AETHERA · SPECIALTY BILLING SERIES

Orthopedic Surgery Billing Solutions

Maximizing Revenue Across Office E/M, Surgical Procedures, Physical Therapy, and DME/Implants

Prepared by: Aethera Healthcare Solutions · Lakeland, FL
Scope: CPT 20000–29999 · 99202–99215 · 97110–97799 · L-codes (DME)
Updated: 2026 Edition · aetherahealthcare.com · + 1 (863) 694-0325

RCM EXECUTIVE BRIEFIN 13-SLIDE DECK



HIGHEST-VOLUME SURGICAL SP

ABOUT AETHERA

Maximizing Revenue. Minimizing Burden.

Aethera Healthcare Solutions is your full-service medical billing partner headquartered in Lakeland, FL. We handle coding, claims, payments, denials, and collections — so you can focus on patients.

500+
Practices Served
across 25+ medical specialties

$12M+
Revenue Recovered
denied & underbilled claims recouped

95%
Clean Claim Rate
vs 84% industry avg

< 30d
Average AR
days in accounts receivable

Personal, Not Corporate

Dedicated account team with deep specialty/payer knowledge.

Performance Targets, In Writing

96%+ net collection · < 5% denial · 95%+ coding accuracy · 24h posting · 48h submission · 65%+ appeal success

Zero Risk to Start

No setup fees, no long-term contracts, 90-day cancel, free 5-day audit.

ORTHOPEDIC · MARKET CONTEXT

Why Orthopedic Billing Matters Now

Orthopedic surgery is the highest-volume surgical specialty in the US — driven by aging joints, sports injuries, and obesity-related musculoskeletal disease. Every procedure has a global period, implant documentation requirements, and bundled DME/therapy codes that drive denial complexity.

$135B

US musculoskeletal treatment spend (2024)

Largest single surgical specialty spend category.

7.4M

Orthopedic procedures performed annually in US

Includes 1.2M joint replacements, 1.5M arthroscopies.

90 days

Standard global period for major orthopedic surgery

All related follow-up care bundled — separate billing forbidden.

~17%

Orthopedic claim denial rate (industry avg)

Driven by global period violations and modifier 59 misuse.

NET EFFE(

Orthopedic practices that master global period tracking, modifier 59 (distinct procedural service) discipline, and DME documentation can recover of total revenue currently lost to denials and under-billing.

ORTHOPEDIC · OVERVIEW

The Four Pillars of Orthopedic Billing

Each pillar represents a distinct service family with unique global period, modifier, and documentation requirements.

01 · E/M + INJECTIONS

Office E/M & Joint Injections

Office visits (99202–99215) plus joint/bursa injections (20600–20611) and viscosupplementation (J7321–J7324). Same-day E/M + procedure requires modifier 25.

CPT 99202–99215 · 20600–20611 · J7321–J7324

02 · SURGERY

Surgical Procedures

Fracture care (25500–29125), arthroscopy (29800–29900), joint replacement (27130 hip, 27447 knee). 90-day global period for major procedures; 10-day for minor.

CPT 20000–29999 · 90-day global · Pre-auth required

03 · PT

Physical Therapy Billing

Therapeutic exercise (97110), manual therapy (97140), neuromuscular re-ed (97112), modalities (97010–97028). Modifier GP required for therapy services.

CPT 97110–97799 · Modifier GP · Plan PT caps

04 · DME + IMPLANTS

DME & Implants

Durable medical equipment (L-codes: braces, walkers, crutches), surgical implants (screws, plates, rods). Separate documentation required for each item; KX/GA modifiers.

HCPCS L-codes · Implant logs · Modifier KX

PILLAR 01 · E/M + INJECTIONS

Office Visits & Joint Injections

Orthopedic office encounters typically combine an E/M visit with one or more procedures (joint injection, aspiration, viscosupplementation). The 2021 E/M coding reform shifted documentation to MDM-based, but modifier 25 is required when billing E/M + procedure on the same day. Viscosupplementation (J-codes) requires both the drug HCPCS code AND the administration CPT code.

E/M coding (2021+ reform)
Code by Medical Decision Making complexity or time; 99202–99215. Modifier 25 required if same-day procedure.

Joint injections
20600 (small joint, $58); 20604 (TMJ, $80); 20605 (intermediate joint, $78); 20610 (major joint/bursa, $108)

Viscosupplementation
J7321 (Hyaluronan, $1,150/vial); J7322 (Supartz); J7324 (Synvisc). Each requires 20610 administration code.

