October 2026

THE DATA STANDARD



BETTER DECISIONS START WITH BETTER DATA.

Every day, leaders across business, healthcare, life sciences, technology, and government make decisions that can have profound consequences. Yet too often, those decisions rely on data that is outdated, fragmented, incomplete, or influenced by bias.

The Data Standard explores why accurate, real-time, unbiased, and validated data has become one of the most critical strategic assets of our time.

From healthcare and pharmaceuticals to public policy, technology, finance, and consumer markets, we examine the forces shaping how decisions are made—and what happens when decision-makers lack the information they need, when they need it.
Because data is no longer simply a resource. It is infrastructure for decision-making.

As artificial intelligence and advanced analytics accelerate the speed at which information is generated, interpreted, and acted upon, the standard for trustworthy data must rise with it. Speed without accuracy creates risk. Data without context creates false confidence. And decisions based on flawed information can carry consequences far beyond the organization making them.

The Data Standard challenges leaders to look beyond the numbers and ask a more fundamental question:
Is the data accurate enough, current enough, and unbiased enough to support the decision we are about to make?

Our mission is to elevate data quality from a technical consideration to a strategic imperative—because better information enables better decisions, better outcomes, and ultimately a stronger, healthier, and more resilient society.

THE DATA STANDARD. WHERE DATA MEETS DECISIONS.

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THE RESURGENCE OF PUBLIC HEALTH VULNERABILITIES IN U.S. METRO AREAS

The resurgence of vaccine-preventable disease across the United States is more than a public health warning—it is a signal that the nation's healthcare infrastructure must become faster, more connected, and more intelligence-driven.

Measles, declared eliminated in the United States in 2000, has returned at a scale that demands attention. As of October 1, 2026, the CDC reported 3,887 confirmed U.S. measles cases, compared with 2,289 for all of 2025 and just 285 in 2024. Importantly, 95% of 2026 cases were associated with outbreaks, demonstrating how quickly localized vulnerabilities can become broader healthcare challenges.

At the center of this vulnerability is a widening gap in community protection. National MMR vaccination coverage among kindergartners fell to 92.4% in the 2025–2026 school year, below the approximately 95% coverage generally needed to sustain community immunity. Approximately 280,000 kindergartners lacked documented completion of the MMR series.

THE NEW REALITY: LOCALIZED RISK CAN BECOME A NATIONAL CHALLENGE

Metropolitan areas and highly connected communities create unique conditions for infectious disease transmission. Airports, mass transit, schools, healthcare facilities and dense residential populations can accelerate the movement of pathogens across geographic boundaries. A case that begins in one community can quickly create exposure networks spanning multiple counties, states, and healthcare systems.

For physicians and health-system leaders, this changes the equation. The challenge is no longer simply identifying disease. It is identifying risk early enough to change the trajectory of an outbreak.

That requires access to timely, accurate, actionable data.

Measles illustrates the consequences. Approximately 20% of unvaccinated individuals with measles may require hospitalization, while severe cases can involve pneumonia, hypoxia, dehydration, ICU care and other complications. During the 2025 West Texas outbreak, approximately 20% of patients required hospitalization, placing significant pressure on clinical resources.

FROM RETROSPECTIVE DATA TO REAL-TIME INTELLIGENCE

For pharmaceutical, medical device, medtech and physician leaders, the implications extend well beyond infectious disease.

Healthcare organizations increasingly need to connect clinical signals, diagnostic results, epidemiological trends, patient characteristics, treatment patterns and emerging risks in real time. Static reports and retrospective datasets remain valuable, but they cannot provide the speed required when conditions are changing by the hour.

This is where advanced analytics, artificial intelligence and clinical reasoning technologies can become transformational. The objective is not to replace physicians. It is to give them a continuously updated intelligence layer that can help identify patterns, surface anomalies, prioritize risk and support faster clinical decisions—particularly when emergency departments and critical-care environments are operating under pressure.

The same intelligence infrastructure can also help pharmaceutical and medical technology companies understand where disease patterns are emerging, how patient populations are changing, where diagnostic gaps exist and what technologies may be needed next.

THE CALL TO ACTION

The healthcare industry cannot wait for the next outbreak to expose another data gap.

Real-time, accurate intelligence must become a core component of the nation's health infrastructure.

For pharma, medtech, medical-device companies, health systems and physicians, the opportunity is to move from reactive healthcare to predictive intelligence—from knowing what happened yesterday to understanding what is happening now and what it could mean next.

