaving home, adaptive gaming may be one of the few recreational activities that allow meaningful participation.

Although there are often negative connotations surrounding the psychological impact of gaming, appropriate use can provide meaningful psychological benefits for individuals with disabilities. In addition to supporting social participation and relaxation, gaming can provide escape, distraction, and a sense of independence (Redepenning et al., 2025). Being able to participate in an activity without relying on assistance from others can further support psychological well-being.

Functional Role of Adaptive Gaming

An important and potentially underrecognized application of adaptive gaming equipment is its use beyond recreation to support functional independence and therapeutic exercise. Prior research has demonstrated that up to two-thirds of adaptive gamers use their gaming equipment for other daily activities, including computer access, and that employed individuals frequently use the same equipment to

complete work-related tasks (Redepenning, Bell, et al., 2024; Redepenning et al., 2023). Many adaptive gaming controllers can interface with computers and other electronic devices, allowing equipment initially introduced for gaming to also function as assistive technology for communication, computer access, environmental control, education, and employment.

Introducing adaptive equipment through gaming may offer several advantages. First, learning to use a new access method can be challenging and frustrating, particularly for individuals with limited prior experience using assistive technology. Gaming provides a motivating and enjoyable context in which users can practice new access methods and develop familiarity with their equipment. Second, many video games require rapid and precise inputs, potentially placing greater demands on access skills than common computer tasks. As users improve their skill with the devices through gaming, these may be transferred to functional applications such as computer access and other forms of electronic device use. Third, long-term abandonment of assistive technology remains an important challenge. Incorporating equipment into personally meaningful recreational activities may encourage more frequent use and provide benefits beyond task completion, potentially supporting continued engagement with the technology over time. Finally, demonstrating other functional use of the equipment may also have implications for equipment funding. Funding options for recreational technology remain limited. However, when adaptive gaming equipment can also be used to support computer access, education, employment, communication, or other activities of daily living, additional funding pathways may become available that cover general assistive technology devices. Clinicians and assistive technology professionals should therefore consider the full range of potential applications of adaptive gaming equipment when evaluating equipment needs and documenting its functional value.

In addition to supporting recreation and access to everyday technologies, adaptive gaming may serve a distinct role in therapeutic exercise. Adaptive gaming technologies are increasingly being incorporated into rehabilitation across inpatient, outpatient, and community settings (Bonnechère et al., 2016). In recreational adaptive gaming, the primary goal is generally to minimize unnecessary physical demands and identify the most efficient access method that allows an individual to play successfully. In therapeutic applications, equipment and game interfaces may be intentionally configured to encourage targeted movement, repetition, endurance, balance, or other therapeutic goals.

Game-based exercise may provide a more engaging and motivating alternative or complement to conventional exercise programs. Gaming can provide feedback, measurable goals, progressive challenges, and opportunities for competition or social participation. Motion-based gaming platforms, including virtual reality systems and other interactive technologies, are increasingly being incorporated into rehabilitation programs to encourage active movement and provide a more engaging context for exercise (Howard, 2017). When appropriately selected and individualized, adaptive gaming technologies may therefore serve a dual role of increasing access to meaningful recreation while also supporting functional independence and rehabilitation.

Adaptive Gaming Assessments and Community Resources

Individuals who have difficulty identifying an appropriate adaptive gaming setup independently, have more complex access needs, or would benefit from trialing different adaptive gaming solutions may benefit from a structured adaptive gaming assessment. An adaptive gaming assessment considers the individual's prior gaming experience, functional abilities and access needs, gaming and console preferences, personal goals, environmental context, and potential barriers to participation. This information can then be used to identify and trial customized solutions that align with the individual's needs.

There is currently no formal certification or credentialing system for professionals who perform adaptive gaming evaluations. Providers offering these services commonly include assistive technology professionals, occupational therapists, rehabilitation engineers, recreational therapists, and other rehabilitation professionals with specific training or experience in adaptive gaming. Structured assessment tools and clinical resources are available to help providers systematically evaluate the needs and preferences of individual gamers and guide equipment selection and configuration (Pre Session Questionnaire - GAME Resources, n.d.).

Access to formal adaptive gaming evaluations varies considerably depending on geographic location and available local resources. Rehabilitation facilities, community-based adaptive gaming programs, and state assistive technology programs are among the most common settings in which individuals may receive direct assistance with adaptive gaming assessment, equipment trials, and setup. A state-by-state directory of known programs that provide adaptive gaming services is available through Gaming Readapted (https://www.gamingreadapted.com/get-help).

For individuals without access to local adaptive gaming services, state assistive technology programs (https://at3center.net/state-at-programs/) may be able to provide equipment demonstrations, device loans, informal recommendations, or assistance identifying other regional resources. Some adaptive gaming organizations and professionals also provide remote assessments or informal support over video calls, phone, or email. In addition, online adaptive gaming communities and forums can provide opportunities for individuals to learn from other gamers with lived experience and share potential solutions.

Some individuals may prefer to investigate adaptive gaming options independently before pursuing professional assistance. A growing number of online educational resources provide information on adaptive controllers, accessibility settings, and equipment setup. Selected educational resources that may help individuals, caregivers, and providers explore available adaptive gaming solutions are summarized in Table 3.

Table 3. Adaptive Gaming Learning and Community Resources.

