RxAir360

RxAir360 Inc. | DMV Regional Research Brief

The Hyperbaric Access Gap

in the Nation's Capital Region

A Directional Infrastructure Analysis of HBOT Capacity, Geography, and Patient Access in the Baltimore–Washington Corridor

RESEARCH SERIES | PAPER 1 OF 4

This brief is the first in a series examining hyperbaric oxygen therapy access in the United States. Paper 1 focuses on the DMV region. Subsequent briefs will address the national infrastructure gap, veterans and TBI/PTSD access, and the economic case for amputation prevention.

~12–15%	~11,000	4,200–8,800 mi	0
Estimated Share of Eligible Patients the System Can Treat	Clinically Eligible Patients Per Year in the DMV	Travel Burden for Rural Patients Completing Treatment	HBOT Facilities on Maryland's Eastern Shore

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SECTION I | EXECUTIVE SUMMARY

Executive Summary

Access to specialty medical therapies is determined not only by clinical evidence and reimbursement policy, but also by the physical infrastructure required to deliver care. This brief presents a directional infrastructure analysis of hyperbaric oxygen therapy (HBOT) access across the Baltimore–Washington corridor.

HBOT is an FDA-cleared, Medicare-reimbursable treatment for 14 serious conditions including non-healing diabetic wounds, radiation tissue injuries, osteomyelitis, and carbon monoxide poisoning. Clinical evidence consistently demonstrates that HBOT reduces major amputation rates, accelerates wound healing, and shortens hospital stays. Critically, HBOT is not a one-time intervention: standard treatment protocols require 20 to 40 daily sessions delivered over several weeks. Because of this treatment intensity, distance to a facility is a clinical barrier, not a logistical inconvenience. It directly predicts whether patients complete treatment. Patients living 70 to 110 miles from the nearest facility may need to travel 4,200 to 8,800 miles to complete a prescribed course of care.

Even using conservative assumptions, the DMV's hospital-centered hyperbaric infrastructure appears capable of serving only approximately 12–15% of clinically eligible patients each year, leaving thousands without practical access to treatment. Large portions of the region surrounding the nation's capital, including Maryland's entire Eastern Shore, Southern Maryland, and rural Virginia, function as hyperbaric care deserts where no HBOT facilities exist at all.

This brief examines the availability and accessibility of HBOT across the Baltimore–Washington, D.C.–Northern Virginia (DMV) corridor. While the DMV is home to some of the nation's most prestigious health systems, HBOT access within the region remains remarkably concentrated. A handful of hospital-based programs serve a combined metropolitan population exceeding 6 million, while vast stretches of the surrounding region have no HBOT facilities at all.

Nationally, fewer than 1,400 facilities offer HBOT, roughly 70% of them hospital-based programs in metropolitan areas. Rural counties, home to over 60 million Americans, are largely without accessible HBOT infrastructure. The estimated average one-way travel distance for rural patients exceeds 67 miles. Since 2005, 195 rural hospitals have closed or converted to outpatient-only status, and 338 more are at risk of closure. The DMV region mirrors these national patterns in microcosm.

KEY REGIONAL FINDING

The DMV region has approximately 8–12 hospital-based and 10–13 independent/wellness HBOT facilities, nearly all concentrated within a 25-mile radius of the I-95 corridor between Baltimore and Woodbridge, VA. Maryland's Eastern Shore, home to approximately 450,000 residents across nine counties with diabetes prevalence significantly above urban Maryland, has zero dedicated HBOT facilities. A patient in Kent County (Chestertown) faces a 70+ mile one-way trip to the nearest hospital-based hyperbaric program. For a 30-session treatment course, that translates to over 4,200 round-trip miles.

Key Findings at a Glance

- The DMV has an estimated 8–12 hospital-based HBOT programs and 10–13 independent/wellness providers. Only 3 hold UHMS accreditation (MedStar Georgetown, UMMC Shock Trauma, Inova Mt. Vernon).
- **Maryland's Eastern Shore** (9 counties, ~450,000 residents) has zero HBOT facilities. The entire Eastern Shore is federally designated as a medically underserved area (MUA) and health professional shortage area (HPSA).
- **Southern Maryland** (~375,000 residents across Charles, Calvert, and St. Mary's counties) also has zero HBOT facilities. Patients face 60–80 mile drives to the nearest program.
- A 2025 CDC study found that Maryland and Virginia are among only 7 states where the rural–urban diabetes disparity remains statistically significant even after adjusting for age, sex, race, and ethnicity.
- Virginia has already experienced rural clinic closures directly citing H.R. 1 (the One Big Beautiful Bill Act, signed July 4, 2025). A CHQPR analysis identifies nine rural Virginia hospitals at risk of closure, eight of them at immediate risk.
- Annual DMV HBOT demand is estimated at roughly **$100 million**. About **$85 million** of it, representing an estimated 9,500 patients, goes unmet each year because the current system cannot reach them.

SECTION II | DMV HBOT FACILITY LANDSCAPE

Where HBOT Exists in the DMV, and Where It Does Not

A systematic review of hospital-based wound care programs, UHMS-accredited facilities, and independent hyperbaric providers across the DMV region reveals a distribution pattern consistent with the national findings: HBOT clusters in institutional, metropolitan settings and is functionally absent in the communities that need it most.

Washington, D.C.

The District of Columbia has two primary hospital-based HBOT programs. MedStar Georgetown University Hospital operates the only UHMS-accredited wound care clinic in D.C., with four monoplace chambers. The George Washington University Hospital’s Wound Care and Limb Preservation Center offers HBOT for its standard 14 FDA-cleared indications. A small number of independent wellness-oriented providers also operate in the District, though these typically offer lower-pressure protocols outside the FDA-cleared clinical framework and generally do not accept Medicare or standard insurance reimbursement for wound care.

Baltimore Metro

Baltimore has a stronger concentration of clinical HBOT. The University of Maryland Medical Center’s Shock Trauma Center operates Maryland’s only multiplace hyperbaric chamber, capable of treating up to 23 patients simultaneously, a facility with national significance for emergency and complex cases. Additional hospital-based programs include GBMC HealthCare, Ascension Saint Agnes Hospital, and UM Baltimore Washington Medical Center (Glen Burnie). MedStar Good Samaritan Hospital and MedStar Franklin Square Medical Center also offer wound care with hyperbaric capabilities as part of the MedStar Health integrated system. Baltimore also hosts MVS Wound Care & Hyperbarics, the region’s largest privately held AAAHC-accredited wound care and hyperbaric practice.

Northern Virginia

Northern Virginia’s hospital-based HBOT is anchored by Inova Health System, which offers hyperbaric therapy at its Mount Vernon, Fair Oaks, and Lansdowne locations. The Inova Mount Vernon program was the first in Northern Virginia to offer HBOT and holds UHMS accreditation. Sentara Northern Virginia Medical Center in Woodbridge offers HBOT within its wound healing center. Virginia Hospital Center in Arlington also provides wound care and hyperbaric medicine services. Several independent clinics operate in the Reston–Herndon–Ashburn corridor, primarily focused on wellness, TBI, and off-label applications.

