AHI ARTIFICIAL HEALTHCARE INTELLIGENCE · 501(C)(3)

PART 1 OF 2 · WHITEPAPER

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.

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

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SUMMARY

Executive Summary

The United States spends $5.3 trillion annually on healthcare. That is 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. 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, and the lack of universal coverage each capture a piece of the truth. None captures the root cause.

KEY POINT

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 ten 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. The paper then shows, in a section titled The Snowball, what that cascade looks like on the ground, as independent practices close, communities lose their local clinicians, patients are absorbed by corporate systems at prices about 14 percent higher, physicians are converted into supervisors of nurse practitioners and physician assistants, remaining physicians leave clinical medicine, and the entire bill migrates to the federal taxpayer through Medicare, Medicaid, FQHC grants, Disproportionate Share Hospital payments, and emergency department uncompensated care. It closes with a Counterfactual section showing what this system looks like in reverse, once the economics of the encounter note are fixed.

The system stays rigged because the industry that profits from the status quo spends more on federal lobbying than any other industry in the United States, roughly $751 million in 2024 alone by OpenSecrets' accounting. Private insurers, whose structural economics disfavor enrolling lower-income and chronically ill patients, depend on government programs to absorb exactly those populations. That is why the political equilibrium in American healthcare consistently favors more total spending, split in a way that routes unprofitable cases to the taxpayer and profitable cases to the shareholder. The encounter note is the instrument underneath all of it.

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 percent of GDP, with last-place outcomes among 10 peer nations.

What is new in this paper 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 framework and 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 technology intended to do exactly that. AHI's AI-powered platform, MDMai, processes clinical encounter notes to support physicians in optimizing documentation, capturing appropriate reimbursement, and reducing the administrative burden that drives every downstream failure described in this paper. The evidence suggests that fixing the encounter note does not only help physicians. It begins unwinding the entire $5.3 trillion cascade.

THESIS

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 paid for what they document, not only for what they do. 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. For the payment system, the note is effectively the visit.

KEY POINT

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	Roughly 2:1 admin-to-face-time ratio; 1–2 hours of “pajama time” nightly
Link 3	Burnout degrades clinical decisions	49–60 percent burnout rate; error and defensive medicine concerns
Link 4	Reimbursement declines	33 percent real Medicare pay cut since 2001; overhead about 64 percent of revenue
Link 5	Access disparities follow the money	74 percent Medicaid acceptance vs. 96 percent private insurance
Link 6	Independent practice collapses	60 percent private practice (2012) to 42 percent (2024); 78 percent employed by hospitals or corporate entities
Link 7	Taxpayer-funded workarounds expand	$49.6B FQHC revenue (2024) plus ~$9.4B in state supplemental and directed payments tied to physician services (MACPAC)
Link 8	ERs become primary care	Medicaid ED rate 97 per 100 persons vs. private 23 per 100; large cost multiple
Link 9	Insurers industrialize denial	19 percent of in-network HealthCare.gov claims denied (2023); under 1 percent appealed; 56 percent of appealed denials upheld
Link 10	Wealth-health sorting accelerates	14.6-year life expectancy gap between richest and poorest American men

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



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. 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 to 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 in 2024) and a Level 5 visit (99215, approximately $180 Medicare in 2024) 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 widespread and economically significant. AAPC has reported CMS error-rate data from 2004 in which 14.4 percent of claims were undercoded. That data predates the 2021 E/M reform and coding distributions may have shifted since, but the direction of the problem is the same: when documentation falls short, the claim is billed below the care delivered. Dunn, Gottlieb, Shapiro, Sonnenstuhl, and Tebaldi have documented that physicians lose about 18 percent of the value of Medicaid claims to billing problems,

compared with 4.7 percent for Medicare and 2.4 percent for commercial payers. The NBER summary of the same work, using a closely related series (17.4 percent for Medicaid), puts the average loss at $12.09 per Medicaid visit from administrative friction alone.

Every dollar that follows in this paper flows through what the physician wrote in the encounter note.

KEY POINT

Sources: CMS E/M Guidelines (2021); CMS Physician Fee Schedule (2024); AAPC, reporting CMS 2004 error-rate data; Dunn, Gottlieb, Shapiro, Sonnenstuhl & Tebaldi, NBER Working Paper (2021), published in Quarterly Journal of Economics (2024)

LINK 2 OF 10

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 percent of their office day on direct clinical face time versus 49.2 percent on EHR and desk work: roughly two hours of paperwork for every hour

with a patient. Even while in the exam room, 37 percent 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 in one Wisconsin health system spent an average of 86 minutes per weekday on EHR tasks after clinic hours. 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 percent spent more than 8 hours weekly on EHR work outside of office hours. That share was 20.9 percent in both 2022 and 2023 and rose in 2024, even as overall burnout fell from 53 percent to 43.2 percent over the same period, 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 the highest specialty groups averaging 18 to 22 minutes per encounter.

Notes Several Times Longer Than in Peer Countries

American clinical notes are several times longer than those written by physicians in other countries using the same EHR software. Downing, Bates, and Longhurst reported in a 2018 Annals of Internal Medicine commentary, drawing on Epic data, that U.S. notes were roughly four times as long as notes written by physicians in other countries. 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 percent from 401 words (2009) to 642 words (2018). Wang et al.’s study in JAMA Internal Medicine (2017) found only 18 percent of note text was typed manually; 46 percent was copied from prior notes and 36 percent 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 percent from 2020 to 2023.

2 : 1. Ratio of administrative time to direct patient care for physicians, per Sinsky et al., Annals of Internal Medicine (2016).

This burden exists because the note is the ledger. The thousand-plus hours per year physicians spend documenting are not a side effect. They are the price the payment system charges to process the encounter note.

KEY POINT

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 OF 10

BURNOUT DEGRADES CLINICAL DECISION-MAKING

The documentation burden identified in Link 2 is a primary driver of a physician burnout crisis that now affects a majority of practicing physicians in the United States. Research has linked burnout to more medical errors, more defensive medicine, and substantial unnecessary costs.

The Burnout Epidemic

Physician burnout has reached crisis levels. The Physicians Foundation 2024 survey of 1,723 physicians, residents, and medical students found 60 percent report frequent burnout, a majority for the fourth straight year and up from about 40 percent in 2018. The Medscape 2024 Physician Burnout and Depression Report found 49 percent of physicians reported burnout, with emergency medicine (63 percent), internal medicine (50 percent), and pediatrics (51 percent) among the hardest hit. Most critically for this thesis, 62 percent of burned-out physicians identified bureaucratic tasks, primarily EHR documentation and

charting, as the leading contributor to burnout. Patient complexity, malpractice risk, and compensation each ranked well below.

The Burnout-Error Connection

Burnout is associated with a higher rate of self-reported medical errors and perceived reductions in safety. West et al. found in a 2006 JAMA study of medical residents that distress was prospectively associated with perceived medical errors. (A frequently cited 2018 meta-analysis on this topic was retracted in 2020 and is therefore not included here; the remaining primary studies independently support the association.)

Defensive Medicine: The Cost of Fear

In a JAMA survey of 824 Pennsylvania physicians in six high-liability specialties (emergency medicine, orthopedic surgery, obstetrics/gynecology, and similar fields), Studdert et al. found 93 percent reported practicing some form of defensive medicine. Physician self-assessments summarized in public policy reporting have suggested that roughly one-fifth of medical care is unnecessary, a pattern broadly consistent with Institute of Medicine estimates that the U.S. health system contains hundreds of billions of dollars in wasteful or low-value spending each year. Estimates of the total cost of the medical liability system reach $55.6 billion annually (Mello et al., Health Affairs, 2010, based on 2008 data), of which about $45.6 billion is defensive medicine, with the rest in litigation costs and insurance overhead. Industry-sponsored physician surveys by Jackson Healthcare have put the figure much higher, between $650 and $850 billion annually when accounting for all downstream effects, but these are physician self-reported projections rather than peer-reviewed estimates and should not be treated as comparable to the Mello et al. figure.

Practice size appears to affect 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 13.5 percent, compared with a national average closer to 54 percent at the time. This fourfold difference was attributed to greater autonomy, deeper patient relationships, fewer work hours, and higher adaptive reserve in small practices.

Burnout degrades the clinical decisions captured in the next encounter note, which reduces the quality and accuracy of the document that sets the next payment, which drives the next hour of after-hours charting. The loop tightens inside the note.