Resource	Description	Link
Gaming Readapted	Comprehensive educational resource that provides information on how to choose, set up, and adjust settings on available adaptive controllers.	https://www.gamingreadapted.com/
GameAccess by SpecialEffect	All-around resource for learning about adaptive gaming setups and enabling in-game accessibility settings.	https://gameaccess.info/
Craig Hospital	Overview of adaptive gaming with links to helpful videos and resources.	https://craighospital.org/inpatient/assistive-technology/adaptive-gaming
Makers Making Change	Resource for learning to set up and use adaptive gaming equipment and provide a good introduction to adaptive gaming.	https://www.makersmakingchange.com/
AbleGamers Charity	Provides introductory information on adaptive gaming. It is also a national resource that can help with assessments and funding.	https://ablegamers.org/

Funding

Obtaining funding for adaptive gaming equipment can be challenging because dedicated funding sources for adaptive recreation remain limited and vary considerably by geographic location, eligibility criteria, and individual circumstances. Funding options may be particularly limited when equipment is used exclusively for recreation. Potential sources of support include national charitable organizations (e.g., AbleGamers Charity), local and national grant programs, Department of Veterans Affairs benefits, Workers' Compensation, Medicaid waiver programs, and community-based organizations or other local funding programs (Redepenning et al., 2026).

Additional funding pathways may be available when adaptive gaming equipment also supports functional independence (e.g., communication, computer access, or employment). In these situations, the equipment may qualify as assistive technology rather than solely recreational equipment, which can strengthen justification for support through Medicaid waiver programs, vocational rehabilitation services, educational systems, or grant funding. When pursuing funding, documentation should clearly describe all relevant uses of the equipment and explain how the recommended technology supports the individual's functional goals and participation across daily activities.

Costing

The cost of adaptive gaming equipment varies widely, depending on the type of controller, modifications, mounting equipment, adapters, and additional components required for an individual's setup. Individuals who need only minor controller modifications will typically have lower-cost setups.

- Simple adaptations, such as controller grips or joystick modifications, generally cost between $10 and $50.
- Modified standard controllers, pro-style controllers, and specialty accessible controllers, such as the Lightweight Evil Controller or ByoWave Proteus Controller, typically range from approximately $100 to $400.
- One-handed controllers, including devices such as the Azeron Cyro and One-Handed Evil Controller, commonly cost between $200 and $400.

Accessible gaming interfaces, such as the Xbox Adaptive Controller and PlayStation Access Controller, have base prices of approximately $100; however, these systems often require additional external buttons, switches, joysticks, or mounting equipment to create a customized setup. As a result, the total cost of a complete interface-based setup commonly ranges from approximately $200 to $600, depending on the number and type of additional components required.

More advanced devices, such as the Quadstick sip-and-puff controller, may cost approximately $700 when required mounting equipment is included. While this might seem costly, the Quadstick is more economical compared to many sip-and-puff mice on the market that do not offer nearly as much functionality for gaming or computer access. In some cases, additional adapters are also necessary to make an adaptive controller compatible with a specific gaming console, adding approximately $30 to $100 to the total cost.

Overall, adaptive gaming setups can range from inexpensive modifications to highly customized systems to complete setups that commonly cost between $50 and $800. Costing an adaptive gaming setup depends on the individual's access needs and equipment requirements.

Role of the Life Care Planner

Life care planners can play an important role in identifying adaptive gaming as a meaningful recreational, social, and potentially functional activity for individuals with disabilities. As part of the life care planning process, they can explore an individual's prior and current interest in gaming, barriers to participation, functional abilities, goals, and potential uses of adaptive gaming equipment beyond recreation. When adaptive gaming aligns with the individual's interests and goals, life care planners can assist with navigating community resources, facilitating referrals to adaptive gaming or assistive technology professionals for assessments, identifying opportunities for equipment trials, and exploring potential funding pathways. They can also help coordinate communication among the professionals, organizations, and funding sources involved in the assessment, equipment trial, and acquisition processes. Because adaptive gaming equipment may also support other areas of functional independence, life care planners should consider and document the full range of potential applications when developing recommendations and exploring funding options. By considering adaptive gaming not only as a means of accessing recreation but also as a potential tool to support participation, social connection, independence, and quality of life, life care planners can help ensure that these needs are appropriately considered within long-term care planning.

Life care plans should also account for the initial equipment cost and anticipated repair or replacement needs across the individual's lifetime. Replacement intervals depend on several factors:

- Frequency and intensity of use of adaptive equipment
- Changes in abilities or needs of an individual
- Durability of components in the adaptive gaming setup
- Compatibility with existing consoles.

In the absence of device-specific information, a replacement interval of five years is a reasonable planning benchmark for complete setups. However, individual components, such as mouthpieces, switches, joysticks, or other accessories, may require earlier replacement.

To illustrate how these considerations may be integrated into a life care plan, consider an individual with tetraplegia following spinal cord injury who expressed an interest in adaptive gaming. The individual was referred to an adaptive gaming specialist for a formal assessment to identify an appropriate access method and necessary equipment. The recommended setup included a Quadstick sip-and-puff controller, mounting components, and related accessories, with an initial estimated cost of $800. The equipment was included in the life care plan because it enabled the individual to resume gaming with friends, while also providing computer access for completing college coursework. Documentation emphasized both the recreational and educational applications of the equipment. Vocational rehabilitation funding was pursued for the equipment supporting computer access, while charitable funding was used for gaming-specific accessories. Because the equipment was used frequently, the Quadstick mouthpiece wore out after approximately two years and required replacement at a cost of about $50.

The life care plan therefore accounted for the initial assessment and equipment costs, setup and training assistance, replacement of the primary interface approximately every five years, and more frequent replacement of high-use components such as the mouthpiece. By considering all these components, life care planners can help ensure that both the individual's needs and the associated lifetime costs are appropriately incorporated into long-term care planning.