⚠ **Modifier 25 misuse** — appending when E/M is not significant and separately identifiable — is the **#1 ortho audit trigger**.

CPT Mini-Reference · Avg Reimbursement

Code	Service	Avg $
99213	Est. patient, low MDM	$92
99214	Est. patient, moderate MDM	$131
20600	Joint injection, small (e.g. finger)	$58
20605	Joint injection, intermediate (e.g. wrist)	$78
20610	Joint injection, major (e.g. knee)	$108
J7321	Hyaluronan, per dose	$1,150

PILLAR 02 · SURGERY

Fracture Care, Arthroscopy & Joint Replacement

Orthopedic surgical procedures span CPT 20000–29999. Each procedure carries a global period (10 or 90 days) during which all related follow-up care is bundled — separate billing forbidden without modifier 79 (unrelated procedure).

01 Fracture Care

Closed tx without manipulation (25500 wrist, $325); with manipulation (25505, $575); ORIF (25609, $1,650). Global period: 90 days for ORIF, 0–10 days for closed.

GLOBAL: 90-DAY ORIF · 0–10 CLOSED

02 Arthroscopy

Diagnostic (29800 shoulder, $575); with meniscectomy (29881 knee, $1,025); with rotator cuff repair (29827, $3,150). Global: 90 days for repairs, 0 for diagnostic.

GLOBAL: 90-DAY REPAIRS · 0 DIAGNOSTIC

03 Joint Replacement

Total hip (27130, $4,100); total knee (27447, $3,950); partial knee (27446, $3,400). Global: 90 days; pre-auth mandatory for commercial payers.

GLOBAL: 90-DAY · PRE-AUTH MANDATORY

04 Spine Surgery

Discectomy (63030, $2,150); laminectomy (63005, $2,400); spinal fusion (22612, $4,800). Global: 90 days; pre-auth always required.

GLOBAL: 90-DAY · PRE-AUTH ALWAYS

Global Period Rules

90-day global: all follow-up, complications, and related E/M bundled. Bill only with modifier: [redacted] (significant E/M), [redacted] (staged/related), [redacted] (return to OR), [redacted] (unrelated).

Bundling Pitfalls

Pre-op visit on day of surgery = bundled. Same-session bilateral procedures: append [redacted]. Same-session arthroscopy + open: arthroscopy bundled into open.

Modifier 59 (Distinct Procedural Service)

Used to indicate procedures typically bundled but not bundled in this case due to distinct anatomic site or session. # 1 audit target — must support with documentation.

PILLAR 03 · PHYSICAL THERAPY

Therapeutic Exercise, Manual Therapy & Modalities

Physical therapy services are billed under CPT 97010–97799 with the GP modifier (services delivered under a PT plan of care). Most commercial plans cap PT visits per year (typically 20–60 visits); Medicare has a $2,230/year therapy cap threshold (post-2023, requires KX modifier above threshold with medical necessity). Each timed code is billed in 15-minute increments.

Timed codes

Billed in 15-min increments: 97110 therapeutic exercise ($35), 97112 neuromuscular re-ed ($40), 97140 manual therapy ($50), 97530 therapeutic activities ($45)

Untimed codes

Billed per session: 97014 e-stim ($20), 97035 ultrasound ($25). Cannot bill multiple modalities same session.

Plan of care certification

Medicare requires physician-certified plan of care within 30 days of PT initiation; recertification every 90 days

Timed code billing rule: 1 unit = 8–22 min, 2 units = 23–37 min, 3 units = 38–52 min, 4 units = 53–67 min. Incorrect time calc is the **#1 PT denial**.

$35–$50
Per 15-min PT unit reimbursement

20–60
Typical commercial plan annual PT visit cap

$2,230
Medicare annual therapy threshold (2024)

15-min
Standard PT billing increment

PILLAR 04 · DME + IMPLANTS

Durable Medical Equipment & Surgical Implants

DME (HCPCS L-codes) covers braces, splints, walkers, crutches, and post-surgical supports. Surgical implants (screws, plates, rods) are typically bundled into the surgical procedure code but require separate inventory documentation for payer cost reconciliation.

1. DME Coding (L-codes)

L1830 knee immobilizer ($85); L3906 wrist splint ($45); L4386 walking boot ($165); L3640 shoulder immobilizer ($55); L7001 off-the-shelf brace (cost-based).

