W H I T E P A P E R

Arthritis

The Silent Architect of Late-Life Dependency

Osteoarthritis · Rheumatoid · Psoriatic · Gout · Ankylosing Spondylitis

A Complete Guide for Patients, Families, and Caregivers

Diagnosis · Medications · Joint Replacement · 2026 Pipeline · Caregiver Support

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> *This white paper is for educational purposes only and does not constitute medical or legal advice. Consult qualified medical professionals for personal guidance.*

1. EXECUTIVE SUMMARY

Arthritis is not one disease — it is a family of more than 100 conditions united by joint pain, stiffness, and progressive functional loss. It is the leading cause of disability in American adults. Yet because it rarely kills directly, it is chronically underestimated as a driver of dependency. In fact, arthritis is a stealth engine of ADL loss: it takes away the ability to walk, dress, climb stairs, prepare meals, and bathe — not in a single dramatic moment, but slowly, over years, as joints wear down and inflammation compounds.

Today, 58.5 million U.S. adults — 21.3% of the adult population — have doctor-diagnosed arthritis. Prevalence rises sharply with age: by 75 and older, 53.9% of adults are affected. The CDC projects that by 2040, roughly 78 million Americans will live with arthritis, with over 34 million experiencing arthritis-attributable activity limitation.

Arthritis is a mobility disease. When the knees, hips, hands, shoulders, and spine no longer bend, extend, or bear weight reliably, the entire architecture of independent living begins to fail. Falls become common (arthritis increases fall risk 11–17x), muscle wastes (osteosarcopenia accelerates), depression and social isolation follow, and — eventually — the family faces the transition from home to supervised care.

Key Facts at a Glance

- **Prevalence:** 58.5 million U.S. adults have arthritis; 53.9% of adults age 75+ are affected; projected 78 million by 2040.
- **Disability driver:** Arthritis is the #1 cause of work-related disability in the U.S. and a leading cause of ADL loss in older adults.
- **Falls multiplier:** Adults with arthritis are 11–17x more likely to fall than adults without — the single largest downstream dependency pathway.
- **Two big categories:** Osteoarthritis (mechanical, ~33 million) and inflammatory arthritis (autoimmune — rheumatoid, psoriatic, ankylosing spondylitis, gout, lupus) each cause distinct dependency patterns and require entirely different treatments.
- **The 2026 pipeline:** First TYK2 inhibitor approved for psoriatic arthritis (Sotyktu, March 2026), CAR-T cellular therapy showing sustained drug-free remission in refractory rheumatoid arthritis (COMPARE trial), and new dual IL-17A/F biologic (Bimzelx) now first-line for PsA and axial spondyloarthritis.

> *Arthritis rarely appears on a death certificate. But it appears — silently, cumulatively — in nearly every trajectory that ends in supervised living. The joints go first; the fall follows; independence follows the fall. Families who recognize the cascade early, get to a rheumatologist for inflammatory disease, plan joint replacement on their own timing, and build a caregiver plan before crisis hits do dramatically better.*

2. UNDERSTANDING ARTHRITIS

The word arthritis means, literally, joint inflammation. In practice it names a family of more than 100 distinct diseases that damage joints. The first task in any patient's journey is figuring out which arthritis they have — because the treatments diverge completely. A rheumatoid patient needs disease-modifying drugs within months of onset. An osteoarthritis patient needs weight management, physical therapy, and eventually joint replacement. Mistaking one for the other costs years of function.

The Scale of the Problem

58.5 million U.S. adults with doctor-diagnosed arthritis (21.3%)

53.9% prevalence in adults age 75 and older

~78 million projected U.S. cases by 2040 (CDC)

#1 cause of work-related disability in the United States

11–17x increase in fall risk among adults with arthritis

The Major Types

Osteoarthritis (OA)

The most common form — approximately 33 million U.S. adults. OA is a mechanical wear-and-tear disease of the joint cartilage, subchondral bone, and surrounding soft tissues. It is not primarily an inflammatory disease, though low-grade inflammation contributes. Age, obesity, prior joint injury, joint overuse, and genetics are the main risk factors. Most commonly affects the knees, hips, hands (base of thumb, DIP and PIP joints), lumbar spine, and cervical spine.

Rheumatoid Arthritis (RA)

An autoimmune, systemic inflammatory disease in which the immune system attacks the synovial lining of joints. Approximately 1.3–1.5 million U.S. adults have RA. Classic presentation: symmetric small-joint arthritis (hands, wrists, feet) with prolonged morning stiffness (over an hour). RA is not just a joint disease — it damages lungs (interstitial lung disease in 10–30%), heart (doubled cardiovascular mortality), eyes, blood vessels, and cervical spine (C1-C2 atlantoaxial subluxation risk). Untreated RA erodes joints permanently within the first two years.

Psoriatic Arthritis (PsA)

An inflammatory arthritis that develops in approximately 30% of patients with psoriasis — roughly 1 million U.S. adults. Presents with joint pain, dactylitis (sausage-shaped fingers/toes), enthesitis (inflammation where tendons insert into bone), nail changes, and often asymmetric involvement. The

skin disease usually precedes the joint disease by years, but not always. PsA can rapidly deform joints if untreated.

Ankylosing Spondylitis and Axial Spondyloarthritis (AxSpA)

An inflammatory arthritis primarily affecting the spine and sacroiliac joints. Onset typically in the 20s and 30s, but underdiagnosis means many patients only receive a diagnosis in their 40s or 50s after decades of chronic back pain. Strongly linked to the HLA-B27 gene. Untreated AxSpA leads to spinal fusion (bamboo spine), progressive loss of mobility, and — in older adults — significant fall and fracture risk.