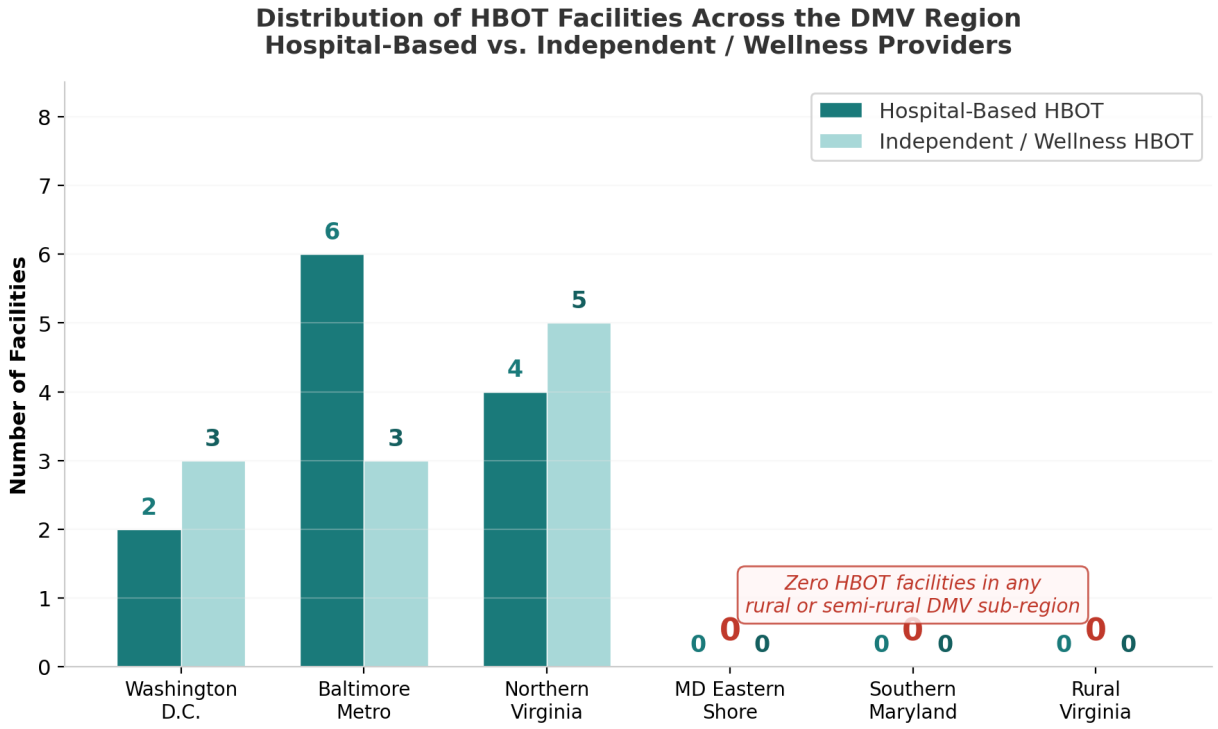

Figure 1: Distribution of HBOT facilities across DMV sub-regions. Hospital-based and independent/wellness providers are almost exclusively concentrated in the urban I-95 corridor. Rural and semi-rural sub-regions have zero facilities.

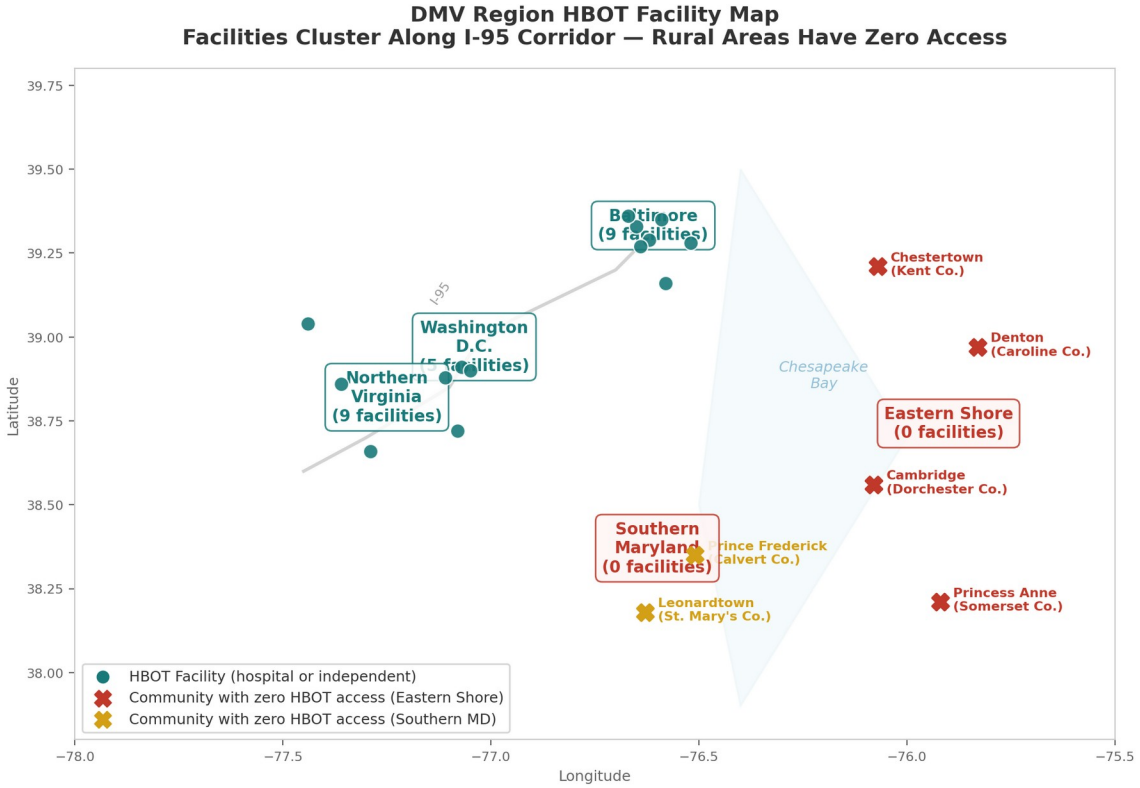

Figure 2: Geographic distribution of HBOT facilities in the DMV region. Teal dots represent HBOT facilities (hospital-based or independent). Red/gold X markers represent communities with zero HBOT access. All facilities cluster along the I-95 corridor; the Eastern Shore, Southern Maryland, and rural Virginia are entirely unserved.

THE CONCENTRATION PROBLEM

The DMV has HBOT, but it is concentrated within roughly a 25-mile radius of the I-95 corridor between Baltimore and Woodbridge, VA. Step outside that corridor, east to the Eastern Shore, south to Charles County, or west into the Shenandoah Valley, and HBOT access drops to zero. For a therapy requiring 20–40 daily sessions, proximity is a clinical prerequisite. These underserved areas function as hyperbaric care deserts, analogous to the pharmacy deserts, childcare deserts, and broadband gaps that policymakers already recognize as infrastructure failures.

WHY HYPERBARIC ACCESS IS DIFFERENT FROM OTHER SPECIALTIES

Many specialty medical services require a single consultation or occasional procedure. A patient can manage one long drive to see a cardiologist or orthopedic surgeon. Hyperbaric oxygen therapy is fundamentally different: it requires 20 to 40 visits, delivered 5–6 days per week, over 4 to 8 weeks. This treatment intensity makes HBOT access more comparable to dialysis or radiation oncology than to a typical specialty referral. Distance that would be manageable for a single visit becomes prohibitive when multiplied across 20–40 sessions. This is why HBOT infrastructure cannot be evaluated by the same proximity standards used for other specialties.

SECTION III | HYPERBARIC CARE DESERTS IN THE DMV

Maryland's Eastern Shore: A Composite Case Study

Maryland's Eastern Shore represents the most compelling DMV-specific case study in HBOT access failure. The nine Eastern Shore counties (Caroline, Cecil, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester) are home to approximately 450,000 residents. The region is designated by the federal government as a medically underserved area (MUA) and a health professional shortage area (HPSA). The five Maryland counties with the fewest primary care physicians per capita are all on the Eastern Shore, with Caroline County having only one health provider per 2,500 residents compared to Baltimore County's ratio of one per 1,000.

The Eastern Shore's health profile is defined by precisely the conditions that HBOT treats. Diabetes prevalence in rural Maryland counties is significantly higher than in urban Maryland. A 2025 CDC study published in *Preventing Chronic Disease* found that Maryland is one of only seven states where the rural–urban diabetes disparity remains statistically significant even after adjusting for age, sex, race, and ethnicity. University of Maryland School of Medicine researchers have documented that residents of small towns with fewer than 2,000 people face 10% higher heart attack risk, 5% higher heart failure risk, and 4% higher risk of end-stage kidney disease compared to urban residents.

The University of Maryland Shore Medical Center at Chestertown has faced sustained community concern about service reductions over the past decade. While Upper Shore Regional Health leadership has affirmed the facility will remain open and has invested in new technology (including a $1.2 million advanced MRI), it is operating under a new care model focused on outpatient and preventive services. A new $550 million regional medical center is planned for Talbot County. There is no HBOT program at any Eastern Shore facility.