2. Modifiers for DME

KX = meets Medicare coverage criteria; GA = ABN signed; GY = statutorily excluded; LT/RT = left/right; NU = new equipment; RR = rental.

3. Implant Documentation

Surgical procedures that include implants (ORIF, joint replacement) require implant log: manufacturer, lot number, model, size. Submitted on claim but bundled into surgical fee.

4. Implant Rebate Programs

Manufacturers offer rebates ($50–$500 per implant) to surgeons/facilities. Compliance: must be disclosed under Sunshine Act; affects Stark Law analysis.

$85–$500 Per-DME-item reimbursement range

Bundled Implants included in surgical fee (not separately billed)

~ 5 % Of ortho revenue from DME (varies by practice)

⚠ **Compliance note**

$2,230[xx]

ORTHOPEDIC · BILLING CODES

Top CPT Codes & 2026 National Average Reimbursement

Most-billed codes across the four orthopedic pillars. Professional component shown.

Code	Service	Modifier	Avg $	Notes
99213	Est. patient, low MDM, 30–39 min	—	$92	Most common ortho E/M
99214	Est. patient, moderate MDM, 40–54 min	—	$131	Post-op fracture f/u outside global
20610	Major joint/bursa injection (knee)	—	$108	Most common injection
J7321	Hyaluronan (viscosupplementation), per dose	—	$1,150	Paired with 20610
25500	Closed tx wrist fx, without manipulation	—	$325	Global 0–10 days
25609	ORIF distal radius fx, with volar plate	—	$1,650	90-day global
27130	Total hip arthroplasty	—	$4,100	Pre-auth commercial
27447	Total knee arthroplasty	—	$3,950	Pre-auth commercial
29881	Arthroscopic knee meniscectomy	—	$1,025	90-day global
29827	Arthroscopic rotator cuff repair	—	$3,150	90-day global
97110	Therapeutic exercise, 15 min	GP	$35	Timed code
L4386	Cast boot (walking boot), prefabricated	KX	$165	DME with KX modifier

☒ E/M & SURGICAL MODIFIERS

Modifier 25

Modifier 59

Modifier 79

☒ PT & DME MODIFIERS

Modifier GP

Modifier KX

Modifier 50

ORTHOPEDIC · DENIAL PREVENTION

Top 8 Orthopedic Denial Reasons & How Aethera Prevents Each

Orthopedic denial rates average 15–18%; each denied surgical claim costs $100–300 to rework. Prevention is 10× cheaper than appeal.

RED 26% OF DENIALS — 1. Global period violation

ROOT E/M or procedure billed during 90-day surgical global without appropriate modifier

AETHERA Global period tracker auto-flags claims within active global; requires modifier justification

RED 19% OF DENIALS — 2. Modifier 59 misuse

ROOT Distinct procedural service modifier used when procedures are actually bundled

AETHERA Modifier 59 audit requires distinct anatomic site or separate session documentation

AMBER 14% OF DENIALS — 3. Missing pre-auth

ROOT Joint replacement, spinal fusion performed without prior authorization

AETHERA Auto-submits PA at surgical scheduling; verifies before procedure date

AMBER 11% OF DENIALS — 4. Bundling violation

ROOT Arthroscopy billed separately from open procedure on same session (should be bundled)

AETHERA Bundling rules engine blocks unbundled claims before submission

AMBER 9% OF DENIALS — 5. Modifier 25 documentation insufficient

ROOT E/M + procedure same day without separate documentation supporting E/M significance

AETHERA Modifier 25 documentation checklist before claim release

GREEN 7% OF DENIALS — 6. PT timed code miscalculation

ROOT Wrong number of units billed based on total treatment time

AETHERA Timed-code calculator with 8–22 / 23–37 / 38–52 min rule

GREEN 6% OF DENIALS — 7. DME KX modifier missing

ROOT DME claim above therapy cap without KX modifier

AETHERA Auto-appends KX when medical necessity documented

GREEN 5% OF DENIALS — 8. Implant documentation incomplete

ROOT Surgical claim missing implant manufacturer/lot/model info

AETHERA Implant log integration with EHR surgical record

↗ **Cumulative impact:** Aethera reduces orthopedic denial rate from industry avg **17%** to **< 7%** — recovering **~ $200K/year** per $1.5M practice revenue.

CASE STUDY · INTEGRATED ORTHO RCM

3-Surgeon Orthopedic Practice — Annual Revenue Impact

A $3.2M-revenue practice models the combined upside of global period discipline, modifier 59 audit, and pre-auth automation. 1,200 surgical cases/year · 1,800 monthly PT visits.