Gout

A crystal-deposition disease caused by hyperuricemia — approximately 9.2 million U.S. adults, and by some estimates as high as 12.1 million. Uric acid crystallizes in joints (classically the great toe, but also ankles, knees, wrists, and elbows), producing sudden, severe, hot inflammatory attacks. Chronic tophaceous gout can be joint-destroying. Rising prevalence tracks obesity, hypertension, kidney disease, and thiazide diuretic use. Gout is the most treatable cause of chronic joint destruction, yet the majority of patients are not on adequate urate-lowering therapy.

Systemic Lupus Erythematosus (SLE)

An autoimmune disease affecting approximately 1.5 million Americans, disproportionately young women and African American, Hispanic, Asian, and Native American populations. Joint involvement affects roughly 90% of lupus patients — usually non-erosive, symmetric, small-joint arthritis. Lupus is also a systemic disease affecting kidneys (lupus nephritis), skin, brain, heart, lungs, and blood.

Juvenile Idiopathic Arthritis (JIA)

Approximately 300,000 U.S. children and adolescents. Many transition to adult rheumatology with residual joint damage and a lifetime of medication management ahead.

Demographics and Disparities

- Women are more affected than men by most forms — RA (3:1), lupus (9:1), and hand OA (2:1). Gout runs the other way (men 3–4:1)
- Non-Hispanic white and Native American adults have the highest OA prevalence
- Obesity approximately doubles the risk of knee OA; each 5 kg/m² increase in BMI raises knee OA risk by roughly 35%
- Prior joint injury (ACL tear, meniscus injury, fracture through joint) roughly doubles risk of OA in that joint later in life
- Lower income and educational attainment correlate with worse arthritis outcomes — later diagnosis, less DMARD use, more disability

Why the Numbers Will Keep Rising

Three demographic forces guarantee arthritis will be a larger, not smaller, problem over the next 20 years: population aging (arthritis prevalence rises sharply after 65), the obesity epidemic (a leading modifiable driver of knee and hip OA), and improved diagnostic recognition of inflammatory arthritis in older adults (elderly-onset RA and late-diagnosed AxSpA are increasingly identified). The clinical implication is straightforward: more joint replacements, more biologics, and more dependency.

3. THE DEPENDENCY CASCADE

This section is the clinical heart of why arthritis matters for independence. Arthritis rarely produces a single catastrophic event. Instead, it produces cumulative losses across multiple joints, compounded by systemic complications in the inflammatory forms. Below is the pathway by which an arthritis diagnosis at age 55 becomes a supervised-living admission at age 78.

3.1 Knee Osteoarthritis

The most functionally consequential single joint problem in older adults. Approximately 14 million Americans have symptomatic knee OA. The pathology is progressive cartilage loss, subchondral bone changes, meniscal degeneration, and eventually bone-on-bone contact. Symptoms are activity-related pain, stiffness after rest, giving way, and functional limitation with stairs, transfers, and prolonged walking.

> *Dependency link: Knee OA is the single most common reason older adults lose the ability to walk community distances, transfer from chair to standing, and climb stairs. When those go, so does the ability to live in a two-story home, drive independently, and complete groceries and appointments without help. The knee is usually the joint that decides whether a home is livable.*

3.2 Hip Osteoarthritis

Approximately 10% of adults over 60 have symptomatic hip OA. Presents as groin, buttock, or thigh pain, difficulty putting on socks and shoes, and stiffness after sitting. Hip OA progresses more predictably than knee OA — most patients who are candidates for total hip replacement will need one within 5–10 years of symptom onset.

> *Dependency link: Advanced hip OA impairs bathing, toileting, dressing lower body, and transfers. It is one of the most disabling forms of arthritis for the tasks of daily living. The good news: total hip replacement is one of the most successful operations in medicine, and 92% of patients discharge directly home rather than to skilled nursing.*

3.3 Hand Osteoarthritis

Affects up to 50% of women and 25% of men over age 60. Most commonly involves the DIP joints (Heberden's nodes), PIP joints (Bouchard's nodes), and the base of the thumb (first carpometacarpal joint). Base-of-thumb OA is particularly disabling because the thumb participates in nearly every functional grasp.

> *Dependency link: Hand OA silently disables medication management (opening bottles, drawing insulin), meal preparation (chopping, opening jars), personal grooming, dressing (buttons, zippers),*

> *and driving (steering wheel grip). It is chronically undertreated because it rarely lands the patient in the ED — but it is one of the most common reasons an older adult needs in-home help.*

3.4 Rheumatoid Arthritis — Systemic Consequences

RA is not simply arthritis with worse joints. It is a systemic inflammatory disease that shortens life by an average of 5–10 years without treatment. Key extra-articular complications:

- Cardiovascular mortality is approximately doubled — RA is now considered an independent CV risk factor equivalent to diabetes
- Interstitial lung disease affects 10–30% of RA patients over the course of the disease; RA-ILD is often the leading cause of death
- Cervical spine involvement (C1-C2 atlantoaxial subluxation) affects up to 40% of long-duration RA patients and carries neurological risk with intubation, falls, or trauma
- Rheumatoid vasculitis, Felty's syndrome, secondary Sjögren's syndrome, and increased infection risk from immunosuppression
- Osteoporosis — both from disease inflammation and from glucocorticoid use — dramatically raises fracture risk

> *Dependency link: Untreated RA erodes joints permanently within the first two years. The current standard is 'treat-to-target' — aggressive DMARD therapy started within weeks of diagnosis, escalated to biologics or JAK inhibitors if remission is not achieved. Delays cost function that cannot be recovered.*

3.5 Gout — The Great Reversible Cause

Gout is unique among arthritides in that it is largely reversible with treatment — yet undertreatment is the norm. Chronic hyperuricemia (serum uric acid above 6.8 mg/dL) drives crystal deposition in joints, kidneys, and soft tissues. Repeated attacks progress to chronic tophaceous gout with joint destruction indistinguishable from severe RA.

