



# The Myth of Site-of-Care Shift

Rising Emergency Department  
Use Rates Defy Predictions

## COMPELLING RELEVANCE

As part of our advisory practice, Array works with many clients to develop short and long-term volume projections using a myriad of inputs. One of these inputs is the forecasted change in use rate of different modalities and sites of care taken from leading suppliers of industry benchmarks. After repeated instances of clients across the Eastern seaboard opting against using declines in emergency department use rate, we decided that further investigation was warranted. Our clients made this decision because, anecdotally, their leadership had never seen those predictions come to fruition and, quantitatively, the data backed up these claims. This paper reports the results of our investigation into this matter.

## A NARRATIVE FAILING TO MATERIALIZE

Emergency department visit volumes are driven by two factors: population and use rate. If the population is growing and the use rate stays the same, ED volume will increase. If the population is shrinking and the use rate stays the same, volume will decrease. The same calculus applies to changes in the ED use rate: if the population stays the same and the ED use rate increases, ED volumes will increase.

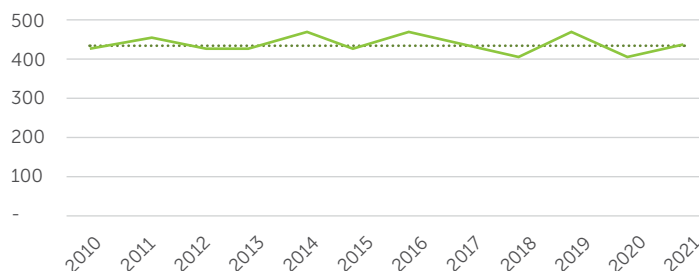
The narrative that has been pushed to hospital administrators, strategic planners, and facility planners for years is that site-of-care shifts are causing emergency department use rates to decrease, and they will continue to do so. This narrative comes from industry experts and vendors who develop and sell health service volume projections and predicted that, as alternative immediate care options like urgent care centers and retail clinics proliferated, lower acuity emergency department visits would shift to these new sites, leaving emergency departments with fewer visits. That assumption leaves the following scenarios for planning emergency department volumes:

<b>USE RATE</b>	Decreasing	Decreasing	Decreasing
<b>POPULATION GROWTH</b>	Decreasing	Constant	Increasing
<b>ED VOLUME</b>	Decreasing	Decreasing	Variable

In most cases, relying on this assumption and the resulting scenarios for facility planning will lead to the logical conclusion that emergency departments will need less space in the future as volumes will decrease. However, despite the narrative that alternative sites of care will lead to a decrease in ED use rates, this projection has not come to fruition. Instead, we have seen a steady increase in ED use rate over time (Figure 1), with the Coronavirus pandemic sparking the only significant, consistently documented decrease in ED use rates in the past two decades.

**FIGURE 1: ED RATE PER 1,000**  
NHAMCS USE RATE | ACA-PRESENT

$$y = 0.6329x + 436.86$$

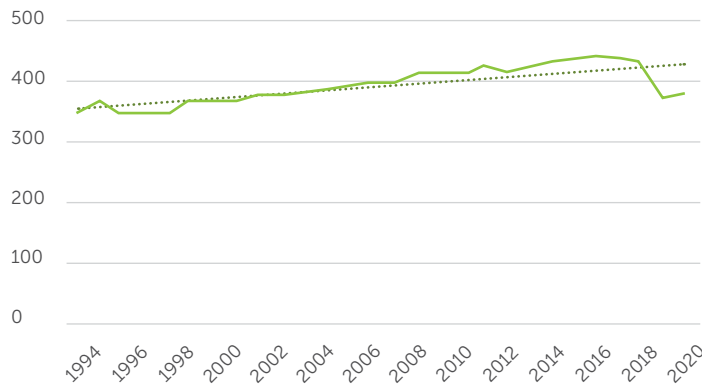


The NHAMCS is the longest running survey that estimates total annual emergency department visits within the United States. Taken together, the graphs in Figures 1–2 show that, while the growth rate has slowed in the past decade, it is only with the impact of the COVID-19 pandemic that the trendline shows a decrease in use rate over time. Preliminary post-pandemic estimates are showing a return of ED visit volume.

**FIGURE 2: ED VISITS PER 1,000**

**AHA USE RATE**

$y = 3.1004x + 350.43$



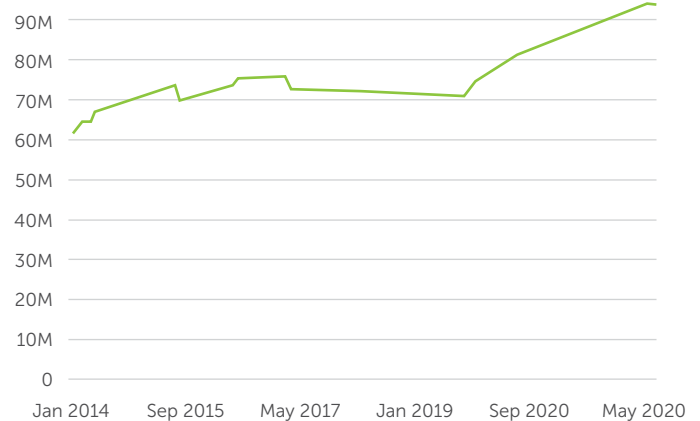
The AHA also has a longstanding listing of emergency department use rates in the United States. Both sources' total numbers are based on a sampling and statistical modeling to create a national estimate. While the numbers vary slightly, directionally, the NHAMCS and AHA data tell the same story.