Conclusions

Adaptive gaming is a growing area in the field of assistive technology that can provide individuals with disabilities with meaningful opportunities for recreation, social connection, psychological well-being, functional independence, and therapeutic exercise. Continued advances in adaptive controllers and game accessibility features have made gaming possible for individuals with a wide range of functional abilities. However, barriers related to awareness, assessment, equipment trials, and funding remain. Life care planners can play an important role in recognizing adaptive gaming as a potential component of long-term care, identifying appropriate community and professional resources, guiding referral to adaptive gaming assessments, identifying funding pathways, and considering both the recreational and functional applications of technology. By incorporating adaptive gaming into individualized long-term planning when it aligns with a person's interests and goals, life care planners can help expand opportunities for participation, independence, social engagement, and quality of life for individuals with disabilities.

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LEGAL NURSE VOICE:
Insights from a Legal Nurse Consultant

The Hidden Cost of Artificial Intelligence:
Are We Equating Efficiency with Expertise?

By: Summer Laughhunn, RN, BSN, SANE-A/P

Keywords: Artificial Intelligence, Clinical Judgement, Hidden Costs, Legal Risk, Professional Expertise, Interpretation of Data, AI Record Review

Artificial intelligence (AI) is rapidly becoming integrated into healthcare and legal support services. It can summarize records, organize information, identify patterns, and generate timelines within seconds. For legal nurse consultants, life care planners, and attorneys managing large volumes of medical records, the promise is appealing: faster turnaround times, reduced labor costs, and increased efficiency. On the surface, using AI to create medical chronologies or conduct record reviews appears to be a financially sound decision. However, cost is not always measured by the amount listed on an invoice.

While AI may reduce the upfront expense of paying a professional to review records, there are hidden costs associated with relying too heavily on technology in place of human clinical judgment. The issue is not whether AI has value—it undoubtedly does. The issue becomes determining what may be lost when efficiency is prioritized over expertise. AI can process data. Nurses interpret meaning. That distinction between those two processes matters.

Medical records tell a story of human interactions, clinical decision-making, and individualized patient experiences. Legal nurse consultants and life care planners do not simply compile events in chronological order; they evaluate care through the lens of experience, standards of practice, and contextual understanding.

An AI platform may recognize a temperature of 100.4°F, a heart rate of 115, and an elevated white blood cell count as separate pieces of information. It may correctly organize those findings into a timeline. However, an experienced nurse reviewing the same chart may immediately identify a more concerning pattern: a subtle evolution toward sepsis, a delay in escalation, or a failure to recognize clinical deterioration. The difference is not simply in data collection. The difference is in interpretation.

Experienced clinicians frequently rely on intuition developed over years of practice. Nurses often describe a sixth sense, a feeling that "something isn't right" before objective indicators fully declare themselves. Although difficult to quantify, that judgment is developed through repeated exposure to patient presentations and clinical outcomes. AI cannot replicate lived experience.

Consider an emergency department scenario involving a young patient presenting with vague complaints of fatigue, mild fever, and generalized discomfort. Laboratory values may initially appear relatively unremarkable. Vital signs may not yet meet formal criteria for severe illness.

AI may summarize these findings accurately, identifying the physician note, laboratory values, medications administered, and discharge disposition. However, an experienced emergency nurse reviewing the record may identify

subtle indicators that collectively raise concern: repeated reassessments, changes in patient behavior, worsening appearance, caregiver concerns, or nursing documentation suggesting a patient who looked more ill than objective findings initially indicated. These nuances matter.

Individualized care is often where deviations from standards of care become apparent. Patients do not present as textbook examples. Two individuals with identical diagnoses may require entirely different interventions based on age, comorbidities, communication barriers, mental status, social factors, or concurrent conditions.

AI learns from patterns within available data. Yet medicine frequently exists outside predictable patterns. The challenge becomes even more significant in legal settings where the goal extends beyond summarizing events. Legal nurse consultants and life care planners are often asked to answer difficult questions:

- Was there a deviation from the standard of care?
- Were subtle warning signs present?
- Was there a missed opportunity for intervention?
- Did communication failures contribute to the outcome?

These are not simply data extraction tasks; they require critical thinking. A chronology generated by AI may appear complete and polished while still omitting clinically significant details. The danger lies in the fact that omissions may not be immediately obvious. Attorneys or clients without clinical backgrounds may assume that a professionally formatted summary represents a comprehensive analysis. The risk becomes one of false confidence.

Errors resulting from AI use may also carry substantial financial consequences. Missing a key piece of documentation or failing to recognize an important clinical sequence could affect case strategy, expert selection, settlement decisions, or trial outcomes. The cost of correcting an incomplete analysis may ultimately exceed the initial savings gained from automation.

There are also ethical considerations. Healthcare providers understand that documentation itself has limitations. Charting is imperfect for a wide range of reasons. Patients do not always communicate clearly, providers may document differently, and important information may be implied rather than explicitly stated. These issues are mitigated because human reviewers naturally account for these realities.

For example, a nurse reading a chart may notice that a patient repeatedly complained of worsening pain despite sparse documentation by providers. The nurse may then identify inconsistencies between nursing notes and physician documentation. Experienced clinicians recognize when something feels absent from the record itself, something AI can't do. At best, AI can only process existing data.

This does not mean AI should be completely avoided because of its limitations. Technological advances have already transformed healthcare in meaningful ways. Electronic health records improved accessibility. Clinical decision support tools enhanced safety initiatives. Telemedicine expanded healthcare access. AI also has tremendous potential to improve efficiency in legal nurse consulting and life care planning practices. For example, AI can be highly useful for organizing records, extracting dates, identifying duplicate information, and reducing administrative burden. Used appropriately, it can serve as a valuable support tool.

The concern arises when support tools become substitutes for professional expertise. Technology should augment human judgment rather than replace it. Perhaps a better question to ask over "Can AI create a chronology?" is to ask, "What is the true cost if it misses something important?"