Gout is also a cardiovascular and metabolic disease. Patients with gout have doubled cardiovascular event rates and elevated risk of chronic kidney disease, hypertension, and diabetes. Yet under 40% of U.S. gout patients are on urate-lowering therapy at target serum uric acid levels.

> *Dependency link: Advanced tophaceous gout destroys the feet, ankles, and hands — creating a level of disability comparable to end-stage RA. Because it is so preventable with allopurinol or febuxostat titrated to a serum uric acid target below 6.0 mg/dL, chronic tophaceous gout in 2026 is almost always a treatment failure — not a disease inevitability.*

3.6 Psoriatic Arthritis and Axial Spondyloarthritis

PsA and AxSpA share a family of inflammatory changes — enthesitis, dactylitis, and involvement of the axial skeleton in AxSpA. Untreated, both can produce rapid joint destruction (PsA) or progressive spinal fusion (AxSpA). Both respond dramatically to modern biologics targeting TNF, IL-17, and IL-23. The 2026 landscape includes the first TYK2 inhibitor approved for PsA (Sotyktu), a dual IL-17A/F inhibitor (Bimzelx) now first-line for both PsA and AxSpA, and a growing evidence base for early aggressive treatment.

> *Dependency link: Advanced AxSpA produces a fixed spine that cannot flex, extend, or rotate. Patients cannot look up, cannot see traffic when driving, and are at very high risk of fracture from minor falls. The dependency profile combines mobility loss, fall risk, and — because of pulmonary restriction from a fused thoracic cage — reduced exercise tolerance.*

3.7 Arthritis and Falls

Arthritis increases fall risk 11–17-fold compared to adults without arthritis. The mechanism is multifactorial: joint instability (especially knee), reduced quadriceps and gluteal strength, gait alterations to unload painful joints, medication side effects (opioids, muscle relaxants, sedating antidepressants), foot deformities from arthritis of the feet, and impaired proprioception.

Once a fall occurs in an older adult with arthritis, the downstream consequences are severe. Hip fracture carries approximately 20% one-year mortality; more than 50% of hip-fracture survivors never regain pre-fracture function. Falls also produce vertebral compression fractures, wrist fractures, head injury, and — for many — the loss of confidence that itself accelerates decline.

> *Dependency link: For the full arithmetic of falls and fractures, see the companion Falls & Fractures white paper in this series. Arthritis is one of the two or three most important upstream drivers.*

3.8 Osteosarcopenia — The Triple Hit

Older adults with arthritis often have three overlapping problems: painful joints, low muscle mass (sarcopenia), and low bone mass (osteoporosis). Each amplifies the other. Painful joints reduce activity, muscle wastes, bones weaken, and the risk of fall-and-fracture rises. The clinical picture — sometimes called osteosarcopenic obesity when body composition is added — is a leading pathway to loss of ambulation and independence.

3.9 Post-Joint-Replacement Complications

Joint replacement is one of the most successful operations in medicine, but complications matter. Prosthetic joint infection (PJI) affects roughly 1–2% of primary total joint replacements and often requires two-stage revision surgery (removal of prosthesis, 6-week course of IV antibiotics with an antibiotic spacer, then replantation). Loosening, instability, and periprosthetic fracture also occur.

Revision arthroplasty is more complicated than primary surgery — longer recovery, higher complication rates, more functional impact.

4. DIAGNOSIS AND ASSESSMENT

The diagnostic work-up for arthritis has one job above all others: distinguish inflammatory (autoimmune) arthritis from mechanical (osteoarthritic) disease. The distinction determines whether the patient needs urgent rheumatology referral for disease-modifying therapy — where months matter — or whether the treatment path is weight management, physical therapy, and eventual orthopedic surgery.

History and Physical Examination

The most valuable diagnostic tool remains a careful history. Key features that suggest inflammatory arthritis include morning stiffness lasting longer than an hour, joint pain that improves with movement rather than worsening, symmetric small-joint involvement (hands, wrists, feet), systemic symptoms (fatigue, low-grade fever, weight loss), family history of autoimmune disease, and history of psoriasis or inflammatory bowel disease.

Osteoarthritis, by contrast, is characterized by activity-related pain that worsens with use, brief morning stiffness (typically under 30 minutes), asymmetric involvement of large weight-bearing joints (knees, hips) or the classic pattern of hand OA (DIP, PIP, thumb base), absence of systemic symptoms, and a history of prior joint injury or overuse.

Laboratory Testing

For suspected inflammatory arthritis, the standard first-line panel typically includes:

Test	What it Detects	Clinical Use
Rheumatoid factor (RF)	IgM antibody	RA (sensitive but not specific — also positive in Sjögren's, lupus, hepatitis C, older adults)
Anti-CCP antibodies	Anti-cyclic citrullinated peptide	Highly specific for RA; often positive years before clinical disease
ESR and CRP	Systemic inflammation markers	Follow disease activity in inflammatory arthritis; normal in most OA
ANA	Anti-nuclear antibody	Screening for lupus, other connective tissue diseases
HLA-B27	Genetic marker	Ankylosing spondylitis, reactive arthritis, uveitis

Test	What it Detects	Clinical Use
Serum uric acid	Hyperuricemia	Gout diagnosis and treatment monitoring
Joint fluid analysis	Cell count, crystals, culture	Definitive for gout (monosodium urate) and pseudogout (calcium pyrophosphate); rules out septic arthritis

Imaging

- Plain X-rays — first-line for osteoarthritis (joint space narrowing, osteophytes, subchondral sclerosis and cysts). The Kellgren-Lawrence grading system classifies OA severity 0–4
- Ultrasound — increasingly used by rheumatologists to detect synovitis, tenosynovitis, and early erosions in inflammatory arthritis
- MRI — most sensitive for early erosions, bone marrow edema, and sacroiliitis in AxSpA; also for meniscus and cartilage in knee OA
- Dual-energy CT — non-invasive detection of urate crystal deposits in suspected gout

Classification Criteria

Formal classification criteria — the 2010 ACR/EULAR criteria for RA, the CASPAR criteria for PsA, the ASAS criteria for AxSpA, the 2015 ACR/EULAR criteria for gout — are used in research and increasingly in clinical practice to standardize diagnosis. The 2010 RA criteria emphasize early diagnosis based on joint counts, serologies (RF, anti-CCP), acute-phase reactants (ESR, CRP), and symptom duration.