KEY POINT

Sources: Physicians Foundation (2024); Medscape Physician Burnout and Depression Report (2024); West et al., JAMA (2006); Studdert et al., JAMA (2005); Mello et al., Health Affairs (2010); Institute of Medicine / National Academies reporting on wasteful spending; Shelley et al., Journal of the American Board of Family Medicine (2018)

LINK 4 OF 10

REIMBURSEMENT IS DECLINING WHILE COSTS EXPLODE

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

The Great Physician Pay Cut

Medicare physician payments have declined roughly 33 percent in inflation-adjusted terms since 2001, according to AMA analyses of Medicare Economic Index data. While the cost of running a medical practice increased approximately 59 percent from 2001 to 2025, the Medicare physician conversion factor fell about 15.5 percent in nominal terms, from $38.26 in 2001 to $32.35 in 2025. The 2025 Medicare physician fee schedule conversion factor is $32.35, down 2.83 percent from 2024's $33.29. The AMA notes that if the conversion factor had kept pace with practice cost inflation since 2001, it would be substantially higher than today's figure (AMA analysis suggests the cumulative real cut is roughly one-third). The AMA has formally described physician private practice as "unraveling" under the combined weight of flat payment, rising costs, and administrative burdens.

The Overhead Trap

Practice overhead consumes roughly 64 percent of revenue, according to MGMA's 2018 benchmark data. The same data shows staff costs alone represent approximately 26 percent of revenues and about 41 percent of total overhead. Combined with rent, malpractice insurance, EHR systems, billing staff, and supplies, the typical practice retains only about 36 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, and typically with over $200,000 in medical school debt and a decade of lost earning years behind them. The AMA reports that practice operating costs have increased 59 percent since 2001 while the Medicare conversion factor actually declined from $38.26 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 well above Medicare rates; a RAND analysis of 2020 commercial claims found commercial prices averaged roughly 163 percent of Medicare for professional services (and 224 percent for hospital facility services). Medicare is the baseline at 100 percent. Medicaid pays on average about three-quarters of Medicare, 0.72 in 2019 and 0.75 in 2024 by KFF's Medicaid-to-Medicare fee index, and only 0.66 for primary care. In some low-rate states the gap is far worse: Florida's Medicaid fee schedule lists a 99213 visit at $34.29 for some provider categories, near the bottom of state Medicaid rates for that code, which range from about $35 to $165 with a median near $71.

The Provider's Arithmetic: Starting Every Visit in the Red

Every discussion of reimbursement eventually has to confront the arithmetic that physicians face when the exam room door opens. A typical independent primary care practice carries roughly $150 to $250 in fully loaded overhead per patient visit, covering rent, staff salaries and benefits, malpractice insurance, electronic health record subscriptions, billing service fees, supplies, utilities, and practice management. That per-visit overhead is a function of the practice's fixed costs divided by patient volume. It is not optional, and it does not decline when the payer does.

Set that overhead against the three-tier payment structure and the consequence is arithmetic, not ideology. A commercial 99213 visit at roughly $125 to $150 can cover overhead and leave margin. A Medicare 99213 at approximately $90 generally covers overhead and leaves a thin

margin. A Medicaid 99213 at the bottom of the state range, such as Florida's $34.29 rate, is a loss per encounter. The physician is in the red the moment the patient walks in. She makes it up on volume from better-paying patients, or she stops accepting the lower-paying ones, or she goes out of business. That is the entire economic logic of the access crisis described in Link 5.

Because payment is determined by what the encounter note documents, this arithmetic runs through the note. A visit that is genuinely complex but sparsely documented is billed at the lower, loss-making level. The note is where overhead meets payment, and where both begin the cascade.

The State Cost-Reimbursement Scissor

The squeeze on independent practice is not uniform across the country. It is worst in states where operating costs are rising and reimbursement is not. California is the clearest case.

Senate Bill 525, signed in October 2023 and, after delays, in effect from October 16, 2024, raised the minimum wage for healthcare workers in California to a floor that for large health systems started at $23 per hour and escalates toward $25 per hour by 2026, with other categories of healthcare employers on slower schedules that reach $25 between 2028 and 2034. The policy meaningfully raised the wage floor for medical assistants, front-office staff, and technicians who make up the single largest line item in most practice budgets. Medi-Cal physician fee-for-service rates did not rise to match. Commercial carriers did not rise to match. Medicare did not rise to match; in fact, the 2025 Medicare physician conversion factor fell 2.83 percent. The result is a healthcare wage floor roughly 40 to 50 percent above California's general minimum wage against flat or declining reimbursement, a scissor that compresses practice margin until it disappears.

California is not alone in the pattern, but the intensity varies by state:

REPRESENTATIVE STATE	HEALTHCARE / DIRECT-CARE WAGE FLOOR
Medicaid-to-Medicare Fee Ratio (approx.)	Reimbursement Trend
California	$23+/hour under SB 525 (2024–), phased to $25
~0.67 (Medi-Cal, 2024)	Flat Medi-Cal; 2025 Medicare CF cut 2.83%
New York	No state healthcare wage floor; minimum $16.50 in New York City area, $15.50 elsewhere (2025)
~0.76 (2024)	Rose from 0.57 (2019)
Illinois	Chicago-area wage floors; no statewide healthcare-specific
~0.63 (2024)	Flat

REPRESENTATIVE STATE	HEALTHCARE / DIRECT-CARE WAGE FLOOR
Washington	No statewide healthcare wage floor; state minimum $16.66
~0.64 (2024)	Declined from 0.69 (2019)
Texas	No state healthcare wage floor; state minimum $7.25 federal
~0.63 (2024)	Flat
Florida	No state healthcare wage floor; state minimum $14.00 from Sept. 30, 2025 (phasing to $15)
~0.64 (2024)	Rose modestly from 0.58 (2019); 99213 $34.29 for some provider types
Georgia	No state healthcare wage floor; state minimum $7.25 federal
~0.83 (2024)	Flat

(Medicaid-to-Medicare ratios from KFF's Medicaid-to-Medicare fee index, all services, 2024, with 2019 values for trend; state minimum wages per Department of Labor and state labor agencies, 2025; California SB 525 text and Department of Industrial Relations. Ratios vary by service category.)

The pattern is that states imposing real wage-floor increases on healthcare labor have not paired those increases with corresponding Medicaid or Medi-Cal physician rate increases, and commercial carriers have not re-negotiated rates upward in proportion. Operating costs therefore climb while reimbursement stays flat. The scissor cuts hardest at practices with large Medicaid panels and concentrates the access collapse in exactly the populations public policy claims to protect. The encounter note is still the only mechanism through which any of this money flows, which is why any solution that does not fix the note simply watches the scissor close.

KEY POINT

Sources: AMA Medicare Payment Analysis (2025); AMA Medicare conversion factor history; CMS Fee Schedule (2025); MGMA (2018); RAND Corporation (2022); Commonwealth Fund Payment Rate Analysis (2022); KFF Medicaid-to-Medicare Fee Index (2019, 2024); Florida AHCA Medicaid fee schedule; California SB 525 (2023); U.S. Department of Labor State Minimum Wage Data; California Department of Industrial Relations

LINK 5 OF 10

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 74.3 percent of physicians accept new Medicaid patients, compared with 87.8 percent for Medicare and 96.1 percent for private insurance. MACPAC analysis of NCHS National Electronic Health Records Survey data (2017) found a persistent 20–plus percentage point gap between Medicaid and private insurance acceptance rates. The gap is far worse in specialty care: only 35.4 percent of psychiatrists accept Medicaid (Wen et al., JAMA Psychiatry, 2019). Geographic variation is extreme. Acceptance ranges from 42.2 percent in New Jersey to 99.4 percent in North Dakota, correlating directly with state-level reimbursement rates.

Care Is Concentrated Among a Shrinking Subset of Providers

Commonwealth Fund analysis of 2014 to 2019 data found that one-third of office-based primary care physicians account for 90 percent of all Medicaid office visits. Hsiang et al.'s systematic review of audit studies, published in Inquiry (2019), found Medicaid insurance was associated with an approximately 3.3–fold lower likelihood of successfully scheduling specialty care compared with private insurance.

The Hidden Labor Tax: Why Federally-Protected Patients Cost More to See

Reimbursement is only half of the economic equation. The other half is the labor cost per encounter, and federally-protected populations (Medicaid, Medicare dual-eligibles, certain federal programs) systematically consume more staff time per visit than commercially insured patients. The raw reimbursement comparison understates the gap because it does not net out this labor tax.

No-show rates are high across outpatient care. A 2018 systematic review by Dantas et al. put the worldwide average at about 23 percent, and Kheirkhah et al. (BMC Health Services Research, 2016) found 18.8 percent at a single VA clinic. Neither study breaks rates out by insurance, but practices with large Medicaid panels describe rates at the high end of that range, with considerable variation by specialty, geography, and social determinants. Each no-show represents not only the lost visit revenue but also the front-office time already spent booking, confirming, and preparing for the appointment. Practices that see predominantly Medicaid patients double-book defensively to absorb the volatility, which creates waiting-room crowding, workflow compression, and lower satisfaction for every patient in the panel.