In legal nurse consulting and life care planning, the value AI provides extends beyond producing a finished document. Legal nurse consultants bring clinical reasoning, pattern recognition, and contextual understanding developed through years of patient care experience. Likewise, life care planners must integrate medical records, functional status, prognosis, and real-world patient circumstances to create comprehensive life care plans—an individualized process that cannot be fully replicated through automated analysis alone.

Medical professionals understand that a delayed antibiotic, a missing reassessment, or an overlooked nursing concern may represent more than an isolated event. We understand the reality behind the chart.

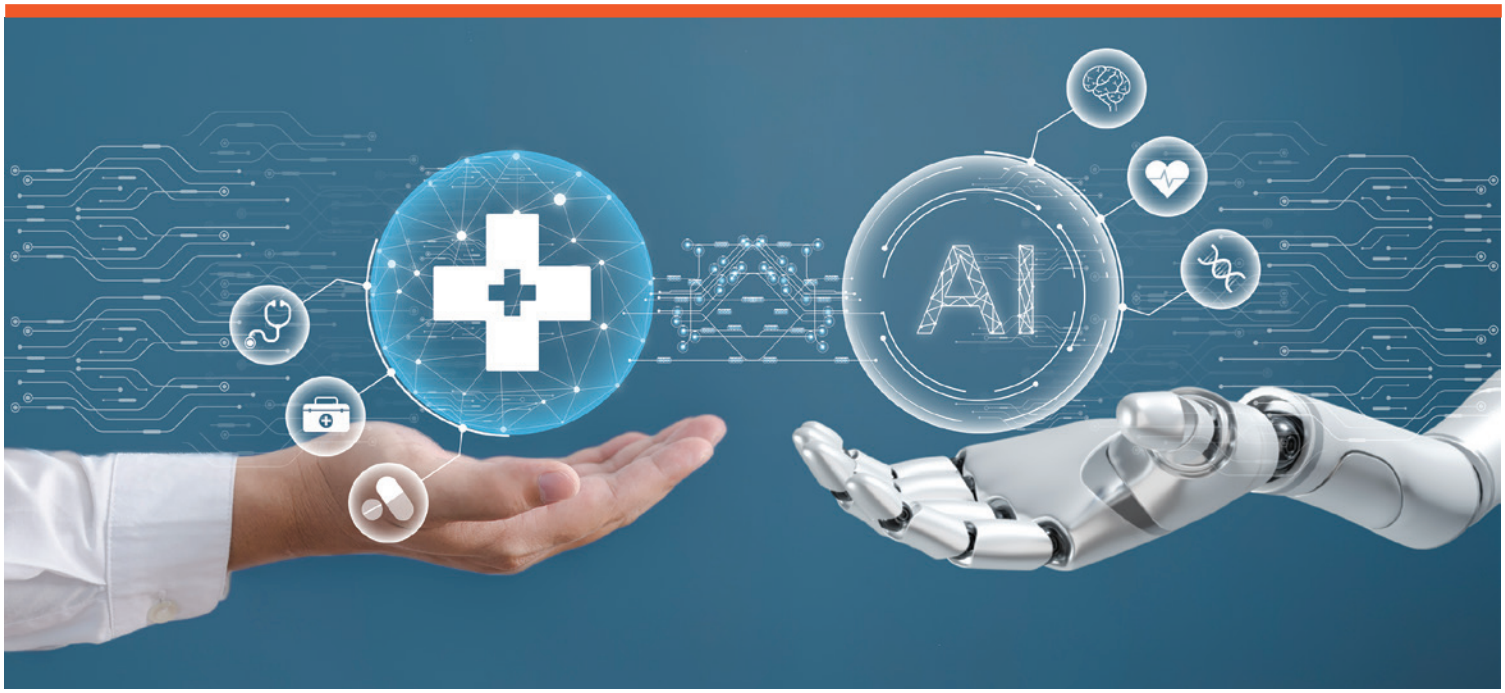
Artificial intelligence may become faster, more sophisticated, and more capable over time for the tasks it can do. It will likely continue reshaping healthcare and legal industries in ways no one can yet fully predict. However, successful medicine remains a deeply human career. Patients are not algorithms.

Clinical judgment requires a lot more than data to reach a solid prognosis. Sometimes the most expensive mistake is assuming that efficiency and expertise are the same thing. Learning more about AI and understanding its limitations will help legal nurse consultants and life care planners to streamline managing huge amounts of data without compromising care. In full disclosure, AI helped me edit this submission.

Artificial Intelligence in Life Care Planning:

Foundations, Practical Applications, and Ethical Considerations

By: Clayton Stroope, RN, BSN, CLCP, CCM, LNCC



Keywords: Artificial Intelligence, Judgement, Missing Information, Literature Review, Cost Projections, Large Language Models

Abstract

Advancements in artificial intelligence (AI) capabilities in recent years have provided life care planners with new tools central to tasks that are necessary for drafting, proofreading, and finalizing life care plans. Areas of the life care plan report that may utilize these newly developed tools are the medical record summary, cost projections, grammar and format editing or proofreading, and literature reviews. This article provides life care planners with a basic foundational understanding of the historical development of AI, key terminology, and effective prompting techniques. Several practical examples of AI usage are also illustrated. The capabilities and limitations of various AI platforms are discussed, along with safeguards for protected health information (PHI) under the Health Insurance Portability and Accountability Act (HIPAA). By adopting ethical and effective uses of AI, life care planners can increase their accuracy and efficiency while simultaneously preserving professional judgment and adherence to standards of practice.