> *The single most important diagnostic decision is when to refer to a rheumatologist. Any patient with more than six weeks of joint swelling, morning stiffness lasting over an hour, symmetric small-joint arthritis, positive RF or anti-CCP, or unexplained systemic inflammatory markers should see a rheumatologist promptly. Delays in DMARD initiation cost joint function that cannot be recovered.*

5. MEDICATIONS

Arthritis pharmacology has been transformed over the past 25 years. The introduction of biologics in the late 1990s, JAK inhibitors in the 2010s, and — most recently — TYK2 inhibitors and cellular therapies has shifted rheumatoid arthritis from an inevitably deforming disease into one where sustained remission is a realistic goal for many patients. The osteoarthritis story is different: no disease-modifying drug is yet FDA-approved, and management remains symptomatic. Understanding what is available — and what is coming — is essential.

5.1 Osteoarthritis Medications (Symptomatic)

First-Line Topical

Topical diclofenac (Voltaren, now available over the counter) is now first-line for hand OA and a leading option for knee OA in patients who cannot safely take oral NSAIDs. Efficacy is real; systemic side effects are minimal because absorption is limited.

Oral NSAIDs

Ibuprofen, naproxen, meloxicam, celecoxib, and others reduce OA pain modestly. In older adults, oral NSAIDs carry meaningful risks: gastrointestinal bleeding, kidney injury, hypertension, and cardiovascular events. The 2019 ACR guidelines emphasize using the lowest effective dose for the shortest necessary duration, with proton pump inhibitor cover in high-risk patients.

Acetaminophen

Historically first-line for OA, acetaminophen has been demoted by newer guidelines because efficacy in OA is modest. It remains useful as an adjunct or for patients who cannot take NSAIDs. Maximum 3 grams per day in older adults to protect the liver.

Duloxetine

An SNRI antidepressant with an FDA indication for chronic musculoskeletal pain including knee OA. Useful for patients with concurrent depression or those who cannot tolerate NSAIDs. Common side effects: nausea, dizziness, fatigue.

Opioids — Now Discouraged

The 2019 ACR guidelines conditionally recommend against opioids for OA except in very limited circumstances. Long-term opioid use for OA is associated with worse pain and function outcomes and higher rates of falls, cognitive impairment, and dependency events. Tramadol has been demoted from its previous conditional recommendation.

5.2 Conventional Synthetic DMARDs (csDMARDs)

Conventional DMARDs are the foundation of rheumatoid arthritis treatment and are used for other inflammatory arthritides. They slow or halt disease progression rather than merely treating symptoms.

Drug	Typical Use	Key Monitoring
Methotrexate	First-line for RA, PsA; anchor drug for combination therapy	CBC, liver function, kidney function every 8–12 weeks; folic acid supplementation
Hydroxychloroquine (Plaquenil)	Lupus, mild RA, Sjögren's	Annual eye exam; slow onset (3–6 months); very well tolerated
Sulfasalazine	RA, PsA, AxSpA (peripheral joints)	CBC, liver function; can cause GI intolerance, rash
Leflunomide (Arava)	RA, PsA when methotrexate is inadequate or contraindicated	CBC, liver function; teratogenic — cholestyramine washout for pregnancy

5.3 Biologic DMARDs

Biologics are large-molecule antibodies or fusion proteins that target specific cytokines or immune cells. They revolutionized inflammatory arthritis care starting in 1998. All biologics carry a shared class effect of increased infection risk — including tuberculosis reactivation, invasive fungal disease, and hepatitis B reactivation. Screening before initiation is standard.

TNF Inhibitors

The oldest biologic class, with the deepest evidence base. Include adalimumab (Humira), etanercept (Enbrel), infliximab (Remicade), golimumab (Simponi), and certolizumab (Cimzia). Effective for RA, PsA, AxSpA, and inflammatory bowel disease-associated arthritis. As of 2026, ten adalimumab biosimilars are available on the U.S. market — Amjevita, Cyltezo, Hyrimoz, Hadlima, Yusimry, Hulio, Idacio, Yuflyma, Abrilada, and Simlandi (the first interchangeable adalimumab biosimilar, approved February 2024). Biosimilar adoption has expanded access to TNF-inhibitor therapy substantially.

IL-6 Inhibitors

Tocilizumab (Actemra) and sarilumab (Kevzara) target the IL-6 receptor. Effective for RA (especially when TNF inhibitors have failed) and now first-line for giant cell arteritis. IL-6 inhibition is one of the treatments that has the strongest effect on fatigue, systemic inflammation markers, and anemia of chronic disease.

IL-17 Inhibitors

Secukinumab (Cosentyx), ixekizumab (Taltz), and — new to the class — bimekizumab (Bimzelx). Bimzelx, FDA-approved for PsA and AxSpA in September 2024, is the first dual IL-17A/F inhibitor and has produced numerically higher response rates than earlier IL-17 monotherapies in head-to-head trials. Now considered first-line for PsA and AxSpA in many practice patterns.

IL-23 Inhibitors

Risankizumab (Skyrizi) and guselkumab (Tremfya) target IL-23. Both are approved for psoriasis and psoriatic arthritis. Well tolerated, quarterly dosing after initial induction. Less effective for axial disease than for peripheral PsA.

T-Cell Co-Stimulation Blocker

Abatacept (Orencia). Blocks the CD80/86-CD28 co-stimulation signal required for T-cell activation. Used for RA, PsA, and JIA. Slightly lower infection signal than some other biologics.

