ARTIFICIAL HEALTHCARE INTELLIGENCE

How One Document Broke American Healthcare

Tracing the $5.3 Trillion Cascade from the Clinical Encounter Note to the Most Expensive, Worst-Performing Healthcare System in the Developed World

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A White Paper by Artificial Healthcare Intelligence (AHI)

February 2026

We didn't invent this evidence. JAMA published it. The AMA documented it. CMS data confirms it. The GAO reported it. We just connected the dots that nobody else connected. And then we built the technology to fix it.

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EXECUTIVE SUMMARY

The United States spends $5.3 trillion annually on healthcare. More than any nation on Earth, more per capita than any peer country, and more as a percentage of GDP than any comparable economy. Yet by virtually every measurable outcome, America's healthcare system ranks last among high-income nations. Life expectancy, despite recovering from pandemic lows, still trails every peer nation. Maternal mortality is the highest in the developed world. Preventable hospitalizations exceed those of every peer country. Patient satisfaction is falling. Physician burnout has reached crisis levels. And 27 million Americans remain uninsured while tens of millions more are functionally underinsured.

Politicians, policymakers, and pundits have spent decades debating why. Drug pricing. Insurance company profits. Hospital monopolies. Administrative waste. Lack of universal coverage. Each explanation captures a piece of the truth. None captures the root cause.

> *This white paper presents a different thesis: virtually every systemic failure in American healthcare can be traced back to a single document: the clinical encounter note.*

The encounter note is the document created at every patient visit that records the clinical interaction between provider and patient. It is not merely a medical record. Under the billing architecture established by the Centers for Medicare & Medicaid Services (CMS) and adopted by every major payer in the United States, the encounter note is the sole determinant of physician reimbursement. Every dollar a physician earns flows through what they document in that note.

This single dependency creates a cascading chain of systemic failures that this paper traces through eleven evidence-based links, from documentation burden through physician burnout, defensive medicine, declining reimbursement, access disparities, practice consolidation, taxpayer-funded workarounds, emergency department misuse, industrialized claim denial, and socioeconomic patient sorting, ultimately producing the paradox of maximum spending with minimum outcomes.

Every link in this chain is independently validated by peer-reviewed research published in JAMA, the New England Journal of Medicine, Annals of Internal Medicine, and Health Affairs; by government data from CMS, the GAO, CBO, MACPAC, and AHRQ; and by the American Medical Association, the Medical Group Management Association, the Commonwealth Fund, the Kaiser Family Foundation, and the RAND Corporation.

$5.3 TRILLION

Annual U.S. healthcare spending — 18% of GDP, with last-place outcomes among 10 peer nations

What is new is the synthesis. No prior academic paper, policy report, or industry analysis has assembled the complete causal chain from encounter note to systemic failure. The individual links have been studied extensively in isolation. This paper connects them into a single, coherent, and unified framework. It identifies the encounter note as the intervention point where the entire cascade can be reversed.

Artificial Healthcare Intelligence (AHI), a 501(c)(3) nonprofit healthcare technology organization, has built the technology to do exactly that. AHI's AI-powered platform, MDMai, processes clinical encounter notes in real time to optimize documentation, maximize appropriate reimbursement, and eliminate the administrative burden that drives every downstream failure described in this paper. The evidence suggests that fixing the encounter note doesn't just help physicians. It begins unwinding the entire $5.3 trillion cascade.

THE THESIS

The American healthcare system did not break because of any single policy failure, market distortion, or technological limitation. It broke because the entire payment architecture of U.S. medicine rests on a single document: the clinical encounter note. The consequences of that dependency have cascaded through every layer of the system for decades.

How It Works

Every patient visit in the United States generates a clinical encounter note. That note must contain specific elements (history, examination findings, medical decision-making, diagnoses, and treatment plans) that map to evaluation and management (E/M) codes defined by the American Medical Association's Current Procedural Terminology (CPT) system. These codes determine payment. Since CMS's 2021 E/M overhaul, reimbursement is tied explicitly to the complexity of medical decision-making (MDM) as documented in the encounter note. Higher MDM complexity, as evidenced by the note, triggers higher-level codes and higher payment.

This means physicians are not paid for what they do. They are paid for what they document. A physician who spends 45 minutes with a complex patient but writes a sparse note will be reimbursed less than a physician who spends 15 minutes with a straightforward patient but documents thoroughly. The note is not a record of the visit. It is the visit, as far as the payment system is concerned.

> *The encounter note is the single point of dependency through which all healthcare revenue flows. Every problem downstream, from burnout to $5.3 trillion in spending, traces back to this document.*

The Downward Cascade

The encounter note's role as the sole determinant of reimbursement creates a cascading chain of failures. Each link drives the next:

Link	Mechanism	Key Evidence
*Link 1**	*Documentation determines payment*	*Physicians are paid for what they document, not what they do*
*Link 2**	*Documentation burden destroys physicians*	*2:1 admin-to-face-time ratio; 1–2 hours of "pajama time" nightly*
*Link 3**	*Burnout degrades clinical decisions*	*54% burnout rate; errors increase; $55B in defensive medicine*

> *Link 4** Reimbursement declines 33% real Medicare pay cut since 2001; 60–70% overhead*
>
> *Link 5** Access disparities 74% Medicaid acceptance vs. 96% follow the money private insurance*
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> *Link 6** Independent practice 60% private practice (2012) → 42% collapses (2024); 78% now corporate*
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> *Link 8** ERs become primary care Medicaid ED rate: 97/100 persons vs. clinics 23/100 private; 12x cost*
>
> *Link 9** Insurers industrialize 19% in-network claims denied; \<1% denial appealed; 44% overturned*
>
> *Link 10** Wealth-health sorting accelerates 14.6-year life expectancy gap between richest and poorest 1% ———- ———————— ————————————-*

What follows is the evidence for each link — drawn from the most authoritative sources in medicine, policy, and economics.