The future of public health will depend not simply on collecting more data, but on connecting the right data, validating it rapidly and putting actionable intelligence into the hands of decision-makers when it matters most.

The question is no longer whether healthcare needs real-time intelligence.

The question is whether we can afford to make critical decisions without it.

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AUGMENTING CRITICAL CARE THROUGH DIAGNOSTIC AI INTEGRATION

The future of critical care will not be defined by AI replacing physicians. It will be defined by how effectively physicians, AI and real-time clinical data work together when minutes—and sometimes seconds—matter.

In the ICU and Emergency Department, clinicians are already operating in an environment of extraordinary data complexity. Continuous bedside monitoring, laboratory results, imaging, medications, vital signs, nursing documentation and longitudinal EHR histories generate a constantly changing picture of the patient. The challenge is no longer simply access to data. It is the ability to transform the right data into the right clinical insight at the right moment.

This is where Large Language Models (LLMs), multimodal AI and increasingly sophisticated diagnostic systems can become powerful cognitive partners—not substitutes for clinical judgment.

FROM DATA OVERLOAD TO CLINICAL INTELLIGENCE

The opportunity is significant. A 2026 analysis of more than 2 million hours of monitoring data across 17,442 patient encounters identified 65.6 million alarms. Up to 10 audible alarms per patient-hour occurred in ICUs, with more than half attributable to technical issues rather than true physiologic deterioration.

The problem is clear: critical care teams are surrounded by data, but not all data is actionable. Diagnostic AI can help convert this overwhelming volume into a continuously updated clinical picture.

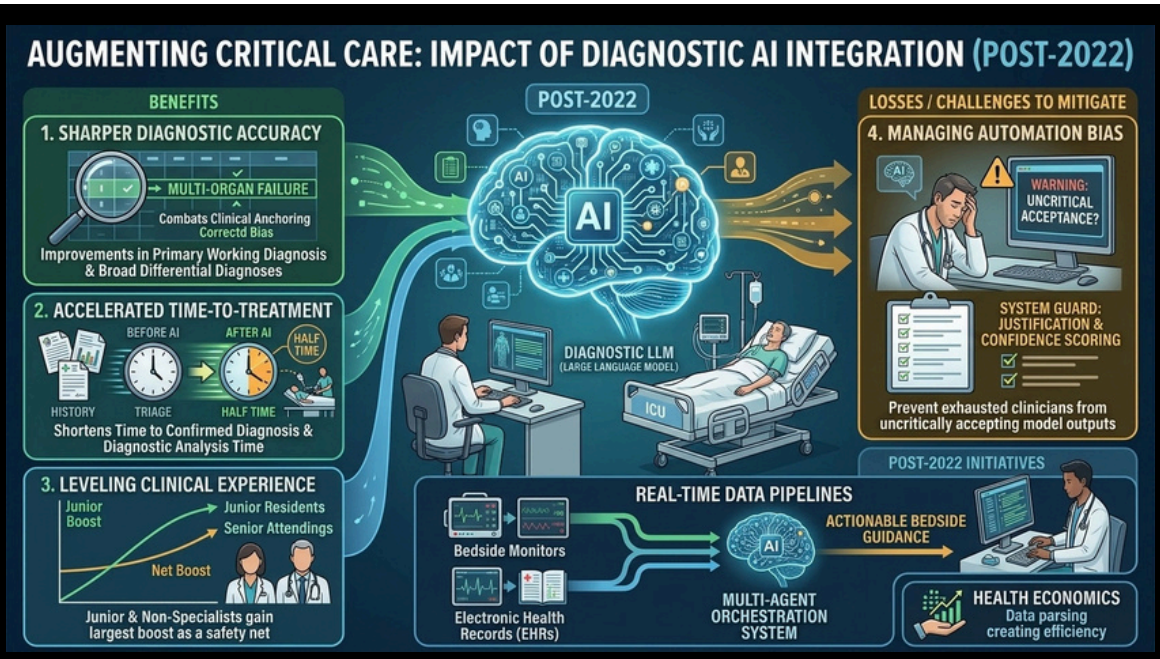
When LLMs and other AI systems are integrated with real-time clinical data, they can:

- Strengthen diagnostic accuracy: AI-assisted clinicians can rapidly synthesize disparate clinical information and generate broader differential diagnoses, potentially reducing anchoring on an initial diagnosis. Early research in emergency medicine demonstrates that newer reasoning-capable models can improve leading-diagnosis performance, although important limitations remain—particularly with atypical presentations.