Relying on the historical trend leads to the exact opposite conclusion—emergency departments will most likely experience an increase in visits in the future, which will require either more space, more positions, and/or more efficient operations to accommodate higher volumes in an equivalent space.

<b>USE RATE</b>	Increasing	Increasing	Increasing
<b>POPULATION GROWTH</b>	Decreasing	Constant	Increasing
<b>ED VOLUME</b>	Variable	Increasing	Increasing

While the purported decrease in use rate has not been observed historically, there has been a proliferation of other options for immediate and urgent care. According to the Urgent Care Association, the number of urgent care clinics in the United States has increased by 125% in the last decade. Of course, urgent care centers are only one of the alternative immediate care settings that have developed over the past 10+ years, with retail clinics and telehealth options also experiencing significant growth. Therefore, the continuing increase in emergency department use rate is occurring despite the growth of other sites of care touted as venues that can offload ED volume in lower cost settings.

**FIGURE 3: URGENT CARE CLINIC COUNT | UNITED STATES**



This apparently redundant increase in volume is possible for two, albeit connected, reasons. The first is the supposition that ED use rates will go down as the volume of visits shifts to alternate sites. This is based, at least in part, on the assumption that we are currently meeting the demand for emergency or immediate care, and that it is a zero-sum game: a shift in visits from the ED to other settings necessarily means that ED volumes will decline. In reality, many segments of the population currently lack adequate access to emergency and immediate care; in fact, many lack sufficient access to overall health care services. The addition of alternative care settings only frees up capacity that can address this previously unmet need.

The second reason is the phenomenon of supply induced demand. In healthcare, this is the tendency for health equipment and facilities to be used because they are available. This theory suggests that as more facilities are developed that can accommodate low-acuity, urgent visits, additional demand/volume will be created. One study found that the impact of urgent care centers on deterring lower acuity ED visit volume was so small that 37 additional urgent care center visits were associated with a reduction of a singular ED visit ([source](#)). It is fully possible and likely that some patients who, in the past, might not have sought care at an emergency department are now seeking care at an urgent care center or retail clinic, resulting in no or limited impact on ED volumes. Accordingly, while some ED volume may be shifting to alternate sites of care, other variables are outweighing the site of care shift. Those variables may include factors such as age, insurance coverage, race, facility location, and unmet demand for specialized care, such as behavioral health services. These factors are also likely to have impacts on the acuity of patients treated in the ED in the future.

## IMPLICATIONS FOR FACILITY PLANNING FOR EMERGENCY DEPARTMENTS

Reviewing our findings so far: based on the historical data – at least on an overall basis – we have found the projected decrease in emergency department use rates has not come to fruition. Instead, there has been a steady increase in ED use rate over time. We noted that there are other variables that are outweighing the site of care shift. When considered, these may help facility planners and operators better plan future space (and configuration) needs of their emergency departments. In particular, we noted that segmenting the population based on different attributes might lead to more nuanced conclusions.

Next, we will examine the implications of those population attributes for the use of the emergency department and how they impact ED facility planning.

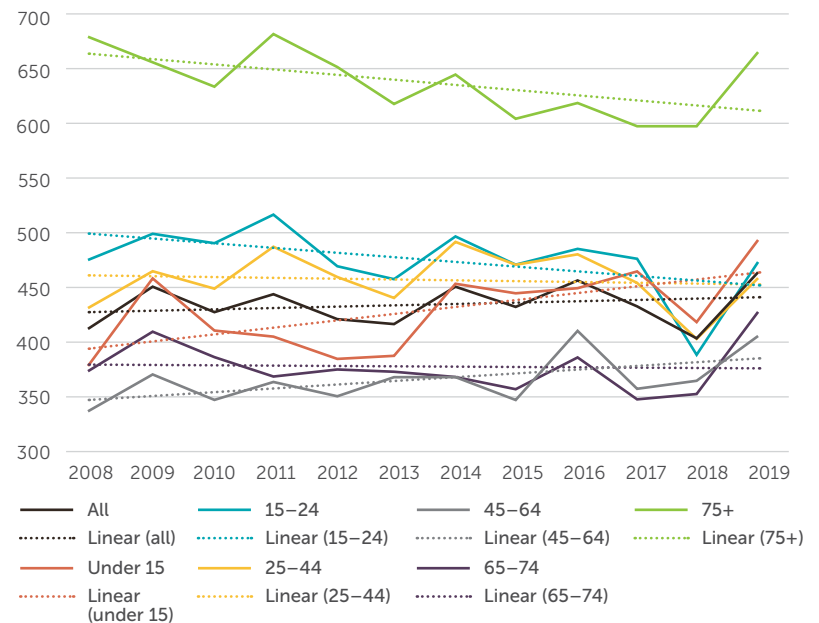
### Trends in ED Utilization by Demographic Segment:

While the overall national emergency department use rate has not demonstrated the predicted decline, if the data are examined by demographic segment, including by age, race, and insurer type, it becomes apparent that some groups are driving higher emergency department use while others are decreasing their ED use.