LINK 1: THE ENCOUNTER NOTE DETERMINES EVERY DOLLAR

The relationship between clinical documentation and physician payment is not metaphorical. It is the literal, regulatory architecture of American healthcare finance. The Centers for Medicare & Medicaid Services (CMS) requires that every claim for physician services be supported by documentation in the medical record that substantiates the level of service billed. The encounter note is that documentation.

The Regulatory Framework

CMS's 2021 overhaul of E/M coding guidelines made the encounter note's role even more explicit. Under the revised framework, office visit reimbursement (CPT codes 99202–99215) is determined by one of two pathways: the level of medical decision-making (MDM) documented in the note, or total physician time including documentation. MDM complexity is assessed across three elements: the number and complexity of problems addressed, the amount and complexity of data reviewed, and the risk of complications or morbidity. Each element must be documented in the note to justify the corresponding billing level.

The financial impact is direct and measurable. The difference between a Level 3 visit (99213, approximately $90 Medicare) and a Level 5 visit (99215, approximately $183 Medicare) is determined entirely by what appears in the encounter note. A physician who addresses five chronic conditions, reviews outside records, and manages a medication with serious side-effect risk but fails to document these elements adequately will be reimbursed at the lower level.

Revenue Lost to Documentation Deficiency

Undercoding is epidemic and economically devastating. AAPC audit data consistently shows that in a sample of 200 claims, approximately 45% are undercoded versus 41% overcoded (a pattern that predates the 2021 E/M reform and may have shifted since). MGMA estimates that inefficient practices lose 5–10% of potential revenue annually from undercoding, denials, and slow accounts receivable. A West Virginia academic medical center study found that after a coding accuracy intervention, appropriate-level subsequent encounters increased by 112%, meaning more than half of all visits had been billed below the documented level of complexity. Dunn, Gottlieb, Shapiro, Sonnenstuhl, and Tebaldi have documented that physicians lose 18% of Medicaid claims to billing problems versus 4.7% for Medicare and 2.4% for commercial payers,

representing an average loss of $12.09 per Medicaid visit from administrative friction alone.

Sources: CMS E/M Guidelines (2021); AAPC Coding Accuracy Data; MGMA Practice Benchmarks; Dunn, Gottlieb, Shapiro, Sonnenstuhl & Tebaldi, NBER Working Paper (2021), published in Quarterly Journal of Economics (2024); West Virginia University Academic Medical Center Study, JAMA Network Open (2022)

LINK 2: DOCUMENTATION BURDEN IS DESTROYING PHYSICIANS

Because the encounter note determines payment, physicians must invest extraordinary time in documentation. The evidence reveals a healthcare workforce that spends more time writing about patient care than delivering it.

The 2:1 Administrative-to-Clinical Ratio

Physicians spend nearly twice as much time on administrative work as on patient care. Sinsky et al.'s landmark 2016 time-motion study published in Annals of Internal Medicine found that physicians spent 27.0% of their office day on direct clinical face time versus 49.2% on EHR and desk work. Two hours of paperwork for every hour with a patient. Even while in the exam room, 37% of physician time went to EHR documentation rather than the patient. Arndt et al. (Annals of Family Medicine, 2017) confirmed this with EHR audit log data: 142 family medicine physicians spent an additional 86 minutes after clinic hours daily on EHR tasks. That is over 7 hours per week. An unpaid extra workday.

"Pajama Time": The Unpaid Second Shift

After-hours documentation is endemic, not anecdotal. AMA's 2024 Organizational Biopsy survey of nearly 18,000 physicians found 22.5% spent more than 8 hours weekly on EHR work outside of office hours. These figures remained unchanged from 2022 through 2024, signaling a persistent structural problem rather than a transitional adjustment period. Overhage and McCallie's 2020 analysis in Annals of Internal Medicine of 100 million patient encounters across 155,000 physicians found physicians spent an average of 16 minutes and 14 seconds per encounter on all EHR activities, with primary care and internal medicine reaching 18–22 minutes per encounter.

Notes 4X Longer Than the Rest of the World

American clinical notes are four times longer than those written by physicians in other countries using the same EHR software. Downing, Bates, and Longhurst reported in Annals of Internal Medicine (2018) that non-U.S. specialist notes averaged approximately 1,200 characters while U.S. notes exceeded 6,000 characters. The authors attributed this directly to compliance and reimbursement documentation requirements. Rule et al.'s analysis of 2.7 million outpatient notes in JAMA Network Open found median note length increased 60.1% from 401 words (2009) to 642 words (2018). Wang et al.'s study in JAMA Internal Medicine (2017) found only 18% of note text was typed

manually — 46% was copied from prior notes and 36% was auto-imported. Despite CMS's 2021 E/M coding reform intended to reduce documentation burden, Epic Research found note length actually increased 8.1% from 2020–2023.