CASE SPOTLIGHT: Kent County (Chestertown)

County Profile	Data
Population	~19,000 residents
Classification	Non-metro, rural
Hospital Status	UM Shore Medical Center, downsized with outpatient focus
Nearest HBOT Facility	~70 miles (Baltimore metro)
20-Session Course Travel	2,800 round-trip miles
40-Session Course Travel	5,600 round-trip miles
Total Time Commitment	~120–160 hours of travel + treatment

CASE SPOTLIGHT: Dorchester County (Cambridge)

County Profile	Data
Population	~32,000 residents
Poverty Rate	~18%+ (above state average)
Hospital Status	UM Shore Medical Center at Dorchester
Nearest HBOT Facility	~80 miles (Baltimore metro)
40-Session Course Travel	6,400 round-trip miles

County Profile	Data
Total Time Commitment	~140–180 hours

CASE SPOTLIGHT: St. Mary's County (Leonardtown)

County Profile	Data
Population	~113,000 residents
Notable Feature	NAS Patuxent River, with a significant military and veteran population
Nearest HBOT Facility	~65 miles (D.C./Baltimore corridor)
40-Session Course Travel	5,200 round-trip miles
Veteran Context	Veteran access to hyperbaric care is the focus of Paper 3 in this series

A Week in the Life of an Eastern Shore HBOT Patient

Patient: Diabetic wound, Kent County (Chestertown). Nearest HBOT: Baltimore, 70 miles.

Monday: Drive 70 miles to Baltimore. 2-hour treatment. Drive 70 miles home. Total: ~5 hours.

Tuesday: Drive 70 miles. Treatment. Drive 70 miles home. Total: ~5 hours.

Wednesday: Drive 70 miles. Treatment. Drive 70 miles home. Total: ~5 hours.

Thursday: Drive 70 miles. Treatment. Drive 70 miles home. Total: ~5 hours.

Friday: Drive 70 miles. Treatment. Drive 70 miles home. Total: ~5 hours.

Weekly total: 700 miles driven. 25+ hours committed. Repeat for 4–8 weeks.

Full course (30 sessions): 4,200 miles. 150+ hours. For a mobility-limited patient earning hourly wages, this is clinically indicated and logistically impossible.

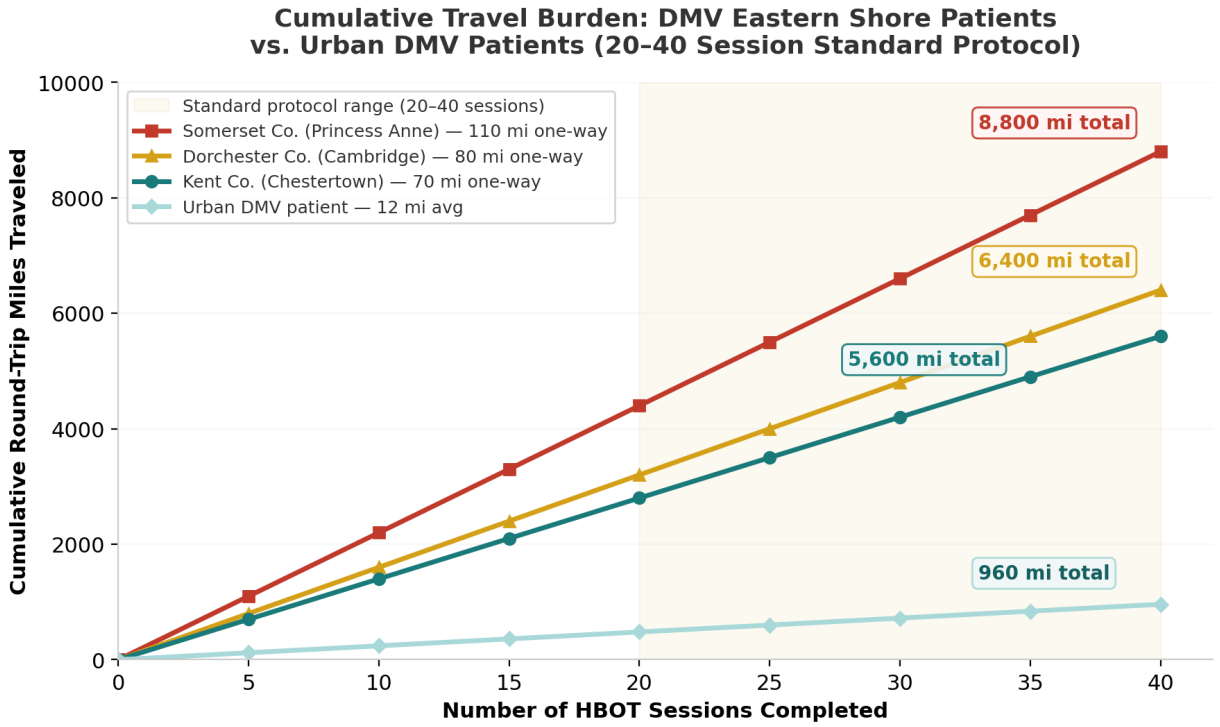

Figure 3: Cumulative travel burden for Eastern Shore patients across a standard 20–40 session HBOT protocol. A patient in Somerset County accumulates nearly 9,000 round-trip miles over a full treatment course, a burden that is functionally prohibitive for working adults, elderly patients, and mobility-limited individuals.

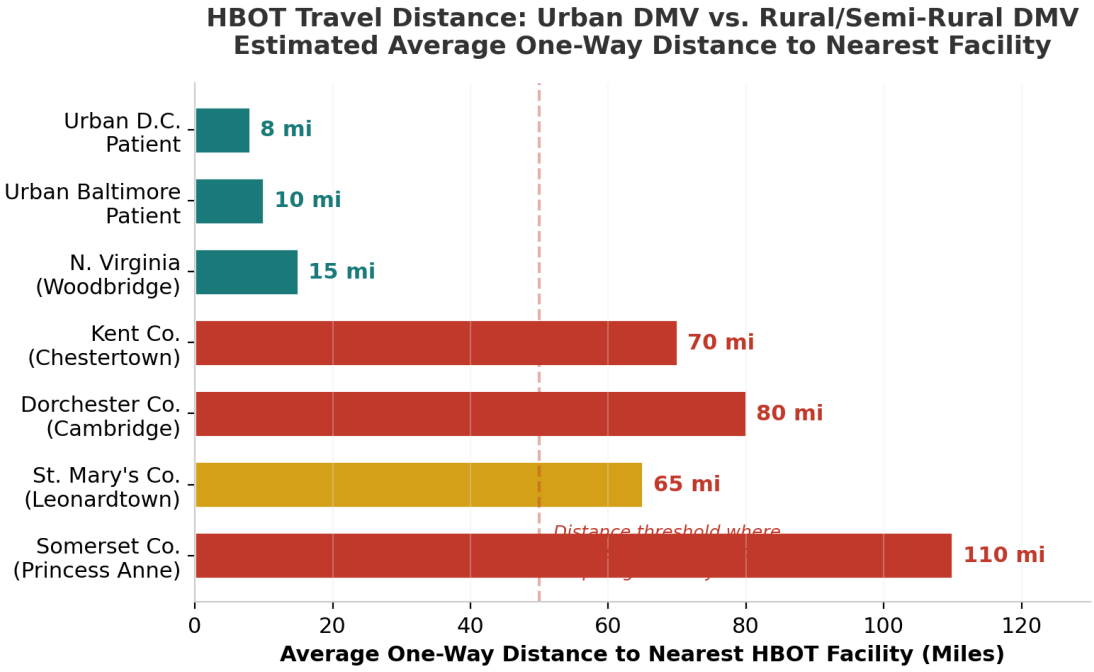

Figure 4: Estimated average one-way travel distance to nearest HBOT facility for urban vs. rural/semi-rural DMV patients. The dashed red line marks the distance threshold beyond which multi-session treatment adherence drops significantly, based on specialty care adherence literature.

THE DMV PARADOX

The nation’s capital region hosts the institutions responsible for regulating and advancing modern medicine: the NIH, the FDA, CMS, and leading academic medical centers. Yet thousands of clinically eligible patients in the surrounding communities lack practical access to a therapy those agencies already clear and reimburse. A diabetic patient on Maryland’s Eastern Shore has functionally equivalent HBOT access to a patient in rural Mississippi, which is to say, effectively none. This reflects a broader infrastructure mismatch between clinical demand and treatment capacity, not a failure of clinical evidence.

SECTION IV | DISEASE BURDEN AND DEMAND INDICATORS

Diabetes and Chronic Wound Prevalence in the DMV

The clinical conditions that create demand for HBOT are well-documented across the DMV region. Maryland has approximately 633,000 adults living with diagnosed diabetes, with an estimated 36,371 new diagnoses annually. Virginia's prevalence varies dramatically by region: the Southwestern region has the highest diabetes prevalence at 13.4%, compared to Northern Virginia's 7.7%. Virginia's Central (13.2%) and Eastern (13.0%) regions also carry significantly elevated burdens.