- Accelerate time-to-treatment: Instead of requiring physicians to manually reconcile information across multiple screens and systems, AI can continuously aggregate patient history, laboratory values, imaging findings, medications and physiologic trends—surfacing meaningful changes as they emerge

- Extend clinical capacity: AI can function as a second set of eyes for experienced intensivists while providing residents and less-specialized clinicians with additional decision support when confronted with rare complications or rapidly evolving conditions.

- Identify patterns humans may miss: The greatest value may not come from answering a question, but from recognizing that the patient's trajectory is changing before a conventional threshold is crossed.



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THE REAL-TIME DATA IMPERATIVE

This is the critical distinction for pharma, medical device, medtech and healthcare leaders: AI is only as useful as the data flowing into it.

A sophisticated model operating on delayed, incomplete or fragmented information cannot deliver truly real-time clinical intelligence.

The next generation of critical-care infrastructure therefore needs to connect the ecosystem: bedside monitors, imaging, laboratory systems, EHRs, medication records, wearable and connected devices, and patient history. These streams can feed AI orchestration platforms capable of continuously contextualizing information rather than evaluating isolated data points.

This creates an enormous opportunity for medical device and medtech innovators. FDA reports that more than 1,600 AI-enabled medical devices had been authorized in the U.S. as of September 2026, demonstrating how rapidly AI is becoming embedded in clinical technology.

But the competitive question is shifting.
It is no longer simply: “Does this device use AI?”
It is: “How intelligently does this device capture, integrate and act upon real-time clinical information?





HE CALL TO ACTION

For pharmaceutical companies, medical-device manufacturers, medtech innovators and physician leaders, real-time data integration must become a strategic priority—not a future aspiration.

The organizations that lead critical care tomorrow will be those investing today in interoperable data infrastructure, continuous monitoring, clinically validated AI, explainability, cybersecurity and human-centered workflows.

The objective is not to automate the physician. It is to augment the physician with a continuously updated understanding of the patient. Because in critical care, yesterday's data may explain what happened.

Last hour's data may explain what is happening. But real-time data can help clinicians recognize what may happen next—and intervene before it becomes a crisis.

The future of critical care will belong to organizations that can turn data into intelligence before the window for intervention closes.

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RESTRUCTURING ACTUARIAL SCIENCE AND LIFE INSURANCE MODELS

The actuarial models used to evaluate terminal illness, life expectancy, mortality risk, and insurance pricing are entering a fundamental period of disruption. Large language models (LLMs) are transforming a historically retrospective, claims-driven discipline into one increasingly informed by real-time clinical intelligence.

For decades, actuaries and underwriters have relied heavily on structured data—diagnosis codes, claims histories, demographics, laboratory values, and standardized mortality tables. But much of the clinical story has remained buried in unstructured medical records: physician notes, pathology reports, radiology interpretations, discharge summaries, treatment histories, and documentation of functional decline. LLMs can now extract and synthesize that context at scale, creating a fundamentally richer view of patient risk.

The implications extend well beyond insurance. They represent a major shift in how healthcare organizations understand value, risk, and the economics of aging.

UNLOCKING THE CLINICAL DATA HIDDEN IN THE RECORD

An estimated majority of healthcare data is unstructured, yet traditional analytics have struggled to systematically interpret it. LLMs can identify signals that conventional models frequently miss—including changes in functional status, treatment tolerance, symptom progression, disease trajectory, and physician assessments.

For actuaries, these signals can improve mortality and survival estimates. For pharma and medtech, they can reveal how patients actually progress between formal diagnoses, interventions, and outcomes. For physicians, they create an opportunity to move from fragmented documentation toward a more comprehensive, continuously updated picture of the patient.

The competitive advantage increasingly belongs to organizations capable of converting clinical narrative into actionable intelligence.

FROM STATIC MORTALITY TABLES TO DYNAMIC RISK CURVES

Traditional actuarial models largely classify individuals into broad risk cohorts. LLM-enabled analytics create the possibility of something far more dynamic: individualized risk models that continuously incorporate new clinical information.

A hospitalization, change in treatment regimen, new pathology finding, functional decline, or response to therapy could materially alter a patient's projected trajectory. This creates a new paradigm: risk is no longer a static calculation; it is an evolving clinical signal.

That shift could influence everything from life insurance pricing and reserves to pharmaceutical forecasting, clinical trial design, care management, and value-based reimbursement.