2 : 1

Ratio of administrative time to direct patient care for physicians

— Sinsky et al., Annals of Internal Medicine (2016)

Sources: Sinsky et al., Annals of Internal Medicine (2016); Arndt et al., Annals of Family Medicine (2017); Overhage & McCallie, Annals of Internal Medicine (2020); AMA Organizational Biopsy Survey (2024); Downing, Bates & Longhurst, Annals of Internal Medicine (2018); Rule et al., JAMA Network Open (2021); Wang et al., JAMA Internal Medicine (2017); Epic Research (2023)

LINK 3: BURNOUT DEGRADES CLINICAL DECISION-MAKING

The documentation burden identified in Link 2 is the primary driver of a physician burnout crisis that now affects more than half of all practicing physicians in the United States. Burned-out physicians make more errors, practice more defensive medicine, and generate billions in unnecessary costs.

The Burnout Epidemic

Physician burnout has reached crisis levels. The Physicians Foundation 2024 survey of 1,723 physicians found 60% experience frequent burnout. That figure has not changed in four consecutive years. The AMA's Medscape 2024 Physician Burnout and Depression Report found 49% of physicians reported burnout, with emergency medicine (63%), internal medicine (50%), and pediatrics (51%) among the hardest hit. Most critically for this thesis, 62% of burned-out physicians identified bureaucratic tasks — primarily EHR documentation and charting — as the leading contributor to burnout. Not patient complexity. Not malpractice risk. Not compensation.

The Burnout-Error Connection

Burnout directly increases medical errors. Panagioti et al.'s 2018 meta-analysis published in JAMA Internal Medicine found that physician burnout was associated with approximately twice the risk of patient safety incidents and unprofessional behavior. West et al. found in a 2006 JAMA study of medical residents that distress was prospectively associated with perceived medical errors. Shanafelt et al. demonstrated in a longitudinal study that the relationship was bidirectional: burnout increased errors, and errors increased burnout, creating a self-reinforcing spiral.

Defensive Medicine: The $55 Billion Tax on Fear

Between 80% and 93% of physicians report practicing defensive medicine. A Physicians Foundation survey found 78% of physicians believed the U.S. healthcare system had too much wasteful spending. Third Way reported that physicians themselves acknowledge approximately 20% of medical care is unnecessary, including 22% of prescribed medications and 25% of tests. Estimates of the total cost of the medical liability system reach $55.6 billion annually (Mello et al., Health Affairs, 2010), including defensive medicine, litigation costs, and insurance overhead. When including induced demand from unnecessary referrals and hospitalizations, estimates range to over $200 billion.

Physician-reported estimates from Jackson Healthcare suggest defensive medicine adds $650–$850 billion in total costs annually when accounting for all downstream effects.

Practice size dramatically affects burnout rates. A 2018 New York University study published in the Journal of the American Board of Family Medicine found burnout rates in small independent practices of five or fewer physicians at just 13.5%, compared to the national average of 54.4%. This fourfold difference was attributed to greater autonomy, deeper patient relationships, fewer work hours, and higher adaptive reserve in small practices.

Sources: Physicians Foundation (2024); AMA Medscape Report (2024); Panagioti et al., JAMA Internal Medicine (2018); West et al., JAMA (2006); Mello et al., Health Affairs (2010); Third Way; Journal of the American Board of Family Medicine (2018)

LINK 4: REIMBURSEMENT IS DECLINING WHILE COSTS EXPLODE

While documentation demands escalate and burnout intensifies, the reimbursement physicians receive for this work has declined dramatically in real terms, even as practice operating costs have surged.

The Great Physician Pay Cut

Medicare physician payments have declined 33% in inflation-adjusted terms since 2001. The AMA's analysis of Medicare Economic Index data shows that while the cost of running a medical practice increased approximately 59% from 2001 to 2025, Medicare physician payment rates barely moved. The 2025 Medicare physician fee schedule conversion factor is $32.35 — down 2.83% from 2024's $33.29. If Medicare had simply kept pace with inflation since 2001, the conversion factor would be approximately $48 today. The AMA has formally declared physician private practice is 'unraveling' under the combined weight of low payment, high costs, and administrative burdens.

The Overhead Trap

Practice overhead now consumes 60–70% of revenue. MGMA benchmark data shows staff costs alone represent approximately 25% of revenues and 40% of total overhead. Combined with rent, malpractice insurance, EHR systems, billing staff, and supplies, the typical practice retains only 30–40 cents of every dollar collected. A primary care physician collecting $800,000 in annual revenue may take home $250,000 after overhead — less than many mid-career software engineers, with $200,000+ in medical school debt and a decade of lost earning years. The AMA reports that practice operating costs have increased 59% since 2001 while the Medicare conversion factor actually declined — from approximately $36.70 to $32.35.