Global Period Discipline

Surgical cases / year	1,200
Pre-Aethera violation rate	16%
Post-Aethera violation rate	3%
Recovered E/M + procedures	156 / yr
Avg recovered claim	$185

ANNUAL REVENUE
$28,860

Modifier 59 Audit

Annual procedural claims	3,800
Pre-Aethera -59 denial rate	22%
Post-Aethera denial rate	6%
Recovered claims	608 / yr
Avg procedural value	$625

ANNUAL REVENUE
$380,000

Pre-Auth Automation

Annual surgical volume req. PA	540
Pre-Aethera PA denial rate	24%
Post-Aethera PA denial rate	7%
Recovered procedures	92 / yr
Avg surgical revenue	$2,800

ANNUAL REVENUE
$257,600

Combined annual revenue recovery: $666,460 *· Implementation cost (year 1): ~ $195K (Aethera RCM fees + EHR integration + coder training).*

YEAR-ONE
$471,460

ROI
242%

ORTHOPEDIC · COMPLIANCE HOTSPOTS

Where OIG, Medicare RAC, and Commercial Payers Audit First

Top compliance risks across the four orthopedic pillars. Quarterly self-audits recommended.

PILLAR — E/M + Injections

RED

Modifier 25 misuse — appending to E/M when procedure on same day does not represent significant, separately identifiable service; OIG Work Plan 2025–2026.

AMBER

Viscosupplementation without documented conservative treatment failure — payers require prior PT/NSAIDs failed documentation.

GREEN

Joint injection documentation — missing aspiration/injection note, joint laterality, or drug/lot number.

PILLAR — Surgical Procedures

RED

Modifier 59 misuse — using 59 to unbundle procedures that should be bundled based on same anatomic site/session; OIG recovered > $200M from ortho since 2020.

RED

Global period billing — billing E/M for related follow-up during 90-day global without appropriate modifier; automatic denial on post-pay audit.

AMBER

Bundling violations — arthroscopy + open procedure same session billed separately; should be bundled.

PILLAR — Physical Therapy

HIGH

Timed code over-billing — billing 4 units when total treatment time only supports 3 units (8–22 min = 1 unit rule); RAC audit target.

MEDIUM

Plan of care not certified — Medicare requires physician-certified POC within 30 days of PT initiation; claims auto-denied.

LOW

KX modifier missing above cap — DME/therapy above $2,230 annual cap without KX modifier auto-denies.

PILLAR — DME & Implants

RED

Implant rebate non-disclosure — manufacturer rebates not reported under Sunshine Act; federal Anti-Kickback exposure.

AMBER

DME without Certificate of Medical Necessity — high-cost DME ($500+) requires CMN form; missing CMN triggers denial.

LOW

Wrong DME code — using off-the-shelf code when custom-fabricated item delivered (or vice versa); reimbursement difference significant.

⚖ **OIG Work Plan 2025–2026** explicitly lists modifier 25/59 misuse in orthopedic surgery as active audit targets. Medicare RACs have recovered **> $420M** from ortho practices since 2020.

CLOSING · KEY TAKEAWAYS

Three Actions to Capture Orthopedic Revenue

For orthopedic practice administrators and revenue cycle directors leading the next 90 days.

01 —

Deploy a global period tracker

Integrate surgical scheduling with global period database. Auto-flag every E/M or procedure claim within an active 90-day surgical global. Require modifier justification before claim release. Target: < 5% global period violation rate (industry avg 16%).

90-day global · auto-flag · target **< 5%** violations

02 —

Audit every modifier 59 claim

Pull last 100 claims with modifier 59. Verify each has documentation supporting distinct anatomic site, separate session, or separate diagnosis. Implement pre-submission review for every -59 claim. Top cause of OIG ortho recoveries since 2020.

100-claim pull · pre-submission review · **OIG** focus

03 —

Automate pre-auth for joint replacement + spine

Integrate EHR scheduling with payer PA portals for CPT 27130/27447/22612/63030. Auto-submit PA at surgical scheduling. Track 5/10/15-day turnarounds. Pre-auth denial rate drops from 24% to < 7% — recovering ~ $258K per 540 annual procedures.

EHR→PA portal · **24%** → **< 7%** denial rate

Questions & Discussion

Optimizing Orthopedic Revenue Across E/M, Surgery, PT & DME

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