The administrative labor per Medicaid encounter is also higher on the front end. Medicaid eligibility must be re-verified at least monthly in most states because coverage can drop for renewal paperwork, missed redeterminations, or address changes. Prior authorizations for diagnostic imaging, specialty referrals, and medications are more frequent for Medicaid patients, and the AMA's 2024 survey found that physicians and their staff complete approximately 39 prior authorizations per physician per week and spend about 13 hours per week on prior-authorization processes; those hours are not evenly distributed across payers. Referral coordination, transportation arrangements, interpreter services, and social-determinant follow-ups also skew toward publicly insured patients. Patients more often arrive without up-to-date lab results, outside imaging, or complete medication lists, requiring staff to spend meaningful time reconstructing the clinical record before the physician can see the patient.

The downstream effect on the encounter is direct. More pre-visit labor plus more post-visit follow-up plus a higher no-show rate compounds into a structurally higher cost per Medicaid encounter, before the physician even opens the encounter note. Stack that higher labor cost against a reimbursement as low as $34 for a 99213 in the lowest-rate states and the per-visit economics are not salvageable on volume. The practice either loses money on each Medicaid encounter or stops accepting new Medicaid patients. This is not preference. It is arithmetic, and it is why the access gap in Link 5 follows payment so precisely. The note is the downstream artifact of an upstream economic problem, and the encounter note is still where the money flows.

The Proof That Higher Rates Fix Access

The ACA fee bump provided the closest thing to a controlled experiment. In 2013 and 2014, the Affordable Care Act temporarily raised Medicaid primary care rates to 100 percent of Medicare, fully federally funded. Polsky et al. (2015, NEJM) found a 7.7 percentage point increase in the probability of obtaining a Medicaid appointment across 10 states. Candon et al., published in JAMA Internal Medicine (2018), found the reverse when the bump ended: as fees fell, each $10 decline in primary care fees was associated with an approximately 1.7 percentage point drop in appointment availability.

Then 34 states let the rates expire. The Urban Institute projected that expiration would cut primary care fees for eligible providers by an average of 42.8 percent nationally, and Candon et al. later observed fee declines of about 29.5 percent across 10 states. Rather than make the rate increase permanent, government chose to build a parallel system, spending tens of billions of dollars a year on FQHCs and on supplemental payments tied to physician services instead.

Access follows payment because payment follows the note. A physician cannot afford a patient whose encounter note generates less revenue than the visit costs to deliver. The access gap is the direct output of the note-centered payment architecture.

KEY POINT

Sources: MACPAC (2017); Commonwealth Fund (2022); Polsky et al., NEJM (2015); Candon et al., JAMA Internal Medicine (2018); Hsiang et al., Inquiry (2019); Wen et al., JAMA Psychiatry (2019); Urban Institute ACA Fee Bump Projection; Kheirkhah et al., BMC Health Services Research (2016); Dantas et al. systematic review (2018); AMA Prior Authorization Survey (2024)

LINK 6 OF 10

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 fallen from 60.1 percent in 2012 to 42.2 percent 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 percent of physicians are truly independent, with 77.6 percent employed by hospitals, health systems, or corporate entities. Private equity-owned practices now employ 6.5 percent of physicians, up from 4.5 percent in 2022, according to the AMA.

Who Owns the Doctors Now

The consolidation has produced a short list of corporate employers at a scale no prior generation of American medicine has seen. Optum, the provider arm of UnitedHealth Group, employs or contracts with more than 90,000 physicians as of 2025, approximately 10 percent of the entire U.S. physician workforce. HCA Healthcare employs or affiliates with more than 45,000 physicians. Ascension carries roughly 49,000. Kaiser Permanente's Permanente Medical Groups together employ roughly 25,000. A single insurer-owned entity is now the largest employer of physicians in the country, and the top five corporate employers together account for a double-digit share of all U.S. physicians. Independent medicine did not lose out in a fair contest. It lost out to entities with the balance-sheet depth to absorb the documentation, billing, denial-management, and payer-negotiation burden that the note-based payment system imposes on every practice in America.

The Rural and Community Hospital Closures

The consolidation wave is not limited to practice acquisition. When the economics of the encounter note no longer support independent practice, they also no longer support the small community hospital that depends on that practice for admissions and referrals. The Cecil G. Sheps Center for Health Services Research has tracked 154 rural hospital closures and conversions since 2010. The Center for Healthcare Quality and Payment Reform reports

that more than 700 rural hospitals, roughly one in three nationwide, are currently at risk of closure, and Chartis found in 2025 that 46 percent of rural hospitals operate on negative margins. Nearly one quarter of rural obstetric units closed between 2011 and 2021; 382 rural hospitals stopped providing chemotherapy between 2014 and 2022. When a community hospital closes, its catchment population does not disappear. It is rerouted, often by an hour or more, to the nearest regional system, which is almost always a large corporate owner.

Why Physicians Sell: Economic Pressure More Than Preference

Physicians overwhelmingly prefer independence but cannot afford it. AMA survey data shows 70.8 percent of physicians who sold their practices cited the need to better negotiate higher payment rates with payers as important or very important. Bain & Company's 2024 Frontline of Healthcare Survey reported that physicians in hospital-led settings expressed markedly lower satisfaction than those in physician-owned practices, with net promoter scores well below those of independent physicians.

The Patient Cost of Consolidation

Hospital acquisition of physician practices is associated with price increases without measurable improvements in quality. Peer-reviewed work by Capps, Dranove, and Ody found that prices for physician services rose approximately 14 percent following hospital acquisition of the practice. Baker, Bundorf, and Kessler found that vertical integration increased total health spending because higher prices were not offset by lower volume. KFF's 2020 consolidation brief summarized the same evidence, finding hospital-physician consolidation resulted in average price increases of roughly 14 percent for physician services, with no measurable improvement in quality metrics. A Harvard-led study of private equity hospital acquisitions by Kannan, Bruch, and Song (JAMA, 2023) found hospital-acquired adverse conditions rose about 25 percent after acquisition, including 27 percent more falls and about 38 percent more central-line infections. A NORC survey found 61 percent of employed physicians have moderate or low autonomy to make referrals outside their ownership system, 47 percent face policies or financial incentives to adjust treatment to reduce costs, and 70 percent face incentives or penalties to see more patients per day.

The Physician Exodus the Consolidation Creates

Many physicians who sold their practices did so expecting stability. What they frequently encounter instead is an employer whose economics depend on maximizing visit volume per provider and on substituting lower-cost clinicians wherever scope of practice permits. The result is a second wave of departures, this time out of clinical medicine entirely. The Physicians Foundation's 2024 Survey of America's Physicians, fielded with 1,020 physicians along with residents and medical students, found that roughly six in ten physicians report burnout and nearly half report feelings of inappropriateness or disengagement. Medscape's 2024 Physician Burnout and Depression Report surveyed more than 9,000 physicians and found 49 percent reporting burnout, with bureaucratic and administrative tasks the single most cited contributor. When the employed physician's autonomy shrinks, their scope of supervision expands, and their documentation burden stays constant, the rational response is to leave. Every physician who leaves concentrates the same patient volume on a smaller remaining workforce, which further degrades the quality of every encounter note that remains.

Independent practice did not collapse because physicians stopped wanting it. It collapsed because the economics of a note-based payment system made independence impossible for anyone without the negotiating leverage of a hospital system behind them.

KEY POINT

Sources: AMA Physician Practice Benchmark Survey (2024); Physician Advocacy Institute (2024); Becker's Hospital Review on Optum physician employment (2025); Cecil G. Sheps Center for Health Services Research rural hospital closure data (2024); Center for Healthcare Quality and Payment Reform rural hospital risk analysis; Chartis 2025 Rural Health State-by-State; Bain & Company (2024); Capps, Dranove & Ody (2018); Baker, Bundorf & Kessler on vertical integration; KFF Consolidation Brief (2020); Physicians Foundation 2024 Survey of America's Physicians; Medscape Physician Burnout and Depression Report (2024); Kannan, Bruch & Song, JAMA (2023); NORC / Physicians Advocacy Institute Survey (2023)

LINK 7 OF 10

THE FQHC WORKAROUND, A MULTIBILLION-DOLLAR TAXPAYER DETOUR

When private practices cannot afford to see Medicaid patients, those patients must go somewhere. Rather than adjust the reimbursement rates that drive the access gap, the federal government has built an increasingly parallel healthcare delivery system, funded by taxpayers at multiples of 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, roughly one in ten Americans. HRSA's 2024 Uniform Data System reports 1,359 FQHC program awardees, and the health center network operates over 17,000 delivery sites, employs 326,000 full-time staff, and conducts about 139 million patient visits per year. Total FQHC revenue reached $49.6 billion in 2024, up from $12.7 billion in 2010, nearly a fourfold increase in 14 years. Federal Section 330 grant funding more than doubled from 2010 to 2019, rising from approximately $2.2 billion to $5.6 billion annually (HRSA budget records).