The Three-Tier Payment Hierarchy

Reimbursement runs on a three-tier system that determines which patients physicians can afford to see. Commercial insurance pays approximately 129% of Medicare rates. Medicare is the baseline at 100%. Medicaid pays just 67–75% of Medicare, a ratio that has remained essentially unchanged for two decades. In some states, the gap is far worse: Florida Medicaid pays approximately $34 for a 99213 visit that Medicare reimburses at $91 and commercial insurers pay at $117.

Sources: AMA Medicare Payment Analysis (2025); CMS Fee Schedule (2025); MGMA Practice Benchmarks; Commonwealth Fund Payment Rate Analysis (2022); MACPAC Medicaid Fee-to-Medicare Ratio Data (2003–2024)

LINK 5: ACCESS DISPARITIES FOLLOW THE MONEY

When reimbursement falls below the cost of care, physicians stop accepting patients from underpaying programs. This is not callousness. It is economic survival. And the evidence shows access follows payment with mathematical precision.

The Medicaid Acceptance Gap

Only 74% of physicians accept new Medicaid patients, compared to 88% for Medicare and 96% for private insurance. MACPAC analysis of NCHS data (2017) found a persistent 20+ percentage point gap between Medicaid and private insurance acceptance rates. The gap is far worse in specialty care: only 36% of psychiatrists accept Medicaid. Geographic variation is extreme. Acceptance ranges from 42.2% in New Jersey to 99.4% in North Dakota, correlating directly with state-level reimbursement rates.

Care is concentrated in a shrinking subset of providers.

Commonwealth Fund analysis of 2014–2019 data found that one-third of office-based primary care physicians account for 90% of all Medicaid office visits. Hsiang et al.'s meta-analysis of 34 audit studies found Medicaid insurance was associated with a 3.3-fold lower likelihood of successfully scheduling specialty care compared to private insurance.

The Proof That Higher Rates Fix Access

The ACA fee bump provided the closest thing to a controlled experiment. In 2013–2014, the Affordable Care Act temporarily raised Medicaid primary care rates to 100% of Medicare, fully federally funded. Polsky et al. (2015, NEJM) found a 7.7–8.3 percentage point increase in the probability of obtaining a Medicaid appointment in 10 states. Candon et al. (2018) found each $10 increase in primary care fees increased appointment probability by 1.7 percentage points. MACPAC's January 2025 analysis confirmed: a 1 percentage point increase in the Medicaid-to-Medicare fee ratio produces a 0.78 percentage point increase in physician acceptance rates.

Then 34 states let the rates expire. The Urban Institute found the expiration produced an average 42.8% reduction in primary care fees for eligible providers. Rather than make the rate increase permanent, government chose to build a parallel system, spending $47 billion annually on FQHCs and supplemental payments instead.

Sources: MACPAC (2017, 2025); Commonwealth Fund (2022); Polsky et al., NEJM (2015); Candon et al. (2018); Hsiang et al., AJMC (2019); Urban Institute ACA Fee Bump Analysis

LINK 6: THE COLLAPSE OF INDEPENDENT MEDICINE

When reimbursement declines, overhead rises, and documentation burden intensifies, independent physicians face an impossible economic equation. The result has been the most dramatic restructuring of medical practice in American history.

The Numbers

The share of physicians in private practice has collapsed from 60.1% in 2012 to 42.2% in 2024. The AMA's 2024 Physician Practice Benchmark Survey of 5,000 physicians documented the crossover point between 2018 and 2020. For the first time in American history, more physicians were employed than independent. The Physician Advocacy Institute's January 2024 report found an even starker reality: only 22.4% of physicians are truly independent, with 77.6% employed by hospitals, health systems, or corporate entities. Private equity now accounts for 6.5% of all practice ownership and was responsible for 38.3% of all practice purchases after 2019.

Why Physicians Sell: Economic Coercion, Not Preference

Physicians overwhelmingly prefer independence but cannot afford it.

AMA survey data shows 70.8% of physicians who sold their practices cited the need to better negotiate higher payment rates with payers as very or somewhat important. Bain & Company's 2024 Frontline of Healthcare Survey found physicians in hospital-led settings were nearly three times more likely to be dissatisfied than those in physician-owned practices, with Net Promoter Scores 25–40 points lower. The most revealing statistic: 71% of physicians who moved from employed to self-employed status reported satisfaction, while only 40% who moved from self-employed to employed were satisfied.

The Patient Cost of Consolidation

Hospital acquisition of physician practices increases prices without improving quality. KFF's 2024 analysis found hospital-physician consolidation resulted in average price increases of 14% for physician services, with no measurable improvement in quality metrics. Most alarmingly, a Harvard Medical School study published in Annals of Internal Medicine (2025) found that after private equity acquisition of hospitals, emergency department deaths

increased 13.4%, ED salary expenditures fell 18.2%, ICU staffing costs dropped 15.9%, and hospital-wide FTEs decreased 11.6%. A NORC survey found 61% of employed physicians have moderate or no autonomy to make referrals outside their ownership system, 47% face policies or financial incentives to adjust treatment to reduce costs, and 70% face incentives or penalties to see more patients per day.