DIAGNOSTIC ACCELERATION CHANGES THE ECONOMICS OF DISEASE

AI-assisted diagnostics introduce another critical variable: earlier detection can fundamentally change the survival curve.

When disease is identified earlier and treatment begins sooner, patients may live longer, remain functional longer, and experience different patterns of healthcare utilization. For insurers, that can alter long-term reserves and claims assumptions. For pharmaceutical and medical device companies, it can reshape treatment windows, market sizing, patient identification, and demand forecasting.

The organizations that understand these changing trajectories first will be better positioned to anticipate where healthcare economics are moving.

ACCURACY IS NOT ENOUGH—EXPLAINABILITY IS ESSENTIAL

Greater predictive power also introduces greater responsibility. Insurance regulators, healthcare organizations, physicians, and patients will demand models that can be explained, validated, and audited.

The most viable architecture is therefore unlikely to be an LLM making an opaque mortality decision. Instead, LLMs can function as sophisticated clinical feature extractors, converting unstructured medical narratives into structured variables that feed established, auditable statistical frameworks—including survival models, Cox proportional-hazards models, and explainability techniques such as SHAP.
This creates a critical balance: AI-driven intelligence with human oversight, statistical validation, and regulatory accountability.

THE STRATEGIC IMPERATIVE: REAL-TIME DATA

The larger transformation is not simply about applying AI to actuarial science. It is about recognizing that healthcare risk itself is becoming dynamic.

For pharma, medtech, medical device companies, insurers, and physicians, historical data alone is increasingly insufficient to understand what happens next. The ability to capture, interpret, and act on real-time clinical signals will increasingly determine how accurately organizations forecast outcomes, allocate resources, identify patients, develop therapies, and manage financial risk.

The winners in the next generation of healthcare economics will not simply have more data. They will have faster access to better-contextualized data—and the intelligence to act on it.

The mandate is clear: healthcare leaders must begin building the infrastructure, governance, and partnerships required to turn real-time clinical data into decision intelligence. The future of mortality modeling, personalized medicine, insurance economics, and healthcare delivery will depend on it.

"Insurance regulators, healthcare organizations, physicians, and patients will demand models that can be explained, validated, and audited."



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BIOPHARMA'S STRATEGIC ADVANTAGE IN THE BOOMER DEMOGRAPHIC SURGE

The aging Baby Boomer population is creating one of the most consequential demand shifts in modern healthcare—and biopharma is uniquely positioned to capture the economic value of that transformation. As millions of Americans move deeper into their 70s, 80s, and beyond, the healthcare system is facing a sustained increase in chronic disease, multimorbidity, cancer, neurodegenerative conditions, and cardiometabolic disease. The question for biopharma leaders is no longer whether demand will increase. It is how quickly companies can translate demographic demand into better treatment, stronger market access, and sustainable growth.

Traditional healthcare delivery is increasingly constrained. Acute-care hospitals operate under significant labor costs, capacity limitations, capital requirements, and pressure from Medicare reimbursement. Every additional patient can require another bed, clinician, diagnostic resource, operating-room slot, or extended inpatient stay. Biopharma operates under a fundamentally different economic model: once a therapy is successfully developed, approved, manufactured, and commercialized, incremental production can be highly scalable.

SUPERIOR UNIT ECONOMICS AND OPERATING LEVERAGE

This creates a powerful structural advantage. A successful therapy can reach hundreds of thousands—or millions—of patients without requiring a proportional expansion of physical infrastructure. While R&D and clinical development require substantial upfront investment, the commercial economics of a successful product can generate significant operating leverage as patient volume scales.

For executives, this means the aging population represents more than increased healthcare utilization. It represents an expanding addressable market for therapies that can delay disease progression, reduce complications, manage chronic conditions, and prevent costly acute-care interventions.