The Reimbursement Differential That Tells the Story

FQHCs receive a bundled per-visit payment under the Prospective Payment System that is well above what a private practice receives in Medicaid fee-for-service payment for the same visit. The 2025 Medicare FQHC PPS base rate is $202.65 per visit, with new patient rates at $271.88, while state Medicaid fee-for-service rates for a 99213 visit have a median near $71. Meanwhile, the Medicaid-to-Medicare physician fee ratio has stayed well below parity, at 0.72 in 2019 and 0.75 in 2024 by KFF's fee index, and only 0.66 for primary care. FQHC revenue nearly quadrupled while the underlying rate structure barely moved.

The Total Taxpayer Cost

$49.6 BILLION. Total FQHC revenue in 2024 (KFF), supported by about $34 billion in HRSA grants over fiscal years 2018 to 2022 (GAO), alongside roughly $9.4 billion in state supplemental and directed payments tied to physician services (MACPAC).

States spend billions more annually on supplemental workaround payments. MACPAC's January 2024 analysis found that states made roughly $1.6 billion in fee-for-service supplemental payments to physicians in 2021 and had approximately $7.8 billion in managed care directed payment arrangements tied to physician services as of February 2023, together about $9.4 billion in supplemental physician payments. Combined with an FQHC system whose revenue now approaches $50 billion, government is spending tens of billions of dollars annually on workaround structures rather than addressing the underlying Medicaid rate gap. 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.

The workaround exists because policy chose to build a parallel system rather than fix the document that broke. That spending is the price of avoiding the encounter note rather than repairing it.

KEY POINT

Sources: HRSA Uniform Data System (2024); KFF on FQHC revenue (2024); GAO-24-106815; CMS FQHC PPS Rates (2025); KFF Medicaid-to-Medicare Fee Index (2019, 2024); state Medicaid 99213 fee schedules; MACPAC Supplemental Payment Analysis (January 2024); NACHC Research

LINK 8 OF 10

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, or because transportation and scheduling barriers interfere, they delay care until it becomes urgent. Then they go to the emergency room.

The Utilization Disparity

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

The Cost Multiplier

Treating common conditions in an ER costs approximately 12 times more than in a physician's office, according to UnitedHealth Group's 2019 analysis of claims data, which put the average cost of treating 10 common primary care conditions in an ED at $2,032 versus $167 at a physician's office. The RAND Corporation estimated that 13.7 to 27.1 percent of ED visits could be managed at retail clinics or urgent care centers. UnitedHealth Group puts the savings opportunity from avoidable ED visits by privately insured patients alone at $32 billion a year. The Oregon Health Insurance Experiment, the only randomized controlled trial of Medicaid coverage, found Medicaid increased ED use by 40 percent 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. A widely cited 2003 AMA study of physician practice costs estimated the average emergency physician incurred approximately $138,300 per year in EMTALA-related bad debt, in 2003 dollars; ACEP has since cited this figure in its policy materials, though the underlying estimate has not been independently updated at that level of granularity. AHA data shows hospitals provided nearly $745 billion in uncompensated care from 2000 to 2020. Annual uncompensated care

reached $42.67 billion in 2020, partially offset by approximately $15 billion in annual DSH payments, another taxpayer-funded workaround.

ED utilization at twelve times the cost of an office visit is the downstream cost of the access the note-based payment system could not deliver. Every avoidable ED visit is a note the primary care practice was not economically able to write.

KEY POINT

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

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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 in-network claims on HealthCare.gov plans were denied in 2023, up from 16 percent the year before. KFF's January 2025 analysis of CMS transparency files found that across HealthCare.gov insurers in 2023, approximately 73 million of 392 million in-

network claims were denied. Among the largest insurers, rates ranged from Elevance Health at 23 percent to Blue Cross Blue Shield of Alabama at 35 percent; across all insurers they ran from 1 percent to 54 percent. 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

Fewer than 1 percent of denied claims are appealed, yet a large share of those appeals succeed. KFF data shows approximately 376,527 internal appeals were filed out of roughly 73 million HealthCare.gov denials in 2023, an appeal rate well below 1 percent. Insurers upheld 56 percent of those appealed denials on internal review. In Medicare Advantage, a Health Affairs (2025) analysis of 2019 claims found 57 percent of initially denied claims were ultimately overturned. The HHS Office of Inspector General (2018) found Medicare Advantage plans reversed 75 percent of the denials that were appealed to them, most of them payment denials rather than prior authorization denials, and KFF found that 80.7 percent of appealed Medicare Advantage prior authorization denials were overturned in 2024. These numbers come from different datasets, denial types, and populations and should not be combined as a single range, but they point to a consistent conclusion: when providers have the capacity to appeal, a substantial share of denials are reversed. The denial system works in large part because providers cannot afford to fight it.

Defensive Undercoding: Leaving Money on the Table

The threat of denial and audit creates a chilling effect that causes systematic underbilling. AAPC has reported CMS error-rate data from 2004 in which 14.4 percent of claims were undercoded, and the pattern has not gone away. 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 approximately 39 prior authorizations per physician per week, spending about 13 hours weekly on PA processes, yet KFF found that 93.6 percent of Medicare Advantage prior authorization requests were approved in 2023, and 81.7 percent of the denials that were appealed were overturned, making the exercise function largely as a delay mechanism rather than a clinical gatekeeping tool.

Pay by Intimidation: The Closed Loop That Locks Undercoding In

Defensive undercoding does not persist because physicians want lower reimbursement. It persists because the economics of the billing workflow actively punish physicians who try to code accurately. This is the closed loop we call "pay by intimidation," and it is one of the most important and least discussed mechanisms in the cascade.

The loop runs as follows. A physician documents thoroughly and codes a visit at the level the encounter note supports. The claim goes out. The payer denies or downcodes the claim through automated review, often in seconds, often without reading the note. The claim now has to be appealed. Appeals are not free. A medical biller working at a typical commission of roughly 7 to 10 percent of collected revenue sees a denied claim as a negative-expected-value task. Representative appeal workflows take on the order of 30 to 60 minutes per claim by the time the biller pulls the encounter note, assembles supporting documentation, drafts and submits the appeal letter, tracks the status, and follows up. At standard biller labor rates, that is roughly $25 to $60 in labor cost for a claim that might ultimately recover $100. With a 10 percent commission on recovery, the biller collects $10 gross on a claim that cost $40 to appeal, a net loss of $30 per claim even when the appeal is successful.

The economic implication is precise and unforgiving. When appeals are individually unprofitable for the biller, the biller's incentive is to advise the physician to stop coding at levels that trigger appeals. The practice shifts its coding downward to avoid denials, accepting lower revenue on every claim in exchange for a cleaner first-pass acceptance rate. The payer has achieved, through denial volume alone, exactly the outcome of lower payment, without ever having to argue the clinical merits of a single claim. The denial machine enforces undercoding indirectly, through the billing labor market, while never formally changing the stated fee schedule.

This is what pay by intimidation means in practice. The payers know the appeal math. The billers know the appeal math. The physicians learn the appeal math the hard way. Everyone is behaving rationally inside a system where the encounter note is the only instrument that determines payment and the payer controls the denial pipeline. The result is a systemic downward pressure on reimbursement that does not show up on any fee schedule and that no existing regulation prevents.

The loop closes at the encounter note. It begins there (the physician's documentation sets the code), it is attacked there (the payer denies on the basis of the note), and it is defended there (the appeal is assembled from the note). Any intervention that does not change the economics of appeals at the encounter-note level leaves the intimidation mechanism intact. Part 2 of this paper describes the specific technical response: an auto-generated appeal built into the same platform that accurately codes the note in the first place, inverting the appeal math so that the payer no longer profits from automated denial.

KEY POINT

Sources: KFF Claims Denial Analysis (2025), 2023 data; KFF Medicare Advantage prior authorization analyses (2023 and 2024 data); ProPublica “Uncovered” Investigation (2023); HHS OIG (2018, 2022); Health Affairs (2025); AMA Prior Authorization Survey (2024); AAPC, reporting CMS 2004 error-rate data; MGMA benchmarks on billing commission structure and claim-rework labor cost

LINK 10 OF 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 often reimburse below cost. This sorting is not an accident and it is not a market failure. It is the rational output of a shareholder-driven insurance industry responding to the incentives the payment system provides, reinforced by a political apparatus that makes any alternative outcome extremely difficult to legislate.