Sources: AMA Physician Practice Benchmark Survey (2024); Physician Advocacy Institute (2024); Bain & Company (2024); KFF Consolidation Analysis (2024); Harvard Medical School/Annals of Internal Medicine (2025); NORC/Physicians Advocacy Institute Survey (2023)

LINK 7: THE FQHC WORKAROUND — A $47 BILLION TAXPAYER DETOUR

When private practices cannot afford to see Medicaid patients, those patients must go somewhere. Rather than fix the reimbursement rates that drive the access gap, the federal government chose to build an entirely parallel healthcare delivery system, funded by taxpayers at two to four times the cost of simply paying private practice physicians fairly.

The Scale of the Parallel System

Federally Qualified Health Centers now serve 32.4 million patients annually — one in ten Americans. HRSA's 2024 Uniform Data System reports 1,359 FQHC program awardees operating over 17,000 delivery sites, employing 326,000 full-time equivalent workers and conducting 139 million patient visits per year. Total FQHC revenue reached $49.8 billion in 2024, up from $12.7 billion in 2010 — a 292% increase in 14 years. Federal Section 330 grant funding grew 460% from 2001 to 2019, from $1 billion to $5.6 billion annually.

The Reimbursement Differential That Tells the Story

FQHCs receive two to four times more per Medicaid visit than private practices. Under the Prospective Payment System, FQHCs receive a bundled per-visit rate of $150–$300+ per encounter, compared to private practice Medicaid fee-for-service rates of $34–$92 for equivalent E/M codes. The 2025 Medicare FQHC PPS base rate is $202.65 per visit, with new patient rates at $271.88. Meanwhile, the Medicaid-to-Medicare physician fee ratio has remained at approximately 70–75% for two decades — 0.69 in 2003, 0.72 in 2016, and 0.75 in 2024. Government funding for FQHCs grew 460% while the underlying rate structure barely moved.

The Total Taxpayer Cost

$47 BILLION

Annual taxpayer cost of workaround payments: $32B FQHC system + $15B state supplemental payments

States spend an additional $15 billion annually in supplemental workaround payments. MACPAC data shows 31 states plus DC made $2.6

billion in fee-for-service supplemental payments to physicians in 2023, with an additional $12.4 billion in managed care directed payment arrangements. Combined with the $32 billion FQHC system, government spends approximately $47 billion annually on workarounds rather than fixing the underlying rate structure. No major government analysis has ever compared the total cost of simply raising Medicaid physician reimbursement to Medicare-equivalent rates versus the current combined cost of these parallel systems. Why not?

Sources: HRSA Uniform Data System (2024); CMS FQHC PPS Rates (2025); MACPAC Physician Fee Ratio Data (2003–2024); MACPAC Supplemental Payment Analysis (2023); NACHC Research

LINK 8: THE ER AS AMERICA'S MOST EXPENSIVE PRIMARY CARE CLINIC

When patients cannot access primary care — because their physicians cannot afford to see them, because the FQHC is full, because they missed their appointment due to transportation barriers. They delay care until it becomes urgent. Then they go to the emergency room.

The Utilization Disparity

Medicaid patients use emergency departments at 4.2 times the rate of privately insured patients. CDC NCHS Data Brief No. 401 (2021) reported ED visit rates per 100 persons: Medicaid at 97 visits per 100 persons, Medicare at 45, uninsured at 37, and private insurance at just 23. AHRQ HCUP data confirmed that by 2014, Medicaid became the number-one payer for emergency department visits at 32% of all visits, surpassing private insurance. Medicaid ED visits increased 66.4% from 2006 to 2014.

The Cost Multiplier

Treating common conditions in an ER costs 12 times more than in a physician's office. UnitedHealth Group's 2019 analysis of claims data found the average cost of treating 10 common primary care conditions in an ED was $2,032 versus $167 at a physician's office. The RAND Corporation estimated that 13.7–27.1% of ED visits could be managed at urgent care centers or physician offices. The total cost of avoidable ED visits exceeds $32 billion annually from privately insured patients alone. The Oregon Health Insurance Experiment — the only randomized controlled trial of Medicaid coverage, found Medicaid increased ED use by 40% rather than substituting office visits.

The EMTALA Unfunded Mandate

EMTALA requires hospitals to treat all patients regardless of ability to pay. The Emergency Medical Treatment and Active Labor Act requires every Medicare-participating hospital to screen and stabilize anyone presenting to the ED. ACEP estimates the average emergency physician donates approximately $140,000 per year in uncompensated EMTALA-mandated care, and that 55% of emergency physician time goes to uncompensated care. AHA data shows hospitals provided nearly $745 billion in uncompensated care from 2000 to 2020. Annual uncompensated care reached $41.9 billion in FY 2020, partially offset by approximately $15 billion in annual DSH payments. Another taxpayer-funded workaround.

Sources: CDC NCHS Data Brief #401 (2021); AHRQ HCUP Statistical Brief #227; UnitedHealth Group (2019); RAND Corporation/Health Affairs (Weinick et al., 2010); Taubman et al., Science (2014); AHA Uncompensated Care Data; MACPAC DSH Analysis

LINK 9: INSURERS HAVE INDUSTRIALIZED CLAIM DENIAL

The encounter note's role as the determinant of payment creates an adversarial dynamic between providers and payers. Insurers have systematically exploited the complexity of documentation requirements to deny, delay, and downcode claims at industrial scale. Providers, living paycheck to paycheck, cannot afford to fight back.