The racial and ethnic composition of the DMV's underserved communities amplifies the access inequity. In Virginia, Black non-Hispanic residents have an age-adjusted diabetes hospitalization rate of 28.71% compared to 14.25% for White non-Hispanic residents. Maryland's Eastern Shore and Baltimore's underserved communities both have significant Black populations with elevated diabetes burdens. More than one million Maryland residents live in medically underserved areas, with the largest proportion coming from rural Eastern Shore counties.

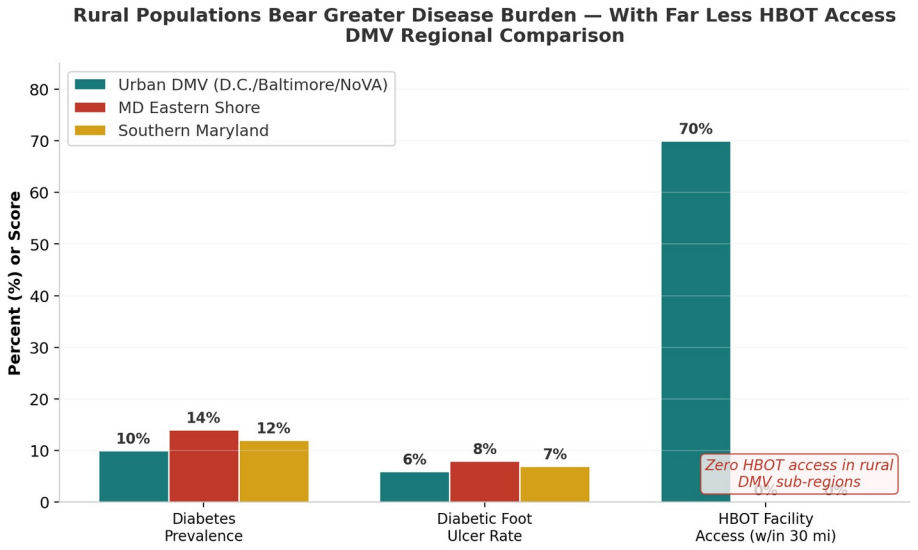

Figure 5: Rural DMV populations have higher diabetes prevalence and diabetic foot ulcer rates than urban counterparts, but dramatically lower access to HBOT facilities. Sources: CDC BRFSS, VDH, UMSOM Rural Health data.

DMV Regional Condition Prevalence and HBOT Utilization

Condition	HBOT Indication	DMV Rural Prevalence vs. Urban	Est. DMV Rural Utilization
Diabetic Foot Ulcers	FDA-Cleared	+14–17% higher diabetes prevalence	Severely underutilized
Chronic Non-Healing Wounds	FDA-Cleared	+20–28% higher prevalence est.	Severely underutilized
Radiation Tissue Injury	FDA-Cleared	Comparable	Low utilization
Osteomyelitis	FDA-Cleared	+10–15% higher prevalence est.	Low utilization
Carbon Monoxide Poisoning	FDA-Cleared	+30–40% higher prevalence	Very low utilization

SECTION V | LEGISLATIVE IMPACT ON THE DMV

H.R. 1 and the DMV Healthcare Landscape

The One Big Beautiful Bill Act, signed into law on July 4, 2025, is already producing visible effects in the DMV region. Virginia has been among the first states to experience direct consequences: three rural health clinics in Buena Vista, Churchville, and Weyers Cave closed in September 2025, with Augusta Medical Group explicitly citing the law as a reason. The Virginia Department of Medical Assistance Services projects that hospitals statewide will lose approximately $26 billion in payments over the next 14 years. An estimated 350,000 Virginians are projected to lose healthcare coverage.

The UNC Sheps Center has identified six Virginia hospitals at risk of closure under H.R. 1 provisions, including facilities in Franklin, Emporia, South Hill, Tazewell, Kilmarnock, and Lee County. A separate CHQPR analysis puts the number at nine, eight of them at immediate risk. Rural hospitals where state Medicaid funds make up 20% to 34% of income face particular vulnerability, as the law requires Virginia to reduce its hospital provider tax from 6% to 3.5%.

Maryland operates under a unique all-payer hospital system through the Health Services Cost Review Commission (HSCRC), which provides some insulation from direct Medicaid rate impacts. However, the HSCRC model does not protect against coverage losses that reduce patient volume. Maryland's participation in the federal AHEAD model ties hospital funding to performance metrics that may not fully account for specialty care needs of rural populations.

H.R. 1 Impact on Virginia Healthcare Infrastructure

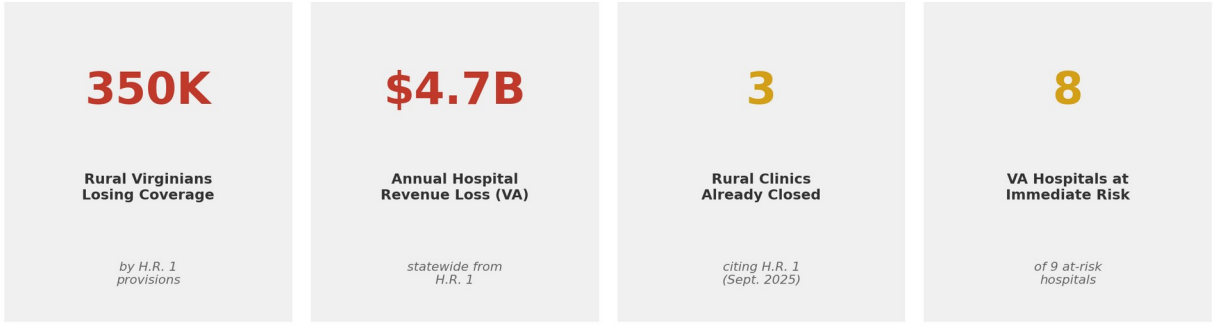

Figure 6: Projected and realized impact of H.R. 1 on Virginia healthcare infrastructure. Three rural clinics have already closed citing the law; eight of nine at-risk hospitals face immediate closure risk. Source: VHHA, CHQPR April 2025, CNN/Virginia Independent Sept. 2025.

WHAT H.R. 1 MEANS FOR DMV HBOT ACCESS

For HBOT access specifically, the H.R. 1 impact pathway is twofold. First, it threatens the financial viability of the hospitals that serve as the only referral pathway to HBOT for rural patients. Second, it reduces Medicaid coverage for the patient population most likely to need HBOT, suppressing already-low utilization further. The 195 rural hospitals already closed nationally represent lost HBOT referral networks. The 338 at risk nationally, including six in Virginia, represent HBOT access nodes on the verge of disappearing.

SECTION VI | THE ADHERENCE PROBLEM

Why Distance Predicts Outcomes

HBOT is not a one-time intervention. Standard treatment protocols require 20 to 40 daily sessions, each lasting 90 to 120 minutes, typically delivered 5 to 6 days per week. For patients who live within a reasonable distance of a hospital-based program, this is manageable, if burdensome. For the hundreds of thousands of DMV residents who do not, this schedule is operationally impossible.

Research consistently demonstrates that treatment adherence is one of the strongest predictors of HBOT clinical outcomes. Patients who complete a full course achieve significantly better wound-healing rates, lower amputation rates, and greater treatment success than those who discontinue early. Distance is one of the most significant predictors of early discontinuation across specialty care modalities generally, including oncology, dialysis, and wound care.

For rural DMV patients, the adherence problem is structural rather than motivational. Rural patients are no less committed to their health outcomes. The logistical requirements of a 20- to 40-session treatment protocol, with each session requiring a 2- to 4-hour round trip, exceed the realistic capacity of working adults, elderly patients with mobility limitations, and patients who lack reliable transportation.