#### 1 ED Use by Age

As shown in the table to the right, from 2008 to 2019, only two age groups drove the overall use rate increase: those under 15 (accounting for the largest absolute change of any group) and those 45-64. With so much talk about the “greying of America,” it is surprising that the use rate of the oldest segment of the US population has been decreasing over time. However, one must note that, despite its decline, the use rate for this age cohort is still far higher than any other age group. Further, the rate of growth in this age cohort is outpacing the decline in use rate, meaning that emergency departments are still seeing increasing volumes from this segment of the population. The findings displayed in Figure 4 are summarized below.

**FIGURE 4: ED USE RATE BY AGE 2008 - 2019**  
CDC NHAMCS SURVEY DATA

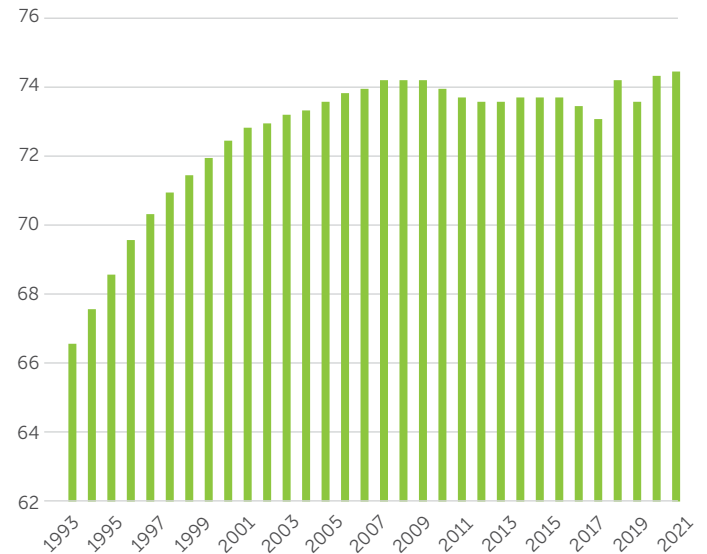


AGE	DIRECTIONAL TREND	SLOPE OF TREND (visits per thousand per year)
All	Increasing	1.1/1,000 per year
Under 15	Increasing	6.3/1,000 per year
15-24	Decreasing	4.3/1,000 per year
25-44	Decreasing	0.5/1,000 per year
45-64	Increasing	3.4/1,000 per year
65-74	Decreasing	0.4/1,000 per year
75+	Decreasing	4.8/1,000 per year

While the population of the oldest Americans has grown rapidly, the youngest segment of the US population has remained relatively consistent over the last decade. However, based on the data obtained from the NHAMCS surveys, the use rate of this age group experienced the largest increase from 2008–2019, resulting in an overall increase in ED utilization.

One might intuitively expect that this age group would have experienced the greatest shift to use of alternative immediate care settings as parents seek to keep kids out of the hospital. However, legislative and regulatory changes that occurred during this period likely impacted ED utilization by this age cohort, most notably the expansion of Medicaid/CHIP under the Affordable Care Act in 2014, which may well have contributed to the 17% increase in ED use rate by this age group from 2013 to 2014.

**FIGURE 5: POPULATION 0–17 FROM CHILDSTATS.GOV**



It should be noted that the anecdotal expectation that parents are seeking to keep their kids out of the hospital may have been borne out during the pandemic. From 2019 to 2020, the population under the age of 15 experienced the largest decline in ED use rate (38%) of any age group (overall average decline of 13%).

These data suggest that a shift in use of the emergency department to alternative immediate care settings may be occurring in certain age segments of the population, primarily those ages 15 to 44, but access issues for younger kids persist; and, while the overall ED use rate for the elderly population is declining, the magnitude of growth in that age group continues to drive high ED utilization, which can be expected to continue in the future.

These trends in ED use by age cohort suggest that, in addition to planning for increased overall demand, facility planners should examine the configuration of the ED to better accommodate the special clinical needs of specific segments of the population, most notably pediatric and geriatric patients, who are likely to continue to drive increasing ED volumes.

## 2 ED Use by Insurance Type

The Emergency Medical Treatment and Labor Act (EMTALA) governs hospital-based emergency departments. EMTALA requires emergency departments to screen and stabilize a presenting patient regardless of insurance status or their ability to pay for services. However, it does not apply to alternative immediate care options, such as urgent care centers, retail clinics, and telehealth services. For instance, urgent care centers are allowed to selectively treat patients based on their insurer and their ability to pay for the services provided.

In examining trends in ED utilization for the four largest expected payment sources for emergency department visits—private pay, Medicaid