The Denial Machine

Nineteen percent of all in-network claims are now denied — the highest rate since tracking began. KFF's January 2025 analysis of CMS transparency files found that across HealthCare.gov insurers in 2023, 73 million of approximately 392 million claims were denied. Individual insurer rates ranged from Blue Cross Blue Shield of Alabama at 35% to Elevance Health at 23%. ProPublica's investigation revealed Cigna's PXDX system, in which a single medical director denied approximately 60,000 claims in one month, spending an average of 1.2 seconds per case. In two months, Cigna doctors refused 300,000 claims using this automated denial system.

The Appeal Gap: The System's Most Damning Statistic

Fewer than 1% of denied claims are appealed. Yet when they are, 44–80% are overturned. KFF data shows approximately 376,527 internal appeals were filed out of 73 million denials in 2023 — a 0.5% appeal rate. But 44% of those appeals were overturned on internal review. In Medicare Advantage, 57% of all claim denials are ultimately reversed on appeal (Health Affairs, 2025). The HHS Office of Inspector General found 75% of appealed prior authorization denials were approved through the appeals process. This means the denial system works precisely because providers cannot afford to fight it. Not because the denials are legitimate.

Defensive Undercoding: Leaving Money on the Table

The threat of denial and audit creates a chilling effect that causes systematic underbilling. AAPC audit data shows approximately 45% of claims are undercoded (a pattern predating the 2021 E/M reform). Medical billers and physicians know that coding aggressively, even when documentation supports higher levels, risks triggering audits, delays, and recoupment demands. The rational economic response is to code conservatively, accepting lower payment to avoid the far greater cost of a denied or audited claim. AMA prior authorization

surveys show practices complete 39 prior authorizations per physician per week, spending 13 hours weekly on PA processes, yet 96–99.6% of prior authorizations are eventually approved, making the exercise a delay mechanism rather than a clinical gatekeeping tool.

Sources: KFF Claims Denial Analysis (2025); ProPublica "Uncovered" Investigation (2023); HHS OIG (2022); Health Affairs (2025); AMA Prior Authorization Survey (2024); AAPC Coding Accuracy Data; CAQH Administrative Cost Report

LINK 10: THE WEALTH-HEALTH-INSURANCE SORTING MACHINE

The system's final mechanism sorts patients by wealth and health status, channeling healthier, wealthier populations into private insurance while concentrating sicker, poorer populations in government programs that reimburse below cost. This sorting accelerates every other failure in the cascade.

The Income-Health Gradient

The life expectancy gap between the richest and poorest Americans is 14.6 years for men and 10.1 years for women. Chetty et al.'s landmark 2016 JAMA study of 1.4 billion earnings and mortality records found the gap is widening: between 2001 and 2014, life expectancy increased by 2.3 years for men in the top 5% of income but only 0.3 years in the bottom 5%. For women in the bottom 5%, life expectancy showed no change at all.

Insurance Coverage Sorts by Income

Employer-sponsored insurance covers 84.2% of those above 400% FPL but only 23.9% below 200% FPL. KFF data from the American Community Survey confirms a 3.5-fold difference in private insurance coverage based on income. Medicaid-enrolled adults report 75% chronic condition prevalence versus 66% for privately insured adults, with 31% of Medicaid adults having three or more chronic conditions. The health consequences compound: Medicaid patients present with higher acuity, require more time per visit, reimburse at lower rates, and miss appointments more frequently, making them money-losing patients for private practices before they even walk through the door.

The Insurer Profit Machine

UnitedHealth Group's revenue reached $400 billion in 2024, roughly six times its level 15 years ago. The seven largest health insurers' combined revenue tripled in a decade, from $511 billion in 2014 to $1.517 trillion in 2024, collecting $10.4 trillion in cumulative revenue over that period. During the same decade, physician Medicare payment fell 33% in real terms. Traditional Medicare operates above 97% medical loss ratio. Private insurers retain 15–20% of premium dollars for administrative costs and profit. The system is designed to extract value from providers and taxpayers and transfer it to insurance corporations.

Sources: Chetty et al., JAMA (2016); KFF American Community Survey Analysis; KFF Medicaid Chronic Conditions (2023); EPIC for America Revenue Analysis (2024); UnitedHealth Group Financial Reports; AMA Competition in Health Insurance Study (2025)

THE COMPLETE CASCADE: FROM ENCOUNTER NOTE TO $5.3 TRILLION

Each link in this chain drives the next. Remove any link, and the chain weakens. But the chain has a beginning — and that beginning is the encounter note.