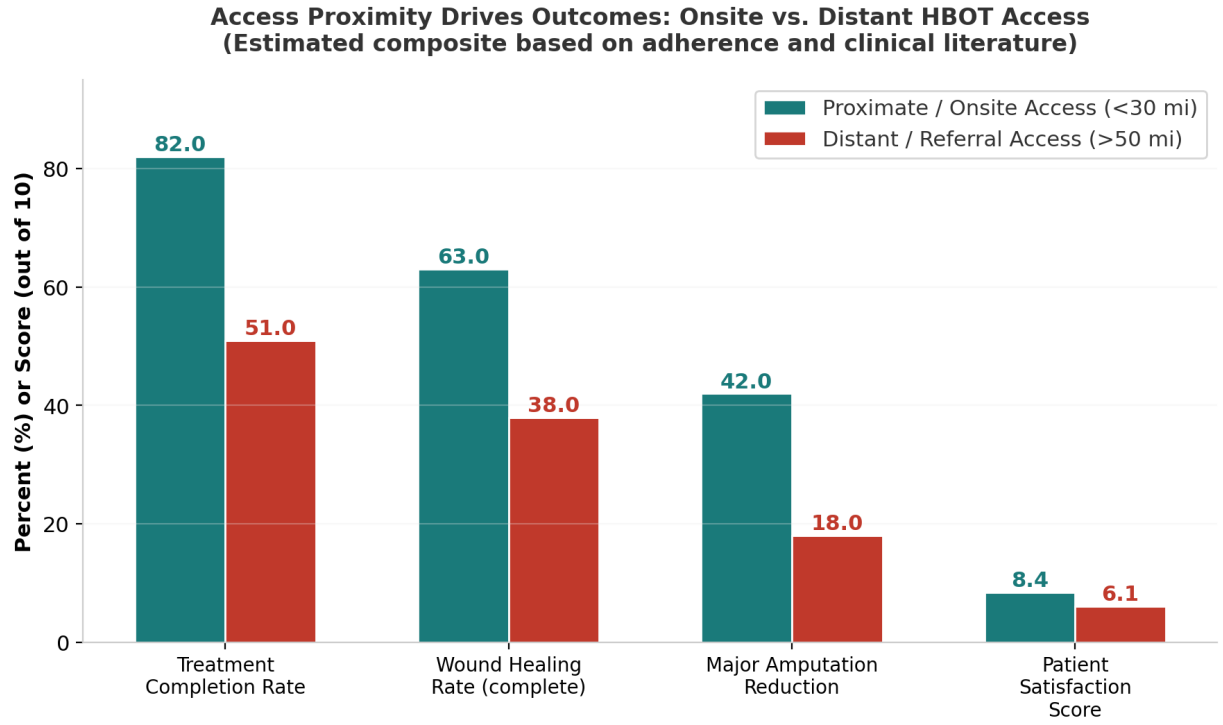

Figure 7: Illustrative comparison of treatment outcomes by access proximity. Values represent estimated ranges derived from HBOT adherence literature; direct head-to-head data in rural vs. urban settings are limited. Distance is a well-documented predictor of treatment adherence across specialty care modalities.

SECTION VII | THE URBAN ACCESS GAP

Even Within Metro Areas, HBOT Capacity Is Limited

The concentration of HBOT facilities within the DMV’s urban core should not be mistaken for adequacy. Hospital-based HBOT programs operate within the scheduling, staffing, and capacity constraints of their parent institutions. Most programs operate 4–5 monoplace chambers, treating patients sequentially. The standard 90–120 minute session length means each chamber can serve approximately 4–5 patients per day.

For a metropolitan region of 6+ million people, this translates to a combined regional HBOT treatment capacity that likely serves only a fraction of clinically eligible patients. Even within D.C. proper, MedStar Georgetown operates four chambers and is the only UHMS-accredited wound care program in the District. Patients from Southeast D.C., neighborhoods with some of the highest diabetes prevalence in the metro area, face practical access barriers including transportation time, parking costs, and work-schedule conflicts that suppress utilization even at close geographic range.

The urban access problem reinforces the case for community-based deployment. If hospital-based programs are capacity-constrained even in the metro core, the case for physician-operated, community-based HBOT in underserved neighborhoods, not just rural areas, becomes even stronger.

SECTION VII-A | REGIONAL TREATMENT CAPACITY ANALYSIS

Hospital Capacity Is Not the Same as Community Access

While the DMV region hosts several hospital-based hyperbaric programs, their combined treatment capacity is limited relative to the population's clinical need. Most hospital HBOT programs operate between 3 and 6 monoplace chambers, with each chamber treating approximately 4–5 patients per day. Because a standard HBOT course requires 20–40 sessions, each chamber can support roughly 30–40 new patients per year.

Based on publicly available facility information, the Baltimore–Washington–Northern Virginia region likely operates the equivalent of 40–50 monoplace chamber treatment positions across hospital-based programs. Using conservative utilization estimates, this infrastructure could support approximately 1,400–1,700 new HBOT patients per year in total practical capacity.

Chronic vs. Acute Demand: Two Different Infrastructure Needs

A complete view of DMV HBOT demand must separate emergent hospital-based indications from chronic, scheduled outpatient indications. These two categories have fundamentally different infrastructure requirements, and conflating them obscures the true magnitude of the access gap.

Chronic scheduled indications (diabetic foot ulcers, chronic refractory osteomyelitis, radionecrosis of soft tissue and bone, compromised grafts and flaps, and refractory actinomycosis) require repeated visits over weeks, making proximity to the patient's home essential. These are the conditions where physician-office and community-based deployment models are most clinically appropriate and where the access gap is most severe. Together they represent an estimated **10,000 patients per year** in the DMV.

Acute tertiary-center indications (carbon monoxide poisoning, decompression illness, gas embolism, gas gangrene, crush injury with acute traumatic ischemia, progressive necrotizing infections, and acute peripheral arterial insufficiency) appropriately belong in hospital settings with emergency capabilities. They add an estimated **1,100 patients per year**, and they also consume hospital HBOT chamber bandwidth, reducing the time available for chronic outpatient treatment.

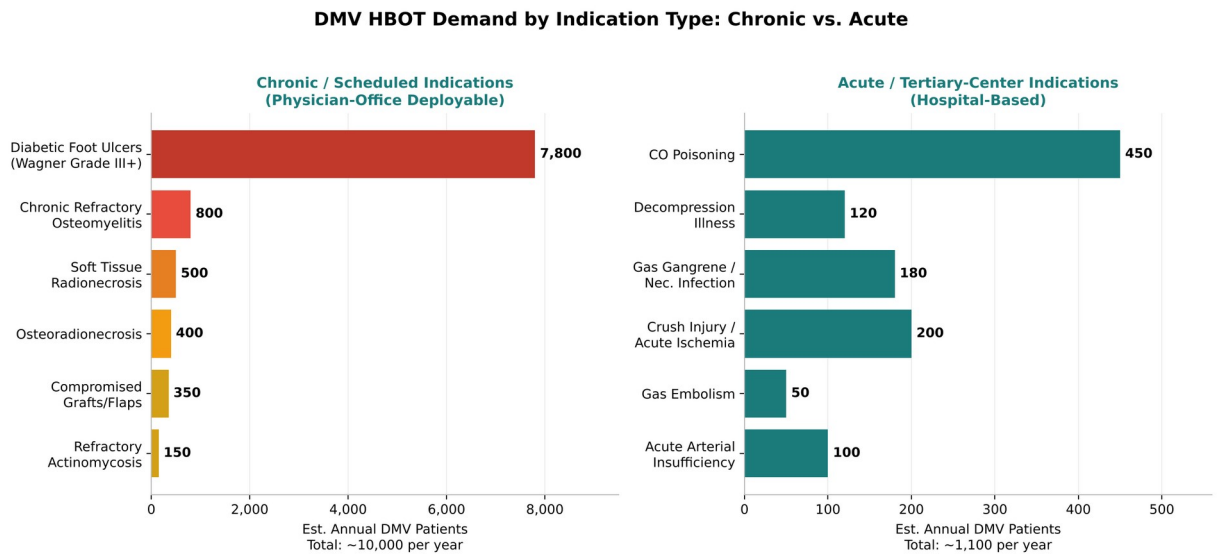

Figure 8: DMV HBOT demand separated by indication type. Chronic scheduled indications (left) represent the primary driver of unmet community-based demand at an estimated 10,000 patients per year. Acute hospital-based indications (right) add an estimated 1,100 patients per year that consume hospital chamber capacity. Estimates are directional, based on CDC prevalence data and clinical literature applied to the DMV population.