Introduction

Life care planning involves integrating vast amounts of complex medical information, projecting and costing lifelong medical needs, and producing a defensible report for use in litigation. AI offers valuable support for these data-intensive and repetitive tasks without replacing the clinical expertise and professional judgment of the life care planner (Bourgeois et al., 2025). This article provides common sense guidance on the historical foundations of AI, effective prompting strategies, platform considerations, confidentiality safeguards and ethical best practices, and real-world applications in life care planning.

What Is Artificial Intelligence?

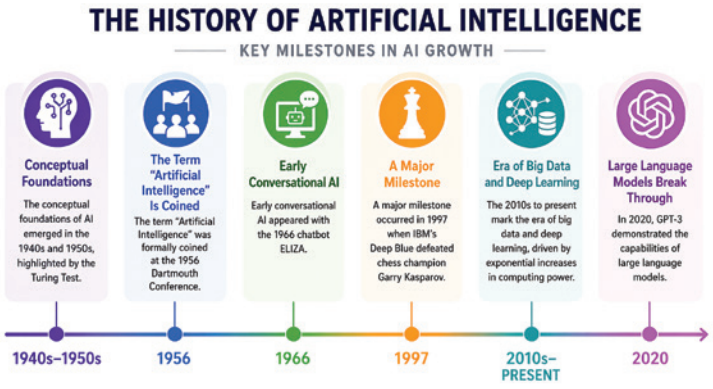
According to Stryker and Kavlakoglu (n.d.), "AI is technology that enables computers and machines to simulate human learning, comprehension, problem solving, decision making, creativity and autonomy." AI models utilize algorithms or sequential instructions that help machines process information, recognize patterns, and ultimately make decisions. Some common examples include voice assistants, language translation applications, and programs for image recognition and generation. Life care planners can utilize

these tools to assist with lengthy medical record summaries, verifying future medical costs, organizing industry literature data for research purposes, and proofreading reports. A 2022 survey of life care planners found that the majority of planners (52.8%) reported taking 20 to 40 hours to complete a life care plan, with 30.3% reporting 41 to 60 hours. Respondents also reported that some of the most common uses of contracted staff were in proofreading, medical records analysis/review, and literature review/research (Neulicht et al., 2023). Current AI capabilities represent a direct application and time-saving measure for these tasks central to life care planning. The potential time saved through the adoption of AI systems and tools may allow the life care planner to focus their time and energy on individualized client assessment, thorough collaboration with treating providers, and rapid collection of pertinent case-related literature/research information.

Historical Development of Artificial Intelligence

The foundational concepts of AI emerged in the 1940s and 1950s, highlighted by the Turing Test. In the 1950s, computers essentially functioned as large calculators, with organizations more commonly turning to human brain power rather than computers to solve complex mathematical equations. The field of Artificial Intelligence is believed to have been initially founded at the 1956 Dartmouth Conference. The beginnings of conversational AI originated with the 1966 chatbot ELIZA. Another milestone occurred in 1997 when IBM's Deep Blue defeated chess champion Garry Kasparov. Dramatic increases in computer processing power from the 2010s to the present have yielded large leaps in AI abilities, with Chat GPT-3 demonstrating the capabilities of large language models in 2023 (Coursera, 2025). Prior to 2010, computer processing power doubled every two years; however, from 2012 onward processing power initially doubled every few months, leading to AI models that were increasingly more powerful than previous iterations (Maslej et al., 2025). This steady progression has rendered advanced AI tools accessible for professional use in life care planning (Figure 1).

Figure 1. Timeline of Key Milestones in AI Development.



Understanding Core Concepts Improves Effective Use of AI Tools

While it is not necessary for life care planners to have an intimate understanding of the underlying principles that drive the varying types of AI models, a basic understanding of key AI concepts may be helpful. A foundational understanding can help life care planners leverage these technologies effectively, ethically, and with critical oversight.

Classification of large AI models is based on their specific data input type and application domain. Large language models (LLM) refer to pre-trained models that contain billions of parameters. They have a powerful ability to represent general language and exhibit exceptional performance in approaching and solving complex tasks (Tu et al., 2024). Both Google and OpenAI utilize LLMs in their popular AI platforms.

Generative AI includes AI models that have the ability to create images, text, or other forms of media through generative models. Generative models are able to recognize and understand patterns within training data and, in turn, generate new data with similar characteristics. Generative AI has direct implications for use in the medical field due to its ability to yield more precise and detailed images when trained using diagnostic imaging datasets (Sengar et al., 2025). Many popular AI platforms use generative AI, including Midjourney (high-quality artistic images), Adobe Firefly/Photoshop (photo editing), Notation AI (workspace organization), Grok, and ChatGPT. In the context of life care planning, generative AI models have the capability to generate illustrative timelines of projected future care needs or summarize complex sets of medical records.

Machine learning allows computers to improve performance through patterns in training data recognized by algorithms, which, in turn, adjust internal parameters to minimize errors. Being able to automatically adjust performance within those internal parameters allows for generalization of new, unseen data or cases (Sarker, 2021). This approach relates directly to life care planning for tasks such as predicting future medical complications or physical/functional declines based on historical patient cohort data.

Neural networks are analogous to biological neurons and serve as the computational backbone for many AI systems. This complicated structure allows for the capture of intricate, non-linear relationships in data sets. Neural networks may assist in solving complex problems in life care planning, such as integrating disparate data sources including clinical progress notes, imaging results, and functional assessments (Magouliotis et al., 2026).