B-Cell Depletion

Rituximab (Rituxan) depletes CD20-positive B cells. Used in RA, vasculitis, and lupus (though lupus data is mixed). Given as two infusions two weeks apart, repeated every 6–12 months based on B-cell repopulation and clinical response.

5.4 Targeted Synthetic DMARDs — JAK Inhibitors

Janus kinase (JAK) inhibitors are oral small-molecule drugs that block the JAK-STAT intracellular signaling pathway used by many cytokines. Available agents: tofacitinib (Xeljanz), baricitinib (Olumiant), upadacitinib (Rinvoq), and — for alopecia — ritlecitinib. Effective for RA, PsA, AxSpA, and ulcerative colitis.

> *Important safety context: the ORAL Surveillance trial in RA patients over age 50 with at least one cardiovascular risk factor showed higher rates of major adverse cardiovascular events, malignancy (particularly lymphoma and lung cancer), venous thromboembolism, and overall mortality with tofacitinib compared to TNF inhibitors. As a result, all JAK inhibitors now carry a boxed warning, and current guidelines position them after TNF inhibitors and other biologics — not before — in most patients over age 50.*

5.5 TYK2 Inhibitors — New in 2026

Deucravacitinib (Sotyktu), a selective tyrosine kinase 2 inhibitor, received FDA approval for psoriatic arthritis in March 2026 — the first TYK2 inhibitor approved for PsA and a landmark for the class. Approval was based on two Phase 3 trials, POETYK PsA-1 (n=670, ACR20 response 54.2% versus 34.1% placebo at week 16, $p<0.0001$) and POETYK PsA-2 (n=729, ACR20 54.2% versus 39.4%, $p=0.0002$). Sotyktu is oral, once daily, and — unlike JAK inhibitors — does not carry the same boxed warning profile. Whether this translates to a real-world safety advantage over JAK inhibitors will be established over the coming years.

5.6 Cellular Therapy — Emerging in 2026

CAR-T cellular therapy — decades old in oncology — has begun to show striking early results in autoimmune rheumatic diseases. At EULAR 2026, Kyverna Therapeutics reported Phase 1 COMPARE trial

results for mivocabtagene autoleucel (miv-cel, KYV-101), a CD19-directed CAR-T therapy, in six patients with ACPA-positive refractory rheumatoid arthritis. All six patients had DAS28-CRP scores fall from high disease activity into low disease activity or remission by week 24, with ACR50 and ACR70 responses continuing to climb through week 36. Half of the treated patients achieved sustained drug-free remission. ACPA seroconversion (loss of anti-CCP antibodies) occurred in four of six. There were no severe cytokine release syndrome or ICANS events reported. The Phase 2 head-to-head trial versus rituximab is fully enrolled.

> *CAR-T for autoimmune disease is not ready for prime time — the population studied is small, follow-up is limited, and the treatment requires lymphodepleting chemotherapy followed by a genetically engineered cell infusion. But the early signal — including drug-free remission and antibody seroconversion — is unprecedented in refractory RA. Watch this space.*

5.7 Gout Pharmacology

Drug	Purpose	Notes
Allopurinol	Urate-lowering (first-line)	Titrate to serum uric acid target below 6.0 mg/dL; HLA-B*5801 screening in Asian patients
Febuxostat (Uloric)	Urate-lowering (second-line)	Alternative when allopurinol fails or is not tolerated; boxed warning for CV death in patients with CV disease
Colchicine	Acute attack; prophylaxis when starting urate-lowering	Renal-dose adjustment; classic GI side effects
Pegloticase (Krystexxa)	Refractory tophaceous gout	IV every 2 weeks; often paired with methotrexate to reduce immunogenicity
Anakinra, canakinumab	Acute attack when NSAIDs/steroids/colchicine fail	IL-1 blockade; off-label or narrow FDA indications

The fundamental principle in gout: acute attack management is separate from long-term urate lowering. The goal of long-term therapy is a serum uric acid below 6.0 mg/dL — below 5.0 mg/dL in patients with tophi. Reaching and maintaining that target dissolves crystals and prevents future attacks. Yet most U.S. gout patients on urate-lowering therapy are not at target.

6. PROCEDURES AND JOINT REPLACEMENT

6.1 Injections and Non-Surgical Procedures

Intra-Articular Corticosteroid Injections

Triamcinolone or methylprednisolone injected directly into the joint. Provides short-to-intermediate-term relief for knee, hip, shoulder, and small-joint OA and for flares of inflammatory arthritis. Effect duration typically 6–12 weeks. Frequency limited to 3–4 per year in a single joint because of concern about accelerated cartilage loss with repeated injection.

Hyaluronic Acid (Viscosupplementation)

Sodium hyaluronate injections into the knee. Evidence of benefit is modest and disputed; the 2019 ACR guidelines conditionally recommend against use. Some patients report meaningful relief; many do not.

Platelet-Rich Plasma (PRP)

Autologous PRP injections have gained popularity for knee OA. Evidence is mixed. Not typically covered by insurance.

Genicular Nerve Radiofrequency Ablation

An option for knee OA pain in patients who are not surgical candidates or who wish to delay total knee replacement. Effect duration typically 6–12 months.

6.2 Joint Replacement Surgery

Joint replacement — total knee arthroplasty (TKA), total hip arthroplasty (THA), and total shoulder arthroplasty — is among the most successful operations in modern medicine. In the U.S., over 1 million knee replacements and 500,000 hip replacements are performed annually. Roughly 92% of patients discharge directly home rather than to skilled nursing, and pain and functional outcomes at one year are excellent in the majority of patients.

Total Knee Arthroplasty (TKA)

The most common joint replacement. Modern implants are expected to last 20–25 years in most patients. Recovery involves an intensive 6-week physical therapy course, with continued strength and range-of-motion gains over 6–12 months. Return to walking, driving, and most daily activities is typical within 6–12 weeks.