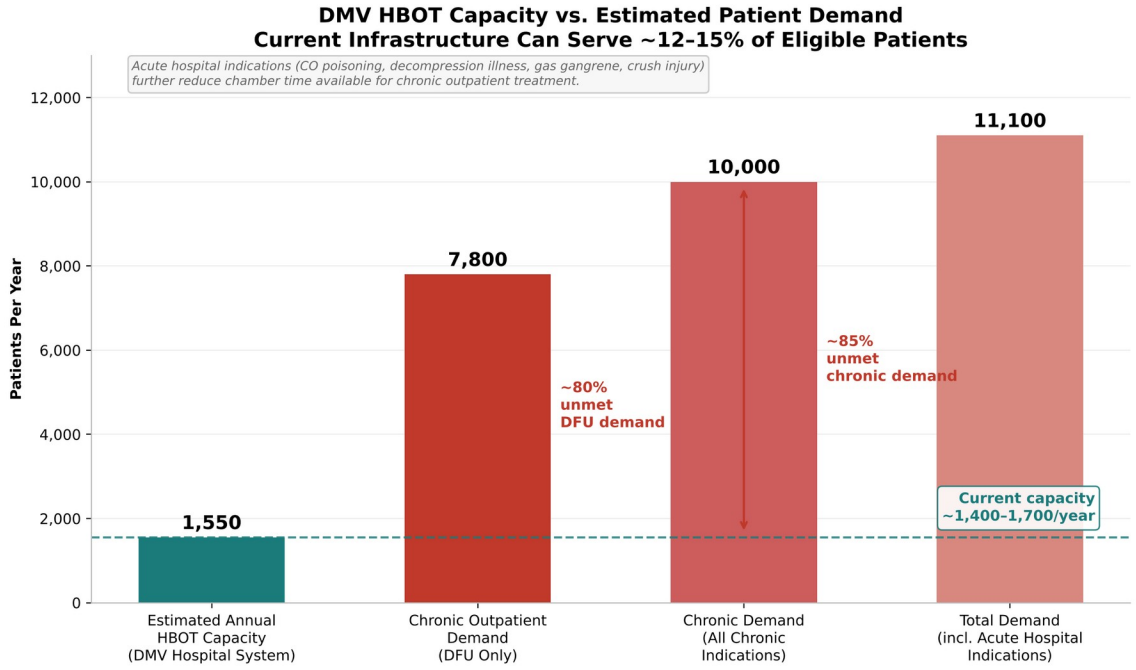

Figure 9: DMV HBOT capacity vs. estimated patient demand. The current hospital-centered infrastructure (teal) appears capable of serving approximately 1,400–1,700 new patients per year, roughly 12–15% of the estimated 11,100 total eligible patients. The gap widens further when hospital chamber time devoted to acute tertiary cases is separated from chronic outpatient availability.

THE CAPACITY FINDING

Even using conservative assumptions, the DMV’s current hospital-centered HBOT infrastructure appears capable of serving only roughly 12–15% of an estimated 11,000 clinically eligible patients each year, and likely less once chamber time devoted to acute tertiary indications is separated from chronic outpatient demand. That leaves an estimated 9,500 patients a year without practical access. This is a fundamental capacity shortfall as well as a geographic one, and it cannot be resolved within the hospital-centered model alone.

What This Means for Infrastructure Planning

The existing system is concentrated in hospitals along the Baltimore–D.C.–Northern Virginia corridor. Chronic HBOT indications require repeated scheduled visits over weeks, making proximity to the patient’s community essential for treatment completion. Hospital chambers also support acute tertiary indications such as carbon monoxide poisoning, decompression illness, gas gangrene, and crush injury, which limits the share of capacity available for chronic wound patients.

The access problem is therefore not solved merely by “having some HBOT in the region.” It requires more distributed chronic-care capacity closer to where patients live: in physician offices, community health centers, and outpatient settings that can serve the scheduled, repeated-visit needs of the chronic disease population without competing for hospital chamber time with acute emergencies.

Amputation Prevention: The Downstream Case

An estimated 8,500 chronic HBOT-eligible patients in the DMV region go without practical access to treatment each year. The clinical literature links incomplete or absent treatment of advanced diabetic wounds to higher rates of major lower-extremity amputation. If improved HBOT access prevented even 200 major amputations a year, at acute care costs of $70,000 to $100,000 per case, the region would avoid roughly $14–20 million in acute hospital costs annually. HBOT infrastructure, viewed this way, is cost-containment infrastructure for the region’s healthcare economy.

SECTION VIII | ECONOMIC IMPACT OF SUPPRESSED ACCESS

The Cost of the Infrastructure Gap

Applying conservative modeling methodology to the DMV region produces a directional estimate of the economic impact of suppressed HBOT access. HBOT is already a covered Medicare benefit under the National Coverage Determination for Hyperbaric Oxygen Therapy (NCD 20.29) for the conditions modeled here. This market does not need a new coverage policy. It needs accessible delivery infrastructure. The reimbursement pathway exists; the facilities do not.

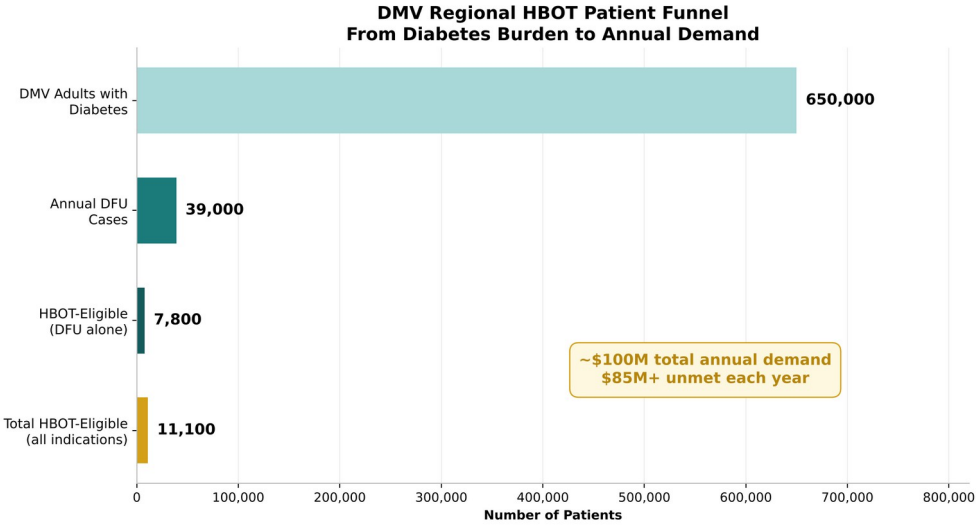

Figure 10: DMV regional HBOT patient funnel, from diabetes burden to annual demand. Conservative modeling using CDC diabetes prevalence data and clinical literature on DFU rates and HBOT eligibility.

Modeling Step	Assumption / Source	DMV Estimate
DMV Region Population	U.S. Census / Metro Statistical Area	~6.3 million
Diabetes Prevalence (Regional Avg.)	BRFSS / CDC (~10–11%)	~650,000 adults with diabetes
Annual DFU Incidence	6% of diabetics (clinical literature)	~39,000 annual DFU cases
HBOT-Eligible (Chronic/Non-Healing DFU)	~20% of DFUs become chronic	~7,800 eligible DFU patients/year
Other Chronic Indications	Osteomyelitis, radionecrosis, grafts/flaps, actinomycosis (Figure 8)	~2,200 patients/year
Acute Hospital Indications	CO poisoning, decompression illness, gas gangrene, crush injury, other (Figure 8)	~1,100 patients/year
Total HBOT-Eligible Patients	Chronic + acute	~11,000 patients/year
Avg. Reimbursement per Patient	Conservative blended estimate, below a full 30-session course	$9,000 per patient
Total Annual DMV HBOT Demand	~11,000 × $9,000	~$100 million
Unmet Annual Demand	~9,500 patients beyond current capacity (~1,550/year)	~$85 million (~85%)

COST AVOIDANCE: DMV CONTEXT

Every major lower-extremity amputation avoided saves an estimated $70,000–$100,000 in acute care costs alone, before rehabilitation, prosthetics, lost income, and long-term disability. Preventing 200 amputations a year in the DMV region would avoid $14–20 million in acute hospital costs annually. Paper 4 in this series examines the full economic case.

SECTION IX | IMPLICATIONS FOR DMV STAKEHOLDERS

What This Means for the Healthcare Economy

For Healthcare Policy and the Social Safety Net

The DMV HBOT access gap reflects a broader infrastructure mismatch between clinical demand and treatment capacity, a structural blind spot in regional health planning. Specialty care access metrics at the county level do not currently include hyperbaric medicine, meaning the gap is invisible to the planning frameworks that allocate resources. Maryland's HSCRC model and the AHEAD initiative provide potential vehicles for integrating HBOT access into rural care transformation metrics, but only if the gap is first made visible and measurable.

As Medicaid coverage contracts under H.R. 1, the patients who lose coverage are disproportionately those with chronic conditions requiring ongoing specialty care. The downstream costs of untreated diabetic wounds (emergency amputations, extended hospitalizations, long-term disability) do not disappear when coverage does. They shift to emergency departments, uncompensated care pools, and long-term safety net programs.