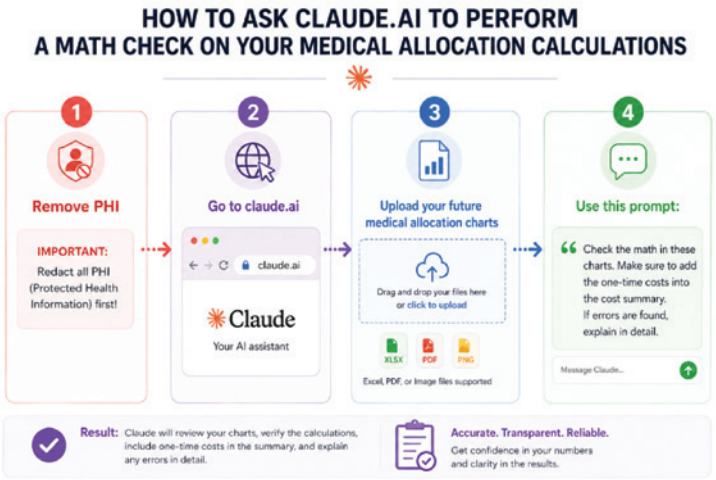
While this is in no way a comprehensive list of the types of AI models and functions, it may assist life care planners in evaluating the appropriateness of specific AI tools for a

given task. Greater literacy may lead to increased use of AI as a collaborative augmentative resource rather than a replacement for clinical judgment.

Pillars of Effective Prompting for Life Care Planners

The output quality of AI systems depends heavily on prompt design. It is important to be as specific as possible and to provide clear and direct instructions to the AI model. This may include describing exactly what is wanted, the overall context of the request, constraints, and the desired output format (e.g., "Write a 200-word concise medical record summary excluding lab values and diagnostic results"). Also provide examples, showing both positive and negative examples of the desired output. Think step-by-step and instruct the AI to break down tasks using phrases such as "first, then, and finally" or "explain your reasoning before giving your conclusion." Beginning prompts with "you are an expert in life care planning, rehabilitation, or medical coding" also primes the model for more professional and knowledgeable responses.

Figure 2. Math Check



Practical Applications in Life Care Planning

AI performs best on repetitive, time-consuming, or data-heavy tasks. Useful applications include medical record summarization, calculation review, email management, research assistance, and scheduling (Table 1). Within life care planning, AI supports medical chronology creation and timeline image generation, template generation, report proofing (Table 2), mathematical verification of future medical cost tables, industry research (employment trends, salaries, treatment guidelines), detailed literature reviews, basic CPT coding, and cost research (Wisedocs, 2024; Bourgeois et al., 2025).

Table 1. Selected AI Tools by Application Area in Life Care Planning

AI Capabilities and Limitations

AI has substantial potential in life care planning in assisting planners with clinical decision making, forecasting, and data calculation. However, two major challenges that remain part of the overall discussion are algorithmic bias and hallucinations. For AI to function, it is dependent on large training data sets. With many population segments being absent or underrepresented in these data sets, AI models may reinforce the bias inherent within the data with which it was trained. Therefore, life care planners must apply strict and lucid clinical judgment and verify all AI-generated content (American Nurses Association, 2022; Norori et al., 2021).

Ann-Hoang et al. (2025) describe hallucinations as outputs from LLMs that appear correct and reasoned but are factually in correct or fabricated. Structured prompting strategies have been recommended to reduce AI output hallucinations. This is critical for life care panners, whose reports need to contain objective and factual information regarding the specifics of a given case. Effective AI prompting is a learnable skill that uses natural-language instructions without advanced programming knowledge (Dierickx et al., 2026). Although, no universal framework for prompting has been established, to reduce the likelihood of hallucinations, Dierickx et al. (2026) recommend that effective prompts should provide clear and unambiguous instructions for AI to guide valid output quality. Many LLM service providers also provide hallucination review platforms including Chat GPT, Paperpile, and DeepEval.

Bays, R. (2025) further clarified the risk of AI use by noting that LLMs might misinterpret the finer details of clinal notes, handwritten medical records, and non-standard documentation types. Life care planners must always rely on their individual professional judgment and discretion

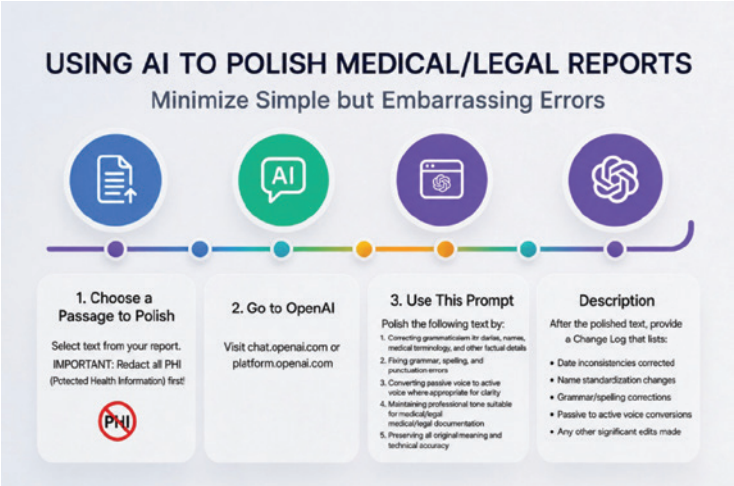
when utilizing these supportive tools to avoid negative scrutiny and potential legal objections. Of particular note, is the 2022 case of Doe v. TechHealth Corp. where the life care planner had used an AI-based cost projection tool to forecast future medical allocations in a spinal cord injury case. It was discovered that the platform failed to account for the patient's psychosocial factors, leading to an underfunded life care plan, and a ruling by the court that determined that the plan was "not sufficiently individualized" (Bays, R., 2025). To meet both Daubert and Frye expert testimony standards, it is paramount that life care planners consider whether their use of AI represents methods that are generally accepted and consider the relationship between their expert opinion and the AI tools used to support that opinion.

Platform Considerations, Confidentiality and Safeguards

Different platforms have distinct strengths and life care planners can select AI tools based on the most common tasks involved in their unique practice. Maintaining multiple subscriptions can be costly; however, free versions often provide fewer privacy protections. When resources are limited, prioritize paid or professional versions for sensitive work.