Total Hip Arthroplasty (THA)

Sometimes called the operation of the century. Modern approaches — anterior, posterior, direct lateral — differ in early recovery details but produce similar long-term outcomes. Recovery is typically faster than knee replacement. Bearing surfaces are typically ceramic-on-polyethylene or metal-on-polyethylene. Modern implants have expected lifespans of 20–25 years.

Reverse Shoulder Arthroplasty

An increasingly common operation for older adults with rotator cuff arthropathy or complex proximal humerus fractures. The design inverts the natural ball-and-socket relationship, allowing the deltoid to power the shoulder when the rotator cuff no longer functions. Excellent outcomes for pain relief; range of motion recovery is more variable than with anatomic total shoulder.

Revision Arthroplasty

When a primary joint replacement fails — from loosening, infection, wear, or fracture — revision surgery is required. Revision is technically more difficult, has higher complication rates, and produces less predictable functional outcomes than primary surgery. Preserving the primary implant is a priority; that is why prosthetic joint infection is treated so aggressively.

6.3 Prosthetic Joint Infection (PJI)

A prosthetic joint infection is one of the most serious complications of joint replacement. Incidence is roughly 1–2% for primary TKA/THA. Diagnosis requires joint aspiration for culture, cell count, and inflammatory markers. Management for chronic PJI is typically two-stage: removal of the infected prosthesis, placement of an antibiotic-loaded cement spacer, 6 weeks of intravenous antibiotics, and — after clearance of infection — reimplantation of a new prosthesis. The whole process can span 6–12 months. Functional recovery after two-stage revision is worse than after primary surgery.

> *Because PJI is so consequential, patients with joint replacements should be aware of dental antibiotic prophylaxis guidelines and should report fever, warmth, or new joint pain in an artificial joint promptly. Any bacteremia — from urinary tract infection, cellulitis, dental work — can seed a prosthetic joint.*

7. CLINICAL TRIALS AND PIPELINE 2026

The 2026 arthritis pipeline is unusually active. Three developments deserve particular attention: (1) the first FDA-approved TYK2 inhibitor for psoriatic arthritis, (2) emerging CAR-T cellular therapy data in refractory rheumatoid arthritis, and (3) continued search — so far unsuccessful — for a disease-modifying osteoarthritis drug (DMOAD).

7.1 TYK2 Inhibitor — Sotyktu Approved for PsA (March 2026)

Deucravacitinib (Sotyktu) was FDA-approved for active psoriatic arthritis in adults on March 6, 2026. It is the first tyrosine kinase 2 inhibitor approved for psoriatic arthritis — a genuine first-in-class expansion. Previously approved (2022) for moderate-to-severe plaque psoriasis, deucravacitinib now becomes an oral, once-daily option for PsA patients who need systemic therapy but wish to avoid injectable biologics or JAK inhibitors.

The approval was based on two Phase 3 trials:

- POETYK PsA-1 (n=670): ACR20 response 54.2% for deucravacitinib versus 34.1% for placebo at week 16 ($p<0.0001$)
- POETYK PsA-2 (n=729, in patients who had prior TNF inhibitor exposure): ACR20 54.2% versus 39.4% placebo ($p=0.0002$)
- Both trials also demonstrated significant improvements in PASI (skin), HAQ-DI (function), and enthesitis measures

Because TYK2 sits in the same intracellular signaling family as JAK1/2/3, safety monitoring includes lipid profiles, infections, and hepatotoxicity. Real-world data on cardiovascular and malignancy risk, in comparison to JAK inhibitors and TNF inhibitors, will accumulate over the coming years.

7.2 CAR-T Cellular Therapy for Refractory RA

At EULAR 2026, Kyverna Therapeutics reported Phase 1 COMPARE trial data on mivocabtagene autoleucel (miv-cel, KYV-101), a CD19-directed CAR-T therapy, in six patients with ACPA-positive rheumatoid arthritis refractory to multiple biologics and JAK inhibitors.

- DAS28-CRP disease activity scores fell from high disease activity into low disease activity or remission range in all six patients by week 24
- ACR50 and ACR70 response rates continued to improve through week 36 (extended follow-up)
- Half of treated patients achieved sustained drug-free remission — a milestone unprecedented in refractory RA
- ACPA seroconversion (loss of anti-CCP antibody) occurred in four of six patients
- Safety was favorable: no severe cytokine release syndrome, no ICANS neurotoxicity
- Synovial biopsy demonstrated CAR-T cell trafficking into diseased joint tissue

A Phase 2 randomized trial comparing miv-cel to rituximab in refractory RA is fully enrolled, with initial readout expected in 2027. Similar CD19 CAR-T strategies are being explored in lupus, systemic sclerosis, myositis, and other autoimmune diseases.

> *CAR-T for autoimmune disease requires lymphodepleting chemotherapy followed by infusion of the patient's own genetically engineered T cells — a demanding treatment protocol. Access, cost, and infrastructure will constrain use for years even if efficacy is confirmed. But the possibility of durable drug-free remission — rather than lifelong immunosuppression — represents a paradigm shift worth watching closely.*

7.3 DMOADs — The Ongoing Search for Osteoarthritis Disease Modification

Despite osteoarthritis being the most prevalent form of arthritis, there is no FDA-approved disease-modifying drug — nothing that halts or reverses cartilage loss. Multiple candidates are in development or have been trialed:

- Sprifermin — recombinant human FGF-18 given by intra-articular injection. Phase 2 data showed dose-dependent cartilage thickness preservation over 5 years, but symptomatic benefit did not clearly track with structural benefit. Phase 3 program status is uncertain
- Lorecivivint (SM04690) — a Wnt-pathway modulator. Phase 3 data mixed; further development ongoing
- TPX-100 — an intra-articular peptide investigated for patellofemoral OA. Early data suggested structural benefit; larger trials pending
- LNA043 — recombinant angiopoietin-like 3 (ANGPTL3) fragment. Early-phase development
- Autologous chondrocyte implantation and stem-cell approaches — heavily marketed, especially in unregulated clinics. FDA has warned repeatedly against unproven stem cell therapies