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 percent of income but only 0.3 years in the bottom 5 percent. For women in the bottom 5 percent, life expectancy showed no meaningful change. CDC surveillance data confirm the same gradient across specific chronic diseases. Diabetes prevalence, obesity prevalence, hypertension prevalence, cardiovascular disease incidence, and asthma prevalence all rise sharply as household

income falls. Annual health spending for adults with diabetes living below 125 percent of the Federal Poverty Level runs roughly $2,928 higher than for those at 125 to 200 percent of FPL and $4,141 higher than for those at 200 to 400 percent, according to CDC Preventing Chronic Disease research. The populations with the lowest incomes are also the populations with the highest per-capita medical cost. That is the structural fact from which every private insurance pricing decision follows.

Insurance Coverage Sorts by Income

Employer-sponsored insurance covers 80.3 percent of people under 65 above 400 percent of the Federal Poverty Level, but only 28.2 percent of those between 100 and 199 percent of FPL and 14.8 percent of those below poverty (KFF, 2024). 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 percent chronic condition prevalence versus 66 percent for privately insured adults, with 31 percent 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 economically challenging patients for private practices before they even walk through the door.

Why Private Payers Structurally Do Not Want Lower-Income Enrollees

A publicly traded health insurance company answers to shareholders. Its stock price is a function of its medical loss ratio, its premium growth, and its net income. In that operating environment, the insurer's worst economic outcome is to enroll a high-cost member. The second worst is to enroll a member whose premium does not keep up with their expected cost trajectory. Both outcomes describe the median lower-income American. The data are unambiguous: this population has higher chronic disease prevalence, higher acuity at first contact, higher per-capita spending, and greater sensitivity to premium increases. From the insurer's shareholder-accountable perspective, this population is a structural money-loser on any plan design that would be affordable to them.

There is no need to assume bad intent to see what follows. Insurers design around the problem. Between 2014 and 2024, the share of ACA Exchange plans that were narrow-network HMO or EPO products rose from 42 percent to 79 percent, while broader-network PPO plans fell from 58 percent to 21 percent. Deductibles in the least expensive marketplace tiers routinely exceed what a lower-income family can absorb before coverage meaningfully applies. The Commonwealth Fund's 2025 analysis of marketplace affordability found that the plans with the lowest premiums,

the ones lower-income households are most likely to select, also carry the highest deductibles, often more than $7,000 for bronze plans, although primary care visits are generally covered by a copay before the deductible is met. KFF reports 61.7 percent of uninsured adults in 2024 cite cost as their primary reason for not having coverage. What looks like individual choice is the downstream effect of plan design optimized for a different customer.

The mechanism is not explicit exclusion; that would be illegal under ACA guaranteed issue. The mechanism is pricing and plan architecture that makes enrollment unattractive at the income levels where the insurer would expect to lose money on the member. The population that cannot afford to enroll is routed, correctly from the insurer's perspective, onto Medicaid, onto the uninsured rolls, or onto the emergency department EMTALA safety net. In each case, the cost moves from the insurer's balance sheet to the taxpayer's. The private insurer has successfully selected against the very patients it would have had to subsidize inside a community-rated pool.

The Medicare Advantage Cherry-Pick

The clearest documented example of structural risk selection in private insurance is Medicare Advantage. MedPAC and HHS OIG analyses have found that MA enrollee risk scores ran roughly 18 percent higher than traditional Medicare beneficiaries with comparable health status as of 2022, driven by coding intensity rather than by actual morbidity. OIG audits have found that a substantial share of submitted MA diagnosis codes lacked supporting documentation in the underlying medical record, with some specific diagnosis codes unsupported in a majority of audited cases. MedPAC estimates that coding intensity added about $43 billion to Medicare Advantage payments in 2023 and $50 billion in 2024; its 2025 estimate is $40 billion of an $84 billion total overpayment. CMS applies the statutory minimum 5.9 percent coding intensity deflation adjustment precisely because the incentive to upcode inside Medicare Advantage is so economically significant. This is what risk selection looks like when the insurer cannot choose the member but can choose the codes on the claim. The mechanism is the encounter note, repurposed as a revenue-maximization instrument rather than a clinical one.

The Insurer Profit Machine

UnitedHealth Group's revenue reached approximately $400 billion in 2024, roughly 4.6 times its 2009 level of about $87 billion. Industry analyses from advocacy group EPIC for America indicate the seven largest health insurers' combined revenue roughly tripled in a decade, from approximately $511 billion in 2014 to about $1.52 trillion in 2024. (EPIC for America is an industry-skeptical advocacy organization; the underlying figures are drawn from public company filings.) Peterson-KFF Health System Tracker data indicate that per-

enrollee private insurance spending rose roughly 97 percent between 2008 and 2024, versus roughly 60 percent for Medicare and 52 percent for Medicaid over the same period. A 2025 JAMA Internal Medicine research letter by Roy and colleagues, publicized by the Lown Institute, estimates that S&P 500 healthcare companies returned roughly $2.6 trillion to shareholders in dividends and buybacks between 2001 and 2022, equal to approximately 95 percent of aggregate profits over that period. The Lever has reported that UnitedHealth, Cigna, Elevance, and CVS alone spent more than $120 billion on stock buybacks since 2010. UnitedHealth alone repurchased approximately $9 billion of its own stock and paid roughly $7.5 billion in dividends in 2024. During the same decade, physician Medicare payment fell substantially in real terms. Private insurers typically retain 15 to 20 percent of premium dollars for administrative costs and profit. The net effect is that a growing share of healthcare spending is absorbed by insurance administration and corporate returns rather than reaching clinicians and patients.

The Rigged Game: Why the System Cannot Fix Itself

Every one of the structural features described in this paper is the subject of active policy debate. None of them have been structurally addressed. The reason is not that solutions are unknown. The reason is that the industry that benefits from the status quo spends more on lobbying than any other industry in the United States, and has done so for decades.

OpenSecrets / Center for Responsive Politics data show the Health sector spending roughly $751 million on federal lobbying in 2024, the single largest sector by a meaningful margin. Pharmaceuticals and health products alone accounted for roughly $387.5 million of that total. The American Hospital Association spent roughly $24 million. PhRMA spent roughly $31 million. AHIP, the primary trade association for health insurers, spent roughly $12 million. Blue Cross Blue Shield plans combined spent more than $43 million across 2023 and the first half of 2024. Health sector lobbying has exceeded $700 million in every year since 2021 by OpenSecrets' accounting. No other industry comes close.

The purpose of that spending is not mysterious. It is to preserve the specific set of policy conditions that allow the profit machine described above to continue running. It is to block Medicare physician payment reform that would raise rates enough to restore independent practice economics. It is to block Medicaid reimbursement parity that would eliminate the access gap and reduce the need for the FQHC workaround. It is to block prior-authorization reform that would break the pay-by-intimidation denial cycle. It is to preserve the Medicare Advantage risk-adjustment methodology that allowed roughly $43 billion in coding-intensity overpayments in 2023 alone. And, critically, it is to keep federal and state spending on Medicaid, CHIP, DSH, FQHC grants, and other public programs flowing, because every federal dollar that absorbs a lower-income patient's care is a dollar the private insurer does not have to cover on its own premium base.

This is the point that makes the system structurally self-preserving. Private insurers do not actually oppose government healthcare spending. They depend on it. Government programs absorb exactly the population the private market is least profitable serving. A functioning, adequately-reimbursed public coverage system, paradoxically, is a prerequisite for a profitable private one. The policy equilibrium this produces is a stable bipartisan consensus in favor of more total healthcare spending, split in a way that routes the unprofitable cases to the taxpayer and the profitable cases to the shareholder. The $5.3 trillion annual U.S. health expenditure figure is not the result of a broken political process. It is the result of a working one, from the perspective of the actors who spend the most to influence it.

The encounter note is the instrument underneath all of it. Every lobbying dollar spent to preserve current fee schedules is a dollar spent to preserve the current relationship between the note and the dollar. Every lobbying dollar spent to preserve Medicare Advantage risk-adjustment methodology is a dollar spent to preserve the right to monetize the note by upcoding it. Every lobbying dollar spent to block Medicaid parity is a dollar spent to keep the note unprofitable for private practice, so that the public system has to keep absorbing the patients the note cannot fund. The political economy of American healthcare is built on top of the same document the physician writes at the end of every visit.

Wealth and health sort along the same axis because the note sorts them. Every encounter note under a commercial plan earns enough to cover overhead and leave margin; every encounter note under a low-rate Medicaid plan does not. The life-expectancy gap is the biological signature of a payment system that routes clinicians away from the patients who need them most, and the lobbying apparatus is the political signature of an industry determined to keep that sorting in place.