MEDICARE IS RESHAPING ACCESS AND DEMAND

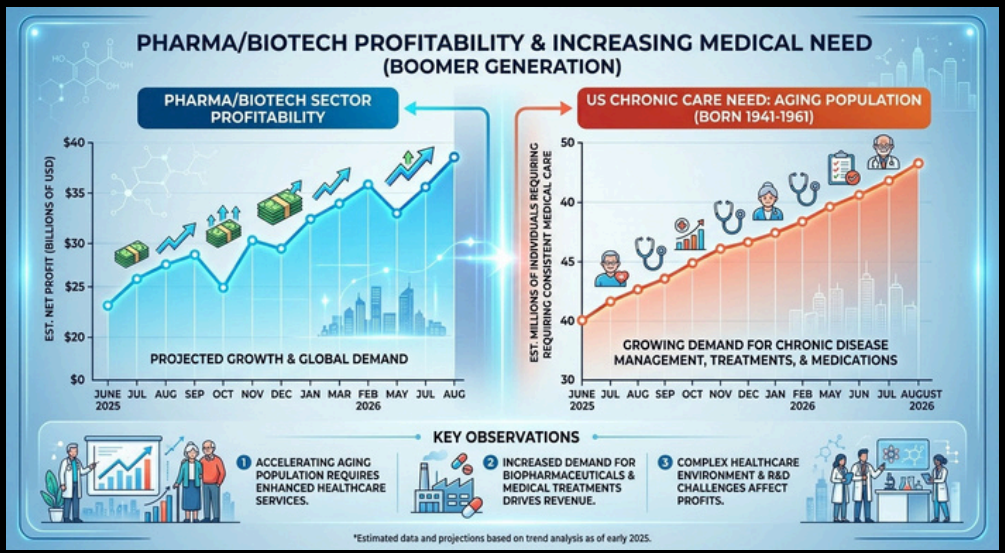
Medicare policy is also changing the commercial landscape. The $2,000 annual out-of-pocket cap for Medicare Part D beginning in 2025 materially changes the affordability equation for beneficiaries with significant prescription drug expenses. As financial barriers decline, access and adherence can improve—particularly for older adults managing multiple medications and high-cost therapies.

For biopharma, this creates an important strategic imperative: understand not simply how many patients have a disease, but how affordability, coverage, prescribing behavior, adherence, and real-world outcomes interact in real time.

AGING CONCENTRATES DEMAND IN HIGH-VALUE DISEASE AREAS

The demographic opportunity is particularly pronounced in oncology, immunology, neurodegeneration, and cardiometabolic disease. Older populations are disproportionately affected by conditions requiring long-term treatment and monitoring rather than one-time interventions.

This shifts the competitive battlefield. Companies that can identify emerging patient needs earlier, understand treatment gaps faster, and demonstrate measurable real-world value will be better positioned to capture market share.



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INTELLECTUAL PROPERTY AMPLIFIES THE OPPORTUNITY

Patent protection, regulatory exclusivity, proprietary biologics, specialized manufacturing, and complex delivery systems can create substantial barriers to competition. These advantages can protect revenue streams while companies expand indications, develop combination therapies, identify new patient populations, and pursue next-generation products.

But the advantage will not belong automatically to every company operating in these markets. The winners will be the organizations that can see demand emerging before the market fully reflects it. That requires faster, more granular intelligence. Claims data, clinical records, physician behavior, patient experiences, prescribing patterns, adherence signals, and emerging disease trends must increasingly be analyzed together—not months after the fact, but as conditions change.

For biopharma CEOs, commercial leaders, R&D executives, medical affairs teams, and market access organizations, the Boomer demographic surge should therefore be viewed as both an unprecedented opportunity and a competitive deadline. The companies that combine scientific innovation with real-time understanding of patients, physicians, treatment patterns, and population-level demand will be best positioned to turn demographic change into sustainable growth.

The aging population is already reshaping healthcare economics. The strategic question is who will have the intelligence to act on that shift first.



ABOUT THE AUTHOR

Dr. Walter Greason (Sage Gray) is a scholar, author, educator, and strategic thinker focused on one of the defining challenges of our time: how we understand information, interpret data, and use knowledge to shape the future.

With an interdisciplinary perspective spanning history, economics, technology, education, and society, Dr. Greason challenges leaders to look beyond conventional metrics and question the assumptions behind the numbers. His work explores how data can illuminate hidden patterns, expose systemic gaps, and provide a more accurate understanding of the forces shaping communities, institutions, markets, and national priorities.

Through The Data Standard, Dr. Greason brings that perspective directly to today's most consequential decisions. He examines where data succeeds, where it falls short, and why accuracy, context, independence, and timeliness matter more than ever in an era increasingly defined by artificial intelligence and real-time information.

His central premise is both simple and urgent:
We cannot make better decisions with yesterday's information, incomplete information, or information we cannot trust.

The Data Standard is Dr. Greason's call for a higher standard—one in which data is not simply collected, analyzed, and reported, but questioned, validated, contextualized, and ultimate



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