For Insurance and Payer Economics

HBOT is an already-covered Medicare benefit under NCD 20.29. The reimbursement pathway exists. What does not exist is the delivery infrastructure within practical reach of a significant portion of the covered population. For commercial insurers and Medicare Advantage plans operating in the DMV, expanding HBOT access represents an opportunity to reduce downstream costs: every successfully treated chronic wound is an amputation avoided, a hospitalization prevented, and a long-term disability claim that never materializes.

For Local Healthcare Access and Quality of Life

For communities on the Eastern Shore, in Southern Maryland, and in rural Virginia, the absence of HBOT is part of a broader pattern of specialty care withdrawal. When a diabetic patient in Cambridge, MD, learns they need 30 sessions of hyperbaric therapy and the nearest facility is 80 miles away, the treatment is clinically indicated and logistically impossible. What follows is often labeled "patient non-compliance." It is infrastructure failure.

For Families and Patient Outcomes

The human cost of the access gap is borne by families. A diabetic wound that could have been healed with a completed HBOT course instead progresses to amputation. The patient loses mobility, employment capacity, and independence. The family absorbs caregiving burdens. The community loses a productive member. These outcomes are the documented consequences of treatment non-completion, and treatment non-completion is directly predicted by distance to care.

SECTION X | RECOMMENDATIONS

A Path Forward for the DMV Region

For Regional Health Systems and Providers

- University of Maryland Shore Regional Health and MedStar Health should evaluate the feasibility of physician-operated HBOT deployment at Eastern Shore locations, beginning with Easton or Chestertown as pilot sites.
- Federally Qualified Health Centers (FQHCs) serving the Eastern Shore, Southern Maryland, and rural Virginia should assess local HBOT demand using diabetes prevalence data and wound care referral patterns.
- Inova Health System and Sentara Health should explore satellite HBOT deployment in community health center networks serving populations beyond the I-95 corridor.

For Maryland and Virginia State Policymakers

- Maryland's HSCRC should incorporate HBOT facility availability as a measurable dimension of rural specialty care access under the AHEAD model.
- Virginia should pursue Rural Health Transformation Program allocations that explicitly include physician-operated HBOT deployment in counties identified as at risk for hospital closure.
- Both states should track HBOT utilization and access gaps at the county level alongside existing specialty care metrics.

For Federal Stakeholders

- CMS should include HBOT access as a measurable indicator in rural health demonstration programs, including the AHEAD model operating in Maryland.
- HRSA rural health grant programs should designate HBOT deployment as an eligible use category for community health center funding.
- The NIH and FDA, both headquartered in the DMV, should prioritize research on community-based HBOT delivery models. The access gap is visible from their own offices.

SECTION XI | DATA SOURCES AND METHODOLOGY

Data Sources

This brief synthesizes publicly available data from peer-reviewed literature, federal data sources, health system public materials, and health policy research organizations. All primary statistics are cited to specific sources to enable independent verification.

Source	Data Used
MedStar Health (public materials)	HBOT program locations, UHMS accreditation, chamber counts
Inova Health System (public materials)	HBOT locations (Mt. Vernon, Fair Oaks, Lansdowne), UHMS accreditation
University of Maryland Medical System	Shock Trauma multiplace chamber, Eastern Shore facility status
Frederick Health Hospital (public materials)	HBOT program; only MD wound center with UHMS Accreditation with Distinction
Meritus Health / Meritus Medical Center	HBOT program; UHMS accredited with distinction; 4 chambers; tri-state catchment area
CDC BRFSS / Preventing Chronic Disease (2025)	State-level rural–urban diabetes disparities; MD and VA among 7 significant states
Virginia Dept. of Health (VDH) BRFSS	Regional diabetes prevalence by VA health district
UMSOM Rural Health Initiative (2024)	Eastern Shore MUA/HPSA designations; physician shortage data
UNC Sheps Center (2025)	338 rural hospitals at risk nationally; 6 in Virginia
CHQPR (April 2025)	9 Virginia rural hospitals at risk; 8 at immediate risk
Virginia Hospital & Healthcare Assn.	$4.7B annual / $26B 14-year projected revenue loss from H.R. 1
CNN / Virginia Independent (Sept. 2025)	Augusta Health closure of 3 rural clinics citing H.R. 1
American Diabetes Association (MD)	633,000+ MD adults with diabetes; 36,371 new diagnoses annually
CMS National Coverage Determination 20.29	Medicare coverage criteria for hyperbaric oxygen therapy
America's Health Rankings / BRFSS 2023	Maryland diabetes prevalence; metro vs. nonmetro disparities
FDA Safety Communication (August 2025)	Provider recommendations for HBOT device safe-use practices
Stateline / Pew (September 2025)	UHMS executive director estimate of 20,000 non-code-compliant chambers; incident history
NBC News / CNN / ABC News (2025)	Oxford Center (MI) and Lake Havasu (AZ) incident reporting and charges

Methodology Note

Facility counts are based on publicly available provider directories, health system websites, and UHMS accreditation listings as of early 2026. The DMV capacity model applies conservative methodology: CDC-published diabetes prevalence rates, clinical literature on diabetic foot ulcer incidence (6% annual rate, consistent with Margolis et al., *Diabetes Care*), and chronic wound HBOT eligibility estimates (20% of DFUs, mid-range of 15–25% in published clinical literature). Demand for the other chronic and acute indications is estimated by indication (Figure 8). Chamber throughput estimates assume 4–5 patients per chamber per day, consistent with industry-standard wound care center operations. Travel distances are estimated using standard mapping tools.

NOTE ON ESTIMATES & DIRECTIONAL MODELING

The capacity and demand estimates in this brief are directional planning figures, not precise market forecasts. They are designed to illustrate the magnitude of the gap between clinical need and treatment availability. The fundamental patterns documented here (facility concentration, geographic access gaps, capacity constraints, legislative risk, and disease burden mismatch) are robustly supported across multiple independent data sources and peer-reviewed literature.

RxAir360 DISCLOSURE

RxAir360 Inc. has completed device development. Third-party electromagnetic compatibility (EMC) and electrical safety testing has been completed, and the company is finalizing its FDA 510(k) submission. The RxAir360 device has not yet received FDA clearance. This report documents a structural infrastructure gap and the community-based delivery model designed to address it, and does not constitute promotional claims for a cleared device.

MEDICAL ADVISORY BOARD

This research was developed in consultation with the RxAir360 Medical Advisory Board, co-chaired by Jeffrey A. Niezgoda, M.D., FACHM, MAPWCA, CHWS (President, American Professional Wound Care Association; Past President, American College of Hyperbaric Medicine; Founder & President Emeritus, AZH Wound & Hyperbaric Center) and Tyler Sexton, M.D., MAPWCA, CHWS (President, American College of Hyperbaric Medicine). The Medical Advisory Board provides clinical guidance on HBOT access, deployment models, and patient care standards.

A Note on Safety: Oversight and Accreditation Matter

Hyperbaric oxygen therapy operates in an oxygen-rich environment and therefore requires strict attention to fire prevention, grounding, staff training, and manufacturer instructions. In August 2025, the FDA reminded providers and facilities of these requirements and the importance of safe-use practices for HBOT devices.

Recent chamber incidents in non-hospital and wellness settings have heightened public concern. Between 2009 and 2025, serious U.S. incidents include: a fatal chamber fire at an unaccredited Florida clinic in 2009; a chamber explosion at a Utah wellness spa in 2023 that seriously injured two people; the death of a 5-year-old child at the Oxford Center in Troy, Michigan, in January 2025, where investigators found safety protocols were completely disregarded; and a fatal flash fire at a wellness clinic in Lake Havasu City, Arizona, in July 2025.

The policy lesson from these incidents is that safe HBOT depends on code-compliant equipment, trained operators, and physician-supervised care delivered within recognized safety frameworks. John Peters, Executive Director of the Undersea and Hyperbaric Medical Society, has noted that experts believe there may be as many as 20,000 non-code-compliant chambers operating in the United States. That estimate underscores the critical importance of accreditation, NFPA compliance, and physician oversight in any HBOT deployment model.

SECTION XII | THE INFRASTRUCTURE SOLUTION MODEL

From Infrastructure Gap to Infrastructure Solution

The access gap documented in this brief is not a knowledge problem. HBOT is clinically established, Medicare-reimbursable, and physician-prescribed. It is not constrained by clinical evidence or coverage policy. The barrier is structural: the therapy exists inside institutions that the communities needing it most cannot reach, cannot afford to travel to, and cannot sustain attendance at across a 20–40 session treatment course.