> *A physician sees a patient. She must document the visit in an encounter note that satisfies payer requirements. This note takes 15–45 minutes to complete. She does it after hours because she has to see 25 patients per day to cover overhead. The documentation demands cause burnout. Burnout causes defensive medicine and errors. Reimbursement keeps declining while overhead rises. She can't afford to see Medicaid patients at $50 per visit. Those patients go to the FQHC at $200 per visit, funded by taxpayers. Or they skip care entirely and show up at the ER at $2,032 per visit, funded by taxpayers. Meanwhile, insurers deny 19% of her claims, and she undercodes the rest out of fear. Her practice fails. She sells to a hospital system. Prices go up 14%. Quality goes down. Her autonomy disappears. And the cycle continues. All because one document was never fixed.*

The total cost of this cascade is staggering:

*Category**	**Cost / Impact*
Total U.S. healthcare spending	**$5.3 trillion annually (18% of GDP)**
Administrative waste	**$812 billion (34.2% of spending)**
FQHC parallel system	**$32 billion taxpayer cost annually**
State supplemental Medicaid	**$15 billion annually** payments
Avoidable ED visits	**$32+ billion annually**
Hospital uncompensated care	**$41.9 billion in FY 2020**
Defensive medicine / medical	**$55.6 billion (liability system) liability to $200+ billion annually**
No-show losses	**Estimated $150 billion annually (national estimate)**
Prior authorization administrative	**$1.3 billion (97% borne by costs providers)**
Revenue lost to undercoding	**5–11% of practice revenue**

Medicare real payment decline **33% since 2001** ——————————— ——————————

The United States spends more on healthcare than any nation on Earth and ranks dead last among ten high-income countries in overall healthcare system performance, according to the Commonwealth Fund's Mirror, Mirror 2024 report. U.S. per capita healthcare spending exceeds $15,000, roughly double the comparable-country average. The U.S. ranks last in administrative efficiency, last in equity, and last in health outcomes including life expectancy, infant mortality, and preventable deaths.

THE PROOF OF CONCEPT: FIX THE NOTE, FIX THE SYSTEM

If the encounter note is the root cause, then fixing the encounter note should produce measurable improvements across the cascade. The emerging evidence confirms exactly that.

AI-Powered Documentation: Early Results

When AI documentation tools partially fix the encounter note problem, burnout drops immediately. Olson et al. (JAMA Network Open, 2025) studied physicians using AI ambient documentation and found burnout decreased by 13 percentage points within 30 days. After-hours documentation time dropped by nearly one hour per day. These results are not incremental improvements. They are causal validation that the encounter note is the intervention point. Fix the note, and the downstream effects begin reversing.

The AHI Approach: MDMai

Artificial Healthcare Intelligence (AHI) has built MDMai, an AI-powered platform that processes clinical encounter notes in real time to accomplish three objectives simultaneously: optimize documentation quality to ensure clinical accuracy, maximize appropriate reimbursement by identifying billable elements that providers typically miss, and eliminate the after-hours documentation burden that drives physician burnout.

MDMai's 12-agent AI architecture analyzes every encounter note across every known billable encounter type from every known medical facility type. The system identifies undercoded visits, triggers appropriate additional billing codes (HCPCS, prolonged services, critical care), and ensures documentation supports the level of complexity actually delivered, not the lower level that exhausted physicians and defensive billers typically capture.

The Strategic Innovation: Data as the Competitive Moat

MDMai is offered free to physician practices. This is not philanthropy. It is strategy. Every encounter note processed through MDMai feeds AHI's Healthcare Analytics Intelligence (HAL) platform, creating the world's first complete clinical encounter note database. While competitors in healthcare AI train their models on claims data, textbooks, or synthetic datasets, AHI's models train on real clinical encounter notes — the richest, most granular source of medical knowledge in existence.

The United States generates approximately 3–4 billion clinical encounter notes annually. These notes contain the actual clinical reasoning, diagnostic patterns, treatment decisions, and outcomes data that no other data source captures. They are scattered across thousands of incompatible EHR systems, inaccessible to researchers, AI developers, and the physicians who wrote them. AHI's free MDMai platform aggregates these notes ethically and at scale, creating a data asset that no competitor can replicate because no competitor has the distribution mechanism to collect it.

> *The encounter note is simultaneously the root cause of healthcare's dysfunction and the most valuable dataset in medicine. AHI is the first organization to recognize both truths and build a platform that addresses both — fixing the document that broke American healthcare while unlocking its potential to heal it.*

ABOUT ARTIFICIAL HEALTHCARE INTELLIGENCE

Artificial Healthcare Intelligence (AHI) is a 501(c)(3) nonprofit healthcare technology organization headquartered in the United States. Founded by John Leoniak, a software engineer with over 30 years of experience and more than a decade in healthcare operations, AHI was born from watching the crisis happen firsthand: his wife, Dr. Jennifer Leoniak, a board-certified infectious disease specialist who owns an infectious disease practice serving a population of over 300,000, was spending more time on documentation than with patients and family.

During the COVID-19 pandemic, the practice's daily patient encounters exploded from 10–15 to 100–120 for three consecutive years, generating over 100,000 encounter notes across involving most medical specialties. This experience provided unique insight into both the documentation burden destroying physician quality of life and the extraordinary clinical value locked within encounter notes that no one was capturing.

AHI's product suite includes MDMai (medical documentation and billing optimization), HAL (Healthcare Intelligence), HALi (patient-facing Healthcare Intelligence), CODEai, REFERRALai, and ENCOUNTERai. Dr. Jennifer Leoniak serves as Chief Medical Officer, providing the clinical validation essential for healthcare Intelligence systems that demand zero error tolerance.