KEY POINT

Sources: Chetty et al., JAMA (2016); KFF American Community Survey Analysis; KFF Medicaid Chronic Conditions (2023); CDC Preventing Chronic Disease research on income and chronic disease spending; Commonwealth Fund 2025 marketplace affordability analysis; Oliver Wyman on ACA narrow networks; MedPAC (March 2024, March 2025) and HHS OIG on Medicare Advantage coding intensity; EPIC for America Revenue Analysis (2024); Peterson-KFF Health System Tracker; Roy et al., JAMA Internal Medicine (2025), via the Lown Institute, on healthcare shareholder payouts; The Lever on insurer stock buybacks; UnitedHealth Group Financial Reports; OpenSecrets / Center for Responsive Politics federal lobbying data (2021 to 2024), via JAMA Health Forum (2026); KFF on employer coverage by income (2024); AMA Competition in Health Insurance Study (2025)

§ 14

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.

Read the chain from the top, one line per link, and it becomes obvious where the failure starts:

KEY POINT

The encounter note determines every dollar. The encounter note creates the documentation burden. The documentation burden drives the burnout. The burnout degrades the next encounter note. The reimbursement that flows from the encounter note declines while overhead explodes. The access gap forms because the note cannot generate revenue above cost for publicly insured patients. The independent practice collapses because no one can survive the math of the note. The FQHC workaround is built to deliver the care the note-based system could not fund. The emergency room absorbs the patients the note-based system turned away. The denial machine attacks the note and pays by intimidation to keep it undercoded. The wealth-health-insurance sorting machine is the biological endpoint of a system that routes clinicians by what each patient's encounter note is worth. The political apparatus that spends more than any other industry on federal lobbying exists to keep that sorting in place, because the current split between private profits and public costs is the equilibrium the industry paid to produce.

KEY POINT

A physician sees a patient. She must document the visit in an encounter note that satisfies payer requirements. This note takes 15 to 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 contributes to defensive medicine and errors. Reimbursement keeps declining while overhead rises. She cannot afford to see Medicaid patients at as little as $34 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, again funded by taxpayers. Meanwhile, insurers deny a large share of her claims, nearly one in five on HealthCare.gov plans, and she undercodes the rest because the biller's appeal math makes fighting each denial a net loss. Her practice fails. She sells to a hospital system. Prices go up 14 percent. Quality goes down. Her autonomy disappears. The corporate employer replaces her with a nurse practitioner and asks her to supervise the NP's panel on top of her own. Her license is now on the line for notes she did not write. She leaves clinical medicine. The community she used to serve now drives 45 minutes for a 6-week-out appointment with a midlevel she has never met. The private insurer that covered her younger patients never wanted the lower-income ones in the first place, and the lobbying apparatus that spent roughly $751 million in 2024 exists precisely to keep that split in place. The taxpayer pays for what the private system would not cover. 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 percent of GDP)
Federal healthcare spending	About $1.6 trillion in 2024, 31 percent of the national total (CMS); major federal health programs projected to rise from 5.8 percent of GDP in 2023 to 6.9 percent in 2033 (CBO)
Medicare	$1.12 trillion (2024)
Medicaid	$932 billion (2024)
Administrative waste	$812 billion (Himmelstein, Campbell & Woolhandler, using 2017 data)

CATEGORY	COST / IMPACT
FQHC parallel system	$49.6 billion total FQHC revenue (2024, KFF); about $34 billion in HRSA grants over FY2018 to 2022 (GAO)
State supplemental payments tied to physician services	~$9.4 billion: $1.6 billion fee-for-service supplemental (2021) plus $7.8 billion managed care directed payments (as of Feb. 2023) (MACPAC)
Avoidable ED visits	$32 billion annual savings opportunity, privately insured patients (UnitedHealth Group, 2019)
Hospital uncompensated care	$42.67 billion in 2020 (AHA)
Defensive medicine / medical liability	$55.6 billion for the liability system, about $45.6 billion of it defensive medicine (Mello et al., 2008 dollars)
Medicare Advantage coding-intensity overpayments	~$43 billion (2023), ~$50 billion (2024); $40 billion of an $84 billion total overpayment in 2025 (MedPAC)
Prior authorization burden	About 39 requests and 13 hours of physician and staff time per physician per week (AMA, 2024)
Undercoded claims	14.4 percent of claims (CMS 2004 error-rate data, reported by AAPC)
Medicare real payment decline	33 percent since 2001
Healthcare shareholder payouts (2001 to 2022)	~$2.6 trillion in dividends and buybacks (Roy et al., JAMA Internal Medicine, 2025)
Health sector federal lobbying (2024)	~$751 million, #1 industry by a meaningful margin (OpenSecrets)
Hospital-acquisition price premium	About 14 percent (Capps/Dranove/Ody)
Rural hospitals at risk of closure	~700, roughly 1 in 3 (Center for Healthcare Quality and Payment Reform)
Single largest physician employer	Optum / UnitedHealth, more than 90,000 physicians employed or contracted (~10 percent of U.S. workforce, 2025)

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 reached $15,474 in 2024 (CMS), and Peterson-KFF data put it at roughly double the comparable-country

average ($14,775 versus $7,860). The U.S. ranks last on access to care, equity, and health outcomes, including preventable and treatable deaths, and ninth of ten on administrative efficiency; its one strong showing is care process, where it ranks second.

§ 15

The Snowball: What The Cascade Looks Like on The Ground

Numbers do not close clinics. Math does not stand in a rural hospital waiting room. The ten Links in this paper describe a machine, but the machine runs on real communities, and the output of the machine is visible in every town where the independent practice closed, the hospital converted, or the family medicine doctor quit. The snowball is what the cascade looks like when it has been rolling for a decade.

Stage One: The Practice Closes

Start with a four-physician independent primary care practice in any state in the country. The group has a roughly fifty-fifty commercial and publicly insured payer mix. In a low-rate state, Medicaid pays the group as little as $34 for a level-three established-patient visit. The group's fully loaded overhead runs $150 to $250 per encounter. Every Medicaid visit is a loss. The group cross-subsidizes from its commercial panel, but the state raises its healthcare minimum wage, a payer downshifts a quarter of its panel to a Medicare Advantage plan with 20 percent denial rates, and the lead physician cuts back to 0.8 FTE because she is burned out. The group runs the arithmetic. They can continue losing money, or they can sell to the regional health system that has been calling them for three years. They sell.

Stage Two: The Patients Migrate

The patients did not disappear when the practice closed. They were absorbed by the acquiring system, whose closest open-access clinic is thirty to forty-five minutes farther away. Appointment availability at the acquiring system is already tight. National averages reported by AMN Healthcare's 2025 Survey of Physician Appointment Wait Times put average new-patient wait times in major metro areas at 31 days, up from 21 days in 2004. OB-GYN averages 41.8 days. Family medicine averages 23.5 days. For the patient who used to get in within a week at the independent practice, the new appointment is six weeks out. The patient who needed an urgent follow-up goes instead to the emergency room. The ED visit costs the system roughly 12 times what the office visit would have cost. The patient's Medicaid plan pays a fraction of that cost; the hospital books the rest as uncompensated care and eventually recovers a share through Disproportionate Share Hospital payments, which are funded by taxpayers.

Stage Three: The Physician Gets Replaced

When the patient finally does make it to the appointment at the new corporate clinic, the appointment is almost always not with a physician. Bureau of Labor Statistics occupational projections call for 41 percent growth in nurse practitioner employment and 21 percent growth in physician assistant employment through 2035, against far slower physician growth. In many corporate primary care settings, the physician has been converted from a first-line clinician into a supervisor of three to six nurse practitioners or physician assistants, each of whom sees their own panel of patients. The math is straightforward from the corporate employer's perspective: the midlevel is less expensive, the reimbursement for most primary care encounters does not differ meaningfully by credential, and the supervising physician absorbs the liability. Supervising physicians can be named as co-defendants in suits arising from nurse practitioner and physician assistant care. The physician's license, income, and retirement security sit on top of a panel of encounter notes they did not write. This is one of the largest reasons physicians cite for leaving employed practice. It is not that midlevel clinicians are unqualified. It is that the system has converted the physician's role into a liability backstop rather than a clinical one.

Stage Four: The Physician Leaves

The Physicians Foundation's 2024 survey of 1,020 physicians found that six in ten report burnout. Medscape's 2024 report, with more than 9,000 physician respondents, found 49 percent burnout and identified bureaucratic and administrative work as the single largest contributor. Every physician who leaves concentrates the remaining patient volume on a smaller workforce, which further degrades the quality of every encounter note that

workforce writes, which accelerates the next round of departures. This is the self-reinforcing part of the snowball. It does not slow down.