The appropriate infrastructure response is a complement to the existing hospital-based system, not another hospital wing: a compact, code-compliant HBOT system deployable within the footprint of a physician's existing practice, subject to FDA clearance. Wound care specialists, primary care physicians, federally qualified health centers, and multispecialty groups already operating in the communities identified in this analysis represent the natural deployment network for community-based HBOT capacity.

The Physician-Office Integration Model

The physician-office deployment model offers structural advantages that the hospital-centered system cannot replicate. Hospital programs are not inadequate; they were designed for a different purpose.

PROXIMITY IS BUILT IN

A system integrated into a community physician's practice is located where the patient already has an established care relationship. For a patient in Kent County, Cambridge, or Leonardtown, that means the 70–110 mile travel burden documented in Section III is eliminated entirely. For a therapy requiring 20–40 visits, the difference between a 10-minute drive and a 70-mile drive is the difference between completing treatment and abandoning it.

CAPACITY IS DEDICATED, NOT COMPETED AWAY

Hospital hyperbaric chambers must allocate time between scheduled chronic wound patients and acute tertiary cases: carbon monoxide poisoning, decompression illness, gas gangrene, crush injury. Those acute cases are clinically appropriate for hospital settings, but they consume chamber bandwidth that would otherwise serve chronic outpatient patients. A physician-office system serves chronic scheduled indications exclusively, meaning every available treatment slot reaches the patient population this analysis identifies as most underserved.

THROUGHPUT IS PREDICTABLE AND SCALABLE

A single compliant monoplace system operating at standard wound care center utilization rates (4–5 patients per day, 5 days per week) can support approximately 1,000–1,200 treatment sessions annually, the equivalent of 30–60 new patients per year per deployed unit, depending on treatment course length. This throughput is predictable, schedulable, and directly tied to the Medicare reimbursement stream that already exists for these indications.

The Deployment Math

The DMV region's access gap is large, but it is not insurmountable. The math of distributed deployment makes the scale of the opportunity clear.

Deployment Scale	Est. New Patients/Year	Est. Gross Reimbursement
1 deployed unit	30–60 new patients/year	~$360K–$720K gross reimbursement
10 deployed units	300–600 new patients/year	~$3.6M–$7.2M gross reimbursement
50 deployed units	1,500–3,000 new patients/year	~$18M–$36M gross reimbursement
100 deployed units	3,000–6,000 new patients/year	~$36M–$72M gross reimbursement

Note: Reimbursement modeled at ~$400/session × 30 sessions per course. Figures represent gross Medicare reimbursement to treating physicians, not RxAir360 revenue. Actual figures vary by payer mix, indication, and local reimbursement rates.

The DMV region has an estimated 9,500 clinically eligible patients per year that the current hospital infrastructure cannot practically reach. Deploying even 20 physician-office units across the Eastern Shore, Southern Maryland, and rural Virginia corridors identified in this brief would add meaningful new capacity to a system currently serving roughly 12–15% of eligible patients, without displacing a single hour of hospital chamber time.

Leasing Infrastructure: RxAir Capital Solutions

Physician adoption of new technology is constrained by capital requirements. A physician practice that recognizes the clinical need for HBOT capacity may lack the upfront investment required to acquire and install a compliant system. That friction is one of the structural reasons community-based HBOT has not scaled despite an existing reimbursement pathway.

RxAir Capital Solutions, the planned leasing subsidiary of RxAir360 Inc., is designed to address this directly. By enabling physician practices to deploy HBOT capacity without upfront capital expenditure, structured against the Medicare reimbursement stream the therapy already generates, the leasing model removes the primary adoption barrier at the practice level.

WHY THE LEASING MODEL MATTERS FOR INFRASTRUCTURE INVESTORS

This structure turns what would otherwise be a device sale into a recurring revenue relationship. Each deployed unit generates a predictable, Medicare-backed revenue stream over its lease term. The asset is placed with a credentialed physician operating within an existing clinical workflow. The reimbursement pathway is already established under NCD 20.29. The result is an asset-backed infrastructure investment with characteristics more comparable to dialysis center deployment or medical imaging infrastructure than to a conventional medical device transaction.

Why Now: The Infrastructure Deployment Window

The conditions creating urgency for community-based HBOT deployment are active, accelerating, and converging.

→ **Rural hospital closures are eliminating referral networks.** The 195 rural hospitals that have closed nationally since 2005 represent lost access nodes, not just for primary care but for the specialty referral pathways through which rural patients reach HBOT. The 338 at risk nationally, including six in Virginia, represent HBOT access nodes on the verge of disappearing entirely.

→ **H.R. 1 suppresses hospital capacity expansion.** Hospital systems facing $4.7 billion in projected annual revenue losses in Virginia alone are not positioned to expand specialized infrastructure. The pipeline for new hospital-based HBOT programs is constrained at precisely the moment chronic disease burden is growing and referral demand is increasing.

→ **Medicare reimbursement is already in place.** This market is not waiting for coverage policy to catch up. Medicare covers HBOT today under NCD 20.29. What is missing is the delivery infrastructure within practical reach of the covered population. The infrastructure gap is the only gap that needs closing.

→ **The physician network is ready.** Wound care specialists, primary care practices, and federally qualified health centers are already treating the patient populations that need HBOT. The referral relationship exists. The clinical need is documented. The deployment infrastructure is the missing piece.

THE BOTTOM LINE

HBOT is not limited by clinical evidence. It is not limited by reimbursement coverage. It is limited by infrastructure, specifically by the absence of compliant, physician-supervised HBOT systems within practical reach of the communities that need them most.

The infrastructure gap is a design problem. Infrastructure design problems require infrastructure design solutions. RxAir360 Inc. is developing a compact, physician-office-deployable HBOT system engineered specifically for the community-based deployment model described in this analysis, with the footprint, safety architecture, and clinical workflow integration required for outpatient physician practices, subject to FDA clearance.

The access gap is documented. The reimbursement pathway exists. The deployment model is designed. The window for action is open now, while the rural health infrastructure that has historically served as the referral bridge to HBOT still exists to be supplemented rather than replaced.

CONCLUSION

The DMV region offers a uniquely powerful case study for the national HBOT access argument. The same infrastructure failures documented in America's most remote rural communities exist within sight of the institutions charged with solving them. A diabetic patient on Maryland's Eastern Shore, less than 90 miles from the NIH campus, has the same functional HBOT access as a patient in the Mississippi Delta: effectively none.

Hyperbaric oxygen therapy is clinically established, reimbursed by Medicare, and widely available in hospitals, yet structurally inaccessible to hundreds of thousands of DMV residents who need it most. This is not a problem of medical knowledge or clinical controversy. The FDA has cleared HBOT for 14 indications. Medicare covers it. The clinical evidence supports it. What is missing is the infrastructure to deliver it where patients actually live.

The access gap is not narrowing on its own. It is being widened by the same forces closing rural hospitals, threatening Medicaid coverage, and concentrating healthcare delivery in systems that rural and semi-rural communities cannot reach. The One Big Beautiful Bill Act, now law, accelerates these dynamics at a moment when rural hospital infrastructure is already under maximum stress.

The DMV does not merely need more HBOT. Addressing the hyperbaric access gap will require a more balanced infrastructure mix: tertiary hospital-based capacity for acute emergencies such as carbon monoxide poisoning and decompression illness, and community-proximate, physician-supervised capacity for chronic, repeated-course treatment of diabetic wounds, osteomyelitis, and radionecrosis. Even using conservative assumptions, the current hospital-centered infrastructure appears capable of serving only roughly 12–15% of clinically eligible patients each year, and likely less once chamber time devoted to acute tertiary indications is separated from chronic outpatient demand.

Hyperbaric oxygen therapy is not limited by clinical evidence or reimbursement coverage. It is limited by infrastructure. That infrastructure gap is a design problem. And infrastructure design problems require infrastructure design solutions. RxAir360 Inc. is developing technology intended to support community-based HBOT delivery models that could bring this therapy closer to the communities that need it, subject to FDA clearance. Documenting the access gap in our own region, where it is visible from the offices of the institutions charged with solving it, is the most credible starting point for a national conversation.

6M+ DMV Metro Population	**0** HBOT Facilities on MD Eastern Shore	**$85M+** Unmet Annual DMV HBOT Demand	**Now** A Window for Policy & Infrastructure Action

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