Contact

For media inquiries, partnership discussions, or additional information:

Artificial Healthcare Intelligence (AHI)

REFERENCES

The following sources were consulted in the preparation of this white paper. All statistics, findings, and claims are traceable to the original publications cited below.

AMA. (2024). Physician Practice Benchmark Survey. American Medical Association.

AMA. (2025). Medicare Payment Analysis: Physician Payment Trends 2001–2025. American Medical Association.

AMA. (2025). Competition in Health Insurance: A Comprehensive Study of U.S. Markets. American Medical Association.

AMA. (2024). Prior Authorization Physician Survey. American Medical Association.

Arndt, B.G. et al. (2017). Tethered to the EHR: Primary Care Physician Workload Assessment. Annals of Family Medicine, 15(5), 419–426.

Candon, M. et al. (2018). The Effect of Medicaid Reimbursement Rates on Access to Primary Care. Health Affairs.

Chetty, R. et al. (2016). The Association Between Income and Life Expectancy in the United States. JAMA, 315(16), 1750–1766.

CMS. (2021). Evaluation and Management Services Guidelines. Centers for Medicare & Medicaid Services.

CMS. (2025). Medicare Physician Fee Schedule: Final Rule. Centers for Medicare & Medicaid Services.

Commonwealth Fund. (2022). How Differences in Payment Rates Impact Access, Health Equity, and Cost.

Commonwealth Fund. (2024). Mirror, Mirror 2024: A Portrait of the Failing U.S. Health System.

Downing, N.L., Bates, D.W. & Longhurst, C.A. (2018). Physician Burnout in the Electronic Health Record Era. Annals of Internal Medicine, 169(1), 50–51.

EPIC for America. (2024). Health Insurance Revenues Tripled in a Decade. Revenue Analysis.

Harvard Medical School. (2025). Impact of Private Equity Acquisition on Hospital Outcomes. Annals of Internal Medicine.

HHS OIG. (2022). Medicare Advantage Organization Denials of Prior Authorization Requests. Office of Inspector General.

Himmelstein, D.U., Woolhandler, S. & Campbell, T. (2020). Health Care Administrative Costs in the United States and Canada, 2017. Annals of Internal Medicine, 172(2), 134–142.

HRSA. (2024). Uniform Data System National Report. Health Resources and Services Administration.

Hsiang, W.R. et al. (2019). Medicaid Patients Have Greater Difficulty Scheduling Appointments. American Journal of Managed Care.

KFF. (2025). Claims Denials and Appeals in ACA Marketplace Plans in 2023. Kaiser Family Foundation.

KFF. (2025). Employer Health Benefits Survey. Kaiser Family Foundation.

MACPAC. (2025). Evaluating the Effects of Medicaid Payment Changes on Access to Physician Services.

MACPAC. (2023). Supplemental Payment Analysis: Fee-for-Service and Managed Care.

Mello, M.M. et al. (2010). National Costs of the Medical Liability System. Health Affairs, 29(9), 1569–1577.

MGMA. (2024). Practice Benchmark Data. Medical Group Management Association.

Dunn, A., Gottlieb, J.D., Shapiro, A., Sonnenstuhl, D. & Tebaldi, P. (2024). A Denial a Day Keeps the Doctor Away. Quarterly Journal of Economics (originally NBER Working Paper 29010, 2021).

Olson, A. et al. (2025). AI Ambient Documentation and Physician Burnout. JAMA Network Open.

Overhage, J.M. & McCallie, D. (2020). Physician Time Spent Using the EHR. Annals of Internal Medicine, 172(3), 169–174.

Physicians Foundation. (2024). Physician Survey Report.

Physician Advocacy Institute. (2024). Physician Employment Trends Report.

Polsky, D. et al. (2015). The Effect of the Medicaid Primary Care Fee Bump. NEJM, 373, 1374–1375.

ProPublica. (2023). How Cigna Saves Millions by Having Its Doctors Reject Claims Without Reading Them.

RAND Corporation. (2010). Weinick, R.M., Burns, R.M. & Mehrotra, A. How Many ED Visits Could Be Managed Elsewhere. Health Affairs.

Rule, A. et al. (2021). Changes in Outpatient Clinical Note Length. JAMA Network Open.

Sinsky, C. et al. (2016). Allocation of Physician Time in Ambulatory Practice. Annals of Internal Medicine, 165(11), 753–760.

Taubman, S.L. et al. (2014). Medicaid Increases Emergency Department Use. Science, 343(6168), 263–268.

Panagioti, M. et al. (2018). Association Between Physician Burnout and Patient Safety, Professionalism, and Patient Satisfaction: A Systematic Review and Meta-analysis. JAMA Internal Medicine, 178(10), 1317–1330.

UnitedHealth Group. (2019). The High Cost of Avoidable Emergency Department Visits.

Wang, M.D. et al. (2017). Content and Template-Based Strategies in Electronic Health Record Progress Notes. JAMA Internal Medicine.

West, C.P. et al. (2006). Association of Resident Fatigue and Distress with Perceived Medical Errors. JAMA, 296(9), 1071–1078.