> *The osteoarthritis DMOAD story has been a graveyard of promising candidates. Patients considering unregulated stem-cell injections outside of clinical trials should be counseled that the evidence does not support routine use, adverse events have been reported, and cost is typically not covered by insurance.*

7.4 Anti-NGF — A Cautionary Chapter

Tanezumab, an anti-nerve growth factor monoclonal antibody, provided remarkable pain relief in trials of knee and hip OA — but produced rapidly progressive osteoarthritis and osteonecrosis in a subset of patients, requiring joint replacement. Pfizer withdrew the U.S. application in 2021. The tanezumab story is a reminder that pain in an arthritic joint is, in part, protective — silencing it entirely without addressing underlying disease can accelerate damage.

7.5 Other Notable 2026 Directions

- Combination biologic-plus-JAK strategies in refractory disease
- Precision medicine — biomarker-driven selection between biologic classes in RA and PsA
- Extended dosing intervals with existing biologics based on drug-level monitoring
- Nanotherapeutics for intra-articular sustained-release corticosteroids
- Regenerative approaches to cartilage repair using scaffold-based tissue engineering

8. CAREGIVER BURDEN AND PALLIATIVE CARE

Arthritis caregiving is often invisible. Because the disease progresses slowly and rarely produces a hospitalization by itself, families often do not name what they are doing as caregiving until years into it. Yet the practical burdens are substantial and well-documented.

The Practical Load

- Transportation to rheumatology, orthopedic, and infusion appointments — often multiple visits per month during flares or medication changes
- Medication management — filling weekly pill boxes for patients whose hand OA prevents them from opening bottles or drawing injectable biologics
- Injection support — helping with subcutaneous biologic injections for patients with limited hand function or vision
- Household modifications — grab bars, raised toilet seats, shower chairs, ramps, stair rails, non-slip flooring
- Meal preparation — chopping, opening jars, standing time in the kitchen
- Personal care — help with dressing (buttons, zippers), bathing, and grooming for patients with severe hand or shoulder arthritis
- Fall response — the increased fall risk creates episodic emergencies that require rapid family response
- Emotional support — chronic pain and progressive disability are strongly associated with depression, anxiety, and social withdrawal

Caregiver Burnout

Approximately 40% of family caregivers of adults with chronic disease report significant emotional stress. Predictors of caregiver burnout include high hours of care per week, coexisting cognitive impairment in the care recipient, and lack of respite. Depression rates in caregivers exceed those in the general population by 2–3-fold.

> *Support strategies that work: joining a caregiver support group (Family Caregiver Alliance, Arthritis Foundation local chapters), using respite services (adult day programs, short-term home health), sharing caregiving among multiple family members with explicit role assignment, and — critically — the caregiver's own primary care visits to screen for depression, hypertension, and sleep disorders that chronic caregiving predictably produces.*

Palliative Care for Chronic Pain-Driven Dependency

Palliative care is often misunderstood as end-of-life care. It is not. Palliative care is expert symptom management and quality-of-life support for patients with serious chronic illness — at any point in the disease course. For arthritis patients, palliative care teams can offer specialty-level chronic pain

management, medication reconciliation, psychosocial support, and coordination among rheumatology, orthopedics, and primary care.

Hospice, by contrast, is a defined benefit for patients in the last six months of life who have chosen comfort-focused rather than curative care. Most arthritis patients are appropriate for palliative-care consultation years — sometimes decades — before they would ever meet hospice criteria.

Advance Directives

Every adult with a chronic disease benefits from an advance directive and a durable power of attorney for health care. For arthritis patients specifically, key decisions to think about in advance include: how aggressive to be with joint replacement in the presence of significant cardiac or pulmonary disease; whether to continue immunosuppressive medications during serious infections; and — for patients with advanced RA-ILD or other severe systemic complications — whether to escalate to mechanical ventilation. These are decisions best made when the patient can participate, not in the middle of a hospital crisis.

9. KEY RESOURCES AND WHERE TO GET HELP

The list below is organized by category. Every phone number and website has been checked as current at the time of publication.

Disease-Specific Organizations

Organization	Focus	Contact
Arthritis Foundation	All forms of arthritis — patient education, advocacy, local support groups	arthritis.org · 800-283-7800
American College of Rheumatology (ACR)	Professional society; patient-facing rheumatology directory and disease education	rheumatology.org · Find a Rheumatologist tool
Lupus Foundation of America	Systemic lupus erythematosus	lupus.org · 800-558-0121
Spondylitis Association of America	Ankylosing spondylitis and axial spondyloarthritis	spondylitis.org · 800-777-8189
National Psoriasis Foundation	Psoriasis and psoriatic arthritis	psoriasis.org · 800-723-9166
Gout Education Society	Gout patient and clinician education	gouteducation.org
Sjögren's Foundation	Sjögren's syndrome (often coexists with RA, lupus)	sjogrens.org · 800-475-6473

Orthopedic and Surgical Resources

Organization	Focus	Contact
American Academy of Orthopaedic Surgeons (AAOS)	Joint replacement patient education (OrthoInfo); surgeon directory	orthoinfo.aaos.org
American Association of Hip and Knee Surgeons	Hip and knee replacement specialty	hipknee.aahks.org

Caregiver and Community Support

Organization	Focus	Contact
Family Caregiver Alliance	Caregiver support, respite information, state-by-state resources	caregiver.org · 800-445-8106
National Alliance for Caregiving	Caregiving policy and family resources	caregiving.org
Eldercare Locator	Federal service connecting to local Area Agencies on Aging	eldercare.acl.gov · 800-677-1116
Meals on Wheels America	Home-delivered meals for older adults	mealsonwheelsamerica.org · 888-998-6325
Well Spouse Association	Peer support for spousal caregivers	wellspouse.org · 800-838-0879