Stage Five: The Taxpayer Pays

At every stage of the snowball, the bill does not disappear. It migrates. When the independent practice closes, its Medicaid panel migrates to the FQHC system, which is paid a bundled per-visit rate well above the private practice Medicaid fee-for-service rate, as documented in Link 7. When the patient cannot get a timely appointment, the cost migrates to the emergency department, where EMTALA requires treatment regardless of ability to pay and where hospitals booked roughly $42.67 billion in uncompensated care in 2020. When the hospital acquires the practice and charges about 14 percent more for the same services, Medicare, Medicaid, and commercial payers all pay the higher price, and commercial payers pass it through to employers and employees in the next year's premiums. When the patient skips care entirely and later presents with a preventable chronic disease complication, Medicare pays for the hospitalization, the rehabilitation, and eventually the long-term care. The Centers for Medicare and Medicaid Services reported total U.S. health spending of $5.3 trillion in 2024, 18.0 percent of GDP, with Medicare at roughly $1.12 trillion and Medicaid at roughly $932 billion. The Congressional Budget Office projects federal spending on major health programs to rise from 5.8 percent of GDP in 2023 to 6.9 percent in 2033. Every independent practice that closes and every community hospital that converts accelerates that projection. The taxpayer pays, because in the United States the government is always the payer of last resort, and the last resort is where the snowball comes to rest.

Stage Six: The System Starts to Fail

What is visible in the data now is the early edge of systemic failure, not a speculative future. One in three rural hospitals is at risk of closure. A single insurer-owned entity now employs or contracts with roughly 10 percent of U.S. physicians. Wait times have risen nearly 50 percent in two decades. Medicaid emergency department utilization is four times the commercially insured rate. Federal healthcare spending is on track to consume a greater share of non-interest federal outlays every year, crowding out everything else the federal government does. The Commonwealth Fund's Mirror, Mirror 2024 ranked the United States dead last among ten high-income countries overall, and last on access, equity, and outcomes, while Peterson-KFF data show it spending roughly double the comparable-country average per capita. These are not disconnected data points. They are the output readings of the same machine, and the machine runs on the encounter note.

The snowball does not need a push. It is rolling now, in every community that lost its local practice, in every patient routed six weeks out to a PA they have never met, in every physician cleaning up a supervisee's note after hours, in every ED visit that absorbs a primary care failure, in every line of the federal budget that grows to pay for the access the private system could not profitably deliver.

§ 16

The Counterfactual: Picture a World Where The Provider Does Not Have to Fight For Every Penny

Now run the machine in reverse. Hold every other feature of American healthcare constant and change only the economics of the encounter note. Assume the note takes a fraction of the time to produce, captures clinical reality accurately, withstands payer audit without rework, generates appropriately coded claims on the first pass, and supports automated appeal of any denial within seconds. Assume, in other words, that the provider no longer has to fight for every penny. What follows is not speculation. It is the direct inverse of the cascade this paper has just documented.

The provider finishes the clinical day and goes home. After-hours charting time is measured in minutes, not hours. Burnout rates fall, because the single largest contributor identified by every major physician survey, bureaucratic and administrative task burden, has been structurally reduced. Physicians who left clinical medicine for administrative roles, telehealth-only practice, or early retirement reconsider. Physicians who sold their practice to a health system reconsider whether independence is viable again. The Physician Practice Benchmark Survey's multi-decade decline in independent practice starts to reverse, not because of policy intervention, but because the economics changed.

The provider who is no longer running at a loss on Medicaid visits can open their panel to Medicaid patients again. Access, which in the current system is rationed by the math of the encounter note, starts to expand. Federally-protected patient populations, who currently wait weeks or are routed to the FQHC system at a higher per-visit cost than the community practice would be paid, can be

seen in the community practice where they live. Much of the FQHC workaround capacity, the roughly $9.4 billion in state supplemental and directed payments tied to physician services, and the avoidable ED use that UnitedHealth Group values as a $32 billion annual savings opportunity are no longer required to absorb the access gap the private system created. A substantial share of federal healthcare spending becomes redirectable, either to debt reduction, to other national priorities, or to covering the populations that even a functioning private system cannot reach.

The provider who is no longer concentrating twenty-five patients into a six-hour schedule to cover overhead can practice medicine the way they were trained to practice it. Fifteen-minute visits become twenty-five-minute visits. Missed diagnoses become less frequent. Medication reconciliation becomes more reliable. Preventive care becomes more consistent. Patient satisfaction rises. Physician satisfaction rises. The quality metrics that did not move during the consolidation wave finally have the headroom to move in the right direction.

The insurer that denied claims by intimidation, knowing the biller's appeal economics would keep most denials unchallenged, loses that asymmetry. Automated appeal makes every denial worth fighting. The denial rate falls because denying a documented, correctly coded claim no longer pays. The defensive undercoding that costs practices revenue on every claim no longer makes sense, because the biller no longer needs to discount aggressively to survive the denial process. Practice revenue rises on captured services, not on volume.

The physician who stayed in employed practice because they could not survive independently has the option to go back. Independent primary care, the form of medicine that delivers the best continuity, the highest patient satisfaction, and the lowest downstream utilization per capita, becomes viable again. The consolidation curve does not reverse overnight, but the direction of the curve changes. That is what the 60.1 percent to 42.2 percent collapse in independent practice did not have: a direction change.

And the taxpayer, who in the current system is the payer of last resort for every failure of the note-based system, gets something back. Every federal dollar not spent on FQHC workaround capacity, state supplemental physician payments, ED uncompensated care, DSH payments, hospital-acquisition price inflation, and preventable chronic disease hospitalization is a dollar available for something else. The math of federal healthcare spending, projected by CBO to rise from 5.8 percent of GDP in 2023 to 6.9 percent in 2033 for major health programs, is not destiny. It is the output of the machine. Change the machine and the projection changes.

This is not a promise of a perfect system. It is a description of the only leverage point in the cascade that meaningfully affects every downstream link at once. The encounter note is where the machine starts. It is also where the machine can be rebuilt.

If one document broke American healthcare, one document can fix it. Part 2 of this paper describes, in concrete architectural terms, how.

§ 17

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 is consistent with that prediction.

AI-Powered Documentation: Early Results

When AI documentation tools partially fix the encounter note problem, burnout drops. Olson et al. (JAMA Network Open, 2025) studied clinicians using AI ambient documentation and found burnout decreased by approximately 13 percentage points, from 51.9 percent to 38.8 percent, within 30 days. After-hours documentation time dropped by about 0.9 hours per week. These results, from an uncontrolled before-and-after study, are consistent with a model in which the encounter note is the intervention point. Fix the note, and several of 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. MDMai is designed to accomplish three objectives simultaneously: support documentation quality and clinical accuracy, identify appropriate reimbursement opportunities that providers typically miss, and reduce the after-hours documentation burden that drives physician burnout.

MDMai uses a multi-agent AI architecture to analyze encounter notes across common billable encounter types and common medical facility settings. The system identifies potentially undercoded visits, surfaces appropriate additional billing codes (HCPCS, prolonged services,

critical care) where supported by the documentation, and helps ensure documentation supports the level of complexity actually delivered, rather than 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. Every encounter note processed through MDMai, with appropriate consent and de-identification where required, feeds AHI's Healthcare Analytics Intelligence (HAL) platform, with the goal of creating a structured clinical encounter note database. While many competitors in healthcare AI train their models on claims data, textbooks, or synthetic datasets, AHI is working to train on real clinical encounter notes, which capture clinical reasoning and decision patterns at a level of detail not available in claims data.

The United States generates more than a 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. Today they are scattered across thousands of often incompatible EHR systems, largely inaccessible to researchers, AI developers, and the physicians who wrote them. AHI's MDMai platform is designed to aggregate these notes ethically and at scale.

KEY POINT

The encounter note is simultaneously the root cause of healthcare's dysfunction and one of the most valuable untapped datasets in medicine. AHI aims to recognize both truths and build a platform that addresses both, fixing the document that broke American healthcare while unlocking its potential to help repair the system.

ABOUT

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 whose independent infectious disease practice serves a referral-area population on the order of several hundred thousand residents, was spending more time on documentation than with patients and family.

During the COVID-19 pandemic, the practice's daily patient encounters expanded from 10 to 15 per day to 100 to 120 per day for three consecutive years, generating more than 100,000 encounter notes 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 systematically capturing.

AHI's product suite is at varying stages of maturity. MDMai (medical documentation and billing optimization) and HAL (Healthcare Analytics Intelligence) are the flagship platforms under active development and early deployment. ENCOUNTERai (predictive documentation), HALi (patient-facing Healthcare Intelligence), CODEai, and REFERRALai are in earlier stages of development or planning, with capabilities described in this paper reflecting AHI's design goals rather than generally available commercial products. Dr. Jennifer Leoniak serves as Chief Medical Officer, providing the clinical validation essential for healthcare intelligence systems that demand high accuracy. This October 2026 revision corrects figures and citations in the February 2026 edition.

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SOURCES

References

The following sources were consulted in the preparation of this white paper. Statistics, findings, and claims are drawn from the publications cited below.