PHI may be visible or stored by some AI platforms. An internal practice policy on acceptable AI use can help life care planners to formalize the way in which they safely utilize AI tools. The HIPAA Privacy Rule outlines de-identification standards using the Safe Harbor Method, Expert Determination Method, or a Business Associate Agreement (U.S. Department of Health & Human Services, n.d.). Before using public AI tools, redact the 18 HIPAA identifiers, including names, geographic data smaller than a state, dates related to the individual, contact information, medical record numbers, and other unique identifiers.

Table 2. Using AI to Polish Medical/Legal Reports



Ethical Concerns and Challenges

The use of AI in life care planning raises many ethical questions. An area of great concern is built-in algorithmic bias. AI models are often trained using historical data and can unintentionally perpetuate and even worsen existing disparities in the data. Areas of bias may include age, gender, race, socioeconomic background, or disability (Norori et al., 2021; Pham, 2025). Life care planners must remain diligent and carefully review every AI output for signs of bias, making sure that reports are truly personalized and fair to each individual.

AI-generated content can also be difficult to explain or defend when under oath in deposition or trial. Opposing counsel may ask questions on how reliable or reproducible the analysis actually is (Bourgeois et al., 2025). If planners lean on AI tools too heavily, they risk weakening their clinical judgment and professional instincts. Planners must also be mindful of data ownership, patient consent, and the risk of accidentally exposing confidential or proprietary information (American Nurses Association, 2022).

1. There are several potential steps that life care planners may take to address these issues:
2. Keep detailed records of how AI has been utilized, including the exact prompts, which version of the tool we used, and how results were verified
3. Always conduct independent clinical review and validation of anything the AI produces
4. Be transparent and disclose the use of AI where it makes sense in reports or testimony

Commit to ongoing education about new AI regulations and ethical standards in both healthcare and legal settings (International Academy of Life Care Planners, 2022).

Conclusion

AI platforms provide life care planners with powerful tools to improve productivity, recognize trends, forecast future needs, and accurately calculate future costs. These are areas of life care planning that historically represented the most time-consuming, data-intensive tasks. However, ethical use of these tools, continued human oversight, and professional judgment are essential. The responsible and effective use of AI tools in life care planning requires direct, strong prompting skills, platform fluency, and strict confidentiality safeguards. Planners should also remain informed about evolving regulatory changes and best practices in order to ensure proper and defendable use of AI in their practice. Purposeful and informed use of AI in life care planning may therefore enhance - not replace - the individual judgment, decision making, and expertise central to effective life care planning (Bourgeois et al., 2025).

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THE COSTING FRAMEWORK: FOUNDATION AND APPLICATION

By: Dana Penilton RN, BSN, CLCP, FIALCP; Laura Woodard, MA, CRC, CLCP, CCM, FIALCP; and Dr. Lisa Busby Thomas, D.P.C, CRC, CLCP

Keywords: Costing Framework, Costing Research, Life Care Planning, Practice Management, Clinical Judgment, Aggregated Data, Individual Research, Costing Techniques, Costing Methodology

Abstract

Several authors developed and published the Costing Framework document to assist life care planners in defining and defending their costing research methodology (Rutherford Owen, 2026). The Costing Framework emphasizes that clinical judgment, informed by standards of practice, consensus and majority statements, training and education, published literature, and experience, guides the process of costing research. Research analyzed in the Costing Framework indicated that life care planners triangulate data and use more than one costing technique in each life care plan or for a given item or service in a life care plan (Craigmyle et al., 2026; Johnson et al., 2026; Malloy et al., 2026; Busby Thomas et al., 2026). Data regarding practice management indicates that life care planners use their clinical judgment in determining appropriate sources of data to use in life care plan costing. After publication, it was intended that the life care planning community would further explore applications of the Costing Framework and research the efficacy of new costing techniques to advance the field of life care planning. The purpose of this article is to share how three practitioners apply the Costing Framework in their life care planning practices.

Introduction

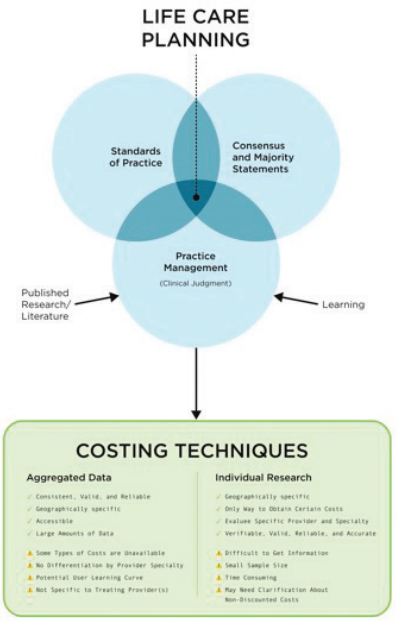
The Journal of Life Care Planning published the Costing Framework document (Rutherford Owen, 2026; Busby Thomas, et al., 2026), which describes a systematic process for individual life care plan practitioners to define and defend their costing research methodology. The purpose of this article is to share how three practitioners apply the Costing Framework in their life care planning practices. The authors use examples of two types of costs commonly included in a life care plan to demonstrate application of the Costing Framework in costing research methodology. Life care planners are encouraged to review these examples as a springboard to explore other ways to apply the Costing Framework in their practices.