Government and Insurance Resources

Resource	Purpose	Contact
Medicare	Coverage for medical services; enrollment; Part D drug plans	medicare.gov · 800-MEDICARE
Medicare.gov Care Compare	Compare hospitals, home health, and skilled nursing quality ratings	medicare.gov/care-compare
State Health Insurance Assistance Program (SHIP)	Free Medicare counseling in every state	shiphelp.org
National Council on Aging (NCOA) BenefitsCheckUp	Screening for federal and state benefit programs	benefitscheckup.org
NIH National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)	Federal research and patient education	niams.nih.gov

Legal Planning

Resource	Purpose	Contact
National Academy of Elder Law Attorneys (NAELA)	Directory of elder-law attorneys for advance directives, powers of attorney, guardianship	naela.org

Resource	Purpose	Contact
American Bar Association — Commission on Law and Aging	Educational resources for advance care planning	americanbar.org/groups/law_aging

Community-based organizations move fastest and know local resources best. A single phone call to the Eldercare Locator will connect a family to the nearest Area Agency on Aging, which can help arrange transportation, home-delivered meals, in-home aide services, respite programs, and adult day care in the caller's specific county.

10. NEXT STEPS

Arthritis rewards planning and punishes drift. The families who fare best move deliberately through the following sequence, adapted to their specific type of arthritis and the patient's stage of disease.

1. Get the Diagnosis Right

The single most important early step is distinguishing inflammatory (autoimmune) arthritis from mechanical osteoarthritis. If the pattern includes prolonged morning stiffness, symmetric small-joint involvement, systemic symptoms, or a positive rheumatoid factor or anti-CCP antibody, get to a rheumatologist promptly. Months of delay in starting DMARD therapy translate to permanent joint erosions and functional loss.

2. Treat-to-Target for Inflammatory Disease

For rheumatoid arthritis, PsA, and AxSpA, the modern standard is treat-to-target: measure disease activity at every visit (using DAS28, CDAI, or similar composite scores), escalate therapy until low disease activity or remission is achieved, and maintain that state. Passive acceptance of moderate disease activity — 'well, at least it's not worse' — is no longer acceptable practice and is a leading cause of preventable disability.

3. Early Aggressive DMARD Therapy

The evidence is overwhelming that starting a DMARD within the first 3–6 months of RA symptom onset — and escalating within 3–6 months if remission is not achieved — produces dramatically better long-term outcomes than delayed or inadequate therapy. Methotrexate remains the anchor drug for most patients; addition of a biologic or JAK inhibitor is guided by response, side effects, comorbidities, and patient preference.

4. Weight Management and Physical Therapy for OA

For knee and hip osteoarthritis, weight loss and quadriceps/gluteal strengthening are more effective than any oral medication. A modest 10% weight reduction produces a clinically meaningful drop in knee OA pain and function scores. This is neither exciting nor high-tech, but it is the best evidence-based intervention available.

5. Time Joint Replacement Deliberately

Joint replacement is elective — it should be planned, not driven by crisis. The right time is when nonsurgical management no longer controls symptoms adequately, when function has meaningfully declined, and when the patient is medically prepared for surgery (well-controlled cardiac, pulmonary, and diabetic disease; smoking cessation; nutrition optimization). Choose an experienced surgeon and a hospital with high joint-replacement volume; outcomes correlate with volume.

6. Manage Falls Risk Aggressively

Because arthritis multiplies falls risk 11–17-fold, every arthritis patient over 65 deserves a proactive falls assessment. Home safety evaluation, medication review (especially for sedating drugs, alpha-blockers, and opioids), vision check, hearing check, footwear review, gait and balance evaluation, and — where indicated — vestibular therapy. See the companion Falls & Fractures white paper for the full protocol.

7. Address Chronic Pain with Palliative Care

For patients with advanced, treatment-refractory arthritis pain, referral to a palliative care team — while continuing all curative and disease-modifying therapy — often produces better pain control, less opioid exposure, and higher quality of life than any single-specialty approach. Do not wait for end-of-life to invoke palliative care.

8. Complete Advance Directives

Every adult with chronic disease should have (1) an advance directive naming preferences for aggressive interventions, (2) a durable power of attorney for health care naming a decision-maker, and (3) — separately — a durable power of attorney for finances. State-specific forms are available free through the Family Caregiver Alliance and each state's bar association. For complex situations (blended families, disabled dependents, business interests), consult a NAELA-directory elder-law attorney.

9. Build the Medical Team Deliberately

An older adult with arthritis typically needs a primary care physician, a rheumatologist (for inflammatory disease), an orthopedic surgeon (for joint replacement candidacy), a physical therapist, and — depending on the situation — a pain specialist, a mental health provider, a podiatrist, and a dietitian. Explicit role clarity among these providers, and one accountable coordinator, prevents the fragmentation that otherwise develops.

10. Use Community Resources Early

Do not wait for crisis to call the Eldercare Locator, the Arthritis Foundation, or Family Caregiver Alliance. Home safety modifications, in-home aide services, transportation assistance, home-delivered meals, adult day programs, and caregiver respite are available in every county in the United States through Area Agencies on Aging. The families who thrive are the ones who use these resources proactively.

> *Arthritis dependency is not inevitable. It is a probability that shifts substantially based on how early the diagnosis is made, how aggressively inflammatory disease is treated, how carefully falls are prevented, how well joint replacements are timed, and how proactively the family builds a support system. The clinical toolkit in 2026 is better than at any point in history — but only if it is used.*

DISCLAIMER

This white paper is provided for educational purposes only. It does not constitute medical advice or legal advice. Information about clinical trials and medications is current as of July 2026 and may change. Consult qualified medical and legal professionals for guidance specific to your situation.

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