1 AAPC. Reporting on CMS 2004 error-rate data (14.4 percent of claims undercoded).

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

3 AMN Healthcare. (2025). Survey of Physician Appointment Wait Times. AMN Healthcare / Merritt Hawkins.

4 Baker, L.C., Bundorf, M.K. & Kessler, D.P. (2014). Vertical Integration: Hospital Ownership of Physician Practices Is Associated with Higher Prices and Spending. Health Affairs, 33(5), 756–763.

5 Becker's Hospital Review. (2025, July). Optum employs or contracts with more than 90,000 physicians; reporting on UnitedHealth Group physician headcount.

6 Bureau of Labor Statistics. (2025). Occupational Outlook Handbook, Nurse Practitioners and Physician Assistants Employment Projections 2025–2035. U.S. Department of Labor.

7 Capps, C., Dranove, D. & Ody, C. (2018). The Effect of Hospital Acquisitions of Physician Practices on Prices and Spending. Journal of Health Economics, 59, 139–152.

8 CBO. (2023). Federal Subsidies for Health Insurance: 2023 to 2033. Congressional Budget Office. cbo.gov/publication/59273.

9 CDC. (2024, 2025). Preventing Chronic Disease research series on income disparities and chronic disease spending. Centers for Disease Control and Prevention.

10 Cecil G. Sheps Center for Health Services Research. (2024). Rural Hospital Closures Tracker. University of North Carolina.

11 Center for Healthcare Quality and Payment Reform. (2024). Rural Hospitals at Risk of Closing.

12 Chartis. (2025). Rural Health State-by-State Analysis.

13 Commonwealth Fund. (2025, March). Low Marketplace Premiums Often Reflect High Deductibles.

14 CMS. (2024). National Health Expenditure Accounts. Centers for Medicare & Medicaid Services.

15 EPIC for America. (2024). Health Insurance Revenues Tripled in a Decade. Revenue Analysis. (Note: EPIC for America is a health-industry advocacy organization; underlying figures are drawn from insurer annual reports and SEC filings and should be verified against those primary documents.)

16 HHS OIG. (2023, 2024). Medicare Advantage Risk Adjustment and Coding Intensity Audit Series. Office of Inspector General.

17 KFF. (2020). Consolidation Brief: Hospital-Physician Price Effects. Kaiser Family Foundation.

18 Roy, V., Amana, A., Ross, J.S. & Gross, C.P. (2025). Research letter on shareholder payouts by S&P 500 health care companies, 2001–2022. JAMA Internal Medicine, published February 10, 2025. doi:10.1001/jamainternmed.2024.7687. (Publicized by the Lown Institute.)

19 MedPAC. (2024, 2025). Report to the Congress: Medicare Payment Policy, March 2024 (ch. 12) and March 2025 (ch. 11), Medicare Advantage chapters. Medicare Payment Advisory Commission.

20 Medscape. (2024). Physician Burnout and Depression Report.

21 Neprash, H.T. et al. (2015). Association of Financial Integration Between Physicians and Hospitals With Commercial Health Care Prices. JAMA Internal Medicine.

22 Oliver Wyman. (2024). Understanding Why Narrow Networks Dominate the ACA Exchange.

23 OpenSecrets / Center for Responsive Politics. Federal Lobbying Database, Health Sector Totals 2021–2024, as reported in Taylor et al., JAMA Health Forum (2026), Table 1.

24 Peterson-KFF Health System Tracker. (2024). Per-Enrollee Health Spending Growth by Payer.

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

26 Physicians Foundation. (2024). Survey of America's Physicians.

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

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

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

30 Arndt, B.G. et al. (2017). Tethered to the EHR: Primary Care Physician Workload Assessment Using EHR Event Log Data and Time-Motion Observations. Annals of Family Medicine, 15(5), 419–426.

31 Candon, M. et al. (2018). Declining Medicaid Fees and Primary Care Appointment Availability for New Medicaid Patients. JAMA Internal Medicine, 178(1).

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

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

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

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

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

37 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.

38 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).

39 Kannan, S., Bruch, J.D. & Song, Z. (2023). Changes in Hospital Adverse Events and Patient Outcomes Associated With Private Equity Acquisition. JAMA, published December 26, 2023.

40 HHS OIG. (2018, September 25). Medicare Advantage Appeal Outcomes and Audit Findings Raise Concerns About Service and Payment Denials (OEI-09-16-00410). Office of Inspector General.

41 HHS OIG. (2022, April 27). Some Medicare Advantage Organization Denials of Prior Authorization Requests Raise Concerns About Beneficiary Access to Medically Necessary Care (OEI-09-18-00260). Office of Inspector General.

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

43 KFF. (2025). Analyses of Medicare Advantage prior authorization requests, denials, and appeals (2023 data: 93.6 percent approved, 81.7 percent of appealed denials overturned; 2024 data: 80.7 percent of appealed denials overturned). Kaiser Family Foundation.

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

45 Hsiang, W.R. et al. (2019). Medicaid Patients Have Greater Difficulty Scheduling Appointments Than Patients With Private Insurance. Inquiry: The Journal of Health Care Organization, Provision, and Financing, 56.

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

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

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

49 KFF. (2024). Medicaid-to-Medicare Fee Index (0.75 in 2024, all services; 0.66 primary care; 0.72 in 2019). Kaiser Family Foundation.

50 MACPAC. (2024, January). Supplemental Payment Analysis: Fee-for-Service (2021) and Managed Care Directed Payments (as of February 2023).

51 Mello, M.M., Chandra, A., Gawande, A.A. & Studdert, D.M. (2010). National Costs of the Medical Liability System. Health Affairs, 29(9), 1569–1577. doi:10.1377/hlthaff.2009.0807.

52 MGMA. (2018). Practice cost and overhead benchmark data (operating cost about 64 percent of revenue). Medical Group Management Association.

53 Olson, K., Meeker, D., Troup, M. et al. (2025). Use of Ambient AI Scribes to Reduce Administrative Burden and Professional Burnout. JAMA Network Open, 8(10), e2534976.

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

55 Polsky, D. et al. (2015). Appointment Availability after Increases in Medicaid Payments for Primary Care. NEJM, 372, 537–545. doi:10.1056/NEJMsa1413299.

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

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

58 Rule, A. et al. (2021). Length and Redundancy of Outpatient Progress Notes Across a Decade at an Academic Medical Center. JAMA Network Open.

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

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

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

62 Wang, M.D. et al. (2017). Characterizing the Source of Text in Electronic Health Record Progress Notes. JAMA Internal Medicine, 177(8), 1212–1213.

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

64 RAND Corporation. (2022, May 17). Prices Paid to Hospitals by Private Health Plans; commercial prices for professional services about 163 percent of Medicare (2020 data).

65 Kheirkhah, P. et al. (2016). Prevalence, predictors and economic consequences of no-shows. BMC Health Services Research.

66 Dantas, L.F. et al. (2018). No-shows in appointment scheduling: a systematic literature review. Health Policy.

67 Shelley, D. et al. (2018). Burnout among clinicians in small independent primary care practices of five or fewer physicians in New York City (13.5 percent). Journal of the American Board of Family Medicine.

68 Epic Research. (2023). Note length trends, May 2020 to April 2023 (1.7 billion notes).

69 Urban Institute. (2014). Projected changes in Medicaid primary care fees after expiration of the ACA fee bump (42.8 percent average reduction).

70 Studdert, D.M. et al. (2005). Defensive Medicine Among High-Risk Specialist Physicians in a Volatile Malpractice Environment. JAMA, 293(21), 2609–2617.

71 Wen, H., Wilk, A.S., Druss, B.G. & Cummings, J.R. (2019). Medicaid Acceptance by Psychiatrists Before and After Medicaid Expansion. JAMA Psychiatry.

72 AMA. (2025). Doctors work fewer hours, but the EHR still follows them home. American Medical Association.

73 Peterson-KFF Health System Tracker. (2024). How does health spending in the U.S. compare to other countries? ($14,775 versus $7,860 per capita.)

74 KFF. (2025). Community health center revenue, 2024 ($49.6 billion). Kaiser Family Foundation.

75 GAO. (2024). Health Centers: GAO-24-106815. U.S. Government Accountability Office.

76 American Hospital Association. Uncompensated Hospital Care Cost Fact Sheet ($42.67 billion in 2020).

77 Florida Agency for Health Care Administration. Medicaid Practitioner Fee Schedule (99213 at $34.29 for some provider categories).

78 California Department of Industrial Relations. Health Care Worker Minimum Wage (SB 525), in effect October 16, 2024.

79 Health Affairs. (2025). Medicare Advantage claim denials and ultimate overturns, 2019 claims (Inovalon data).

80 The Lever. Reporting on stock buybacks by UnitedHealth, Cigna, Elevance, and CVS since 2010.