Costing Framework Foundation

The Costing Framework was developed based on analysis of life care planning standards of practice published by the International Academy of Life Care Planners (IALCP, 2022), American Association of Nurse Life Care Planners (AANLCP) (AANLCP, 2026; Howland, 2015), American Academy of Physician Life Care Planners (AAPLCP, n.d.), consensus and majority statements derived from life care planning summits (Johnson et al., 2018; Johnson et al., 2025) and other foundational documents such as A Guide to Rehabilitation (Deutsch & Reid, 2004). Chapter 1 summarizes the foundational documents used in the creation of the Costing Framework (Penilton & Woodard, 2026). In addition, application of the Costing Framework is consistent with the recently published AANLCP Job Task Analysis (JTA) survey (Bate & Roughan, 2025), which reinforces the foundation established in previous publications emphasizing that life care plan costing research be conducted in a consistent, valid and reliable manner.

After analyzing survey data from the 2021 Life Care Plan Costing Technique Survey and the 2022 Life Care Planning Summit, two broad categories of data were identified: aggregated data and individual research. Aggregated data are source data that has been processed, compiled, or converted into formatted reports, summaries, or retrieval tools. Individual research is non-aggregated data that may involve direct outreach using telephone calls, emails, letters, etc. (Busch, et al., 2026; Busby Thomas et al., 2026). For more information about how the Costing Framework was developed, refer to Rutherford Owen (2026) and Johnson et al. (2023). For relevant references, published resource materials, and term definitions related to the Costing Framework, see Williams et al. (2026) and Czarnik et al. (2026).

Figure 1. Costing Framework



Note: From "Chapter 9: Costing Framework," by L. Busby Thomas, L. Woodard, and D. Penilton, 2026, Journal of Life Care Planning, 23(1), p. 170, reprinted with permission from IARP.

Application

Home health care and medical office visits are common services in many life care plans. The following is an example of how to use the Costing Framework when researching costs. An adult individual diagnosed with C3 incomplete spinal cord injury requires a specialized wheelchair for mobility, uses a ceiling lift system for transfers, has a history of pressure injuries requiring nursing wound care management, and requires multiple medical specialists due to complex medical needs. Several applicable nursing diagnoses include inadequate health literacy, impaired fecal continence, impaired standing ability, impaired transferring ability, risk for autonomic dysreflexia, and risk for adult pressure injury (Herdman et al., 2024).

Costing methodology is guided by standards of practice from various life care planning associations and life care planning consensus statements. According to these documents, best practice is for data collection to be consistent, valid, reliable, and reasonable, using geographically relevant costs that are non-discounted (Penilton & Woodard, 2026). The primary types of associated costs for items and services include aggregated data and individual research (Busch, et al., 2026). The life care planner needs to use clinical judgment to decide which type(s) of costing techniques are appropriate for the individual evaluee's circumstances. This includes consideration of what cost information is available; whether it is geographically specific to that evaluee; and whether it is valid, reliable, and reproducible.

For home health care, this evaluee requires nursing care, nursing delegated care to be completed by a certified nursing assistant (CNA), and companion care to address social isolation, complete errands, etc. Claims data from databases may include charges for skilled nursing, delegated CNA, and care from other qualified healthcare professionals, but may exclude charges for in-home, non-medical care, such as companion care. Costing research for this scenario may include a combination of individual research and use of databases to identify costs and service availability. The life care planner may use individual research for companion care, whereas databases and/or individual research may be appropriate for skilled home health care. See Chapter 3 of the Costing Framework publication for a review of resources regarding individual research (Williams et al., 2026). Research options may include conducting phone calls to local providers (survey methodology), reviewing medical bills for historical trends, and verifying that services in chart notes are consistent with charges.

Regarding medical office visits, aggregated data is commonly used to identify costs, according to survey data in Chapters 5, 6, 7, and 8 of the Costing Framework document (Johnson et al., 2026, Busby Thomas et al., 2026, Craigmyle et al., 2026, Malloy et al., 2026). Use of aggregated data is generally accepted by the life care planning community as consistent, valid, reliable, and accessible. Chapter 3 (Williams et al., 2026) provides an overview of databases commonly used by life care planners. A consideration is that medical office visit charges from databases are not specific to provider specialty and may not adequately address an individual evaluee's specific and complex needs. It may be appropriate to also consider individual research by reviewing past medical bills or calling specific specialists for costs. Chapter 9 (Busby Thomas et al., 2026) provides a summary discussion of strengths and challenges of using aggregated data and individual research. Chapter 5 (Johnson et al., 2026), Chapter 6 (Busby Thomas et al., 2026), Chapter 7 (Craigmyle et al., 2026), and Chapter 8 (Malloy et al., 2026) provide more detailed information on this topic.

Research analyzed in the Costing Framework document indicated that life care planners triangulate data by using more than one costing source for a given item or service in a life care plan (Craigmyle et al., 2026; Johnson et al., 2026; Malloy et al., 2026; Busby Thomas et al., 2026). Data about practice management indicates that life care planners use their clinical judgment in determining appropriate sources of data to use. The Costing Framework assists life care planners in their practice and supports use of clinical judgment in collecting, analyzing, and synthesizing information. It also emphasizes the importance and necessity of the clinical judgment of professionals, informed by standards of practice, consensus and majority statements, training and education, published literature, experience, and the circumstances of each case, in guiding the process of costing research.

Conclusion

It is anticipated that the Costing Framework will facilitate discussion about the application of costing research techniques as practitioners apply it in their practices. The authors have provided examples of two types of services that require costing research and have described how each line item in a life care plan is addressed according to the evaluee's circumstances, the availability and geographic specificity of cost information, and access to individualized information for the evaluee's unique needs. The Costing Framework is intended to acknowledge ongoing development and utilization of a variety of costing research tools or techniques. As the practice of life care planning evolves, these authors invite the life care planning community to contribute to the body of knowledge regarding the application of the Costing Framework in their clinical practices. Future research will contribute to consistency, reliability, and validity of costing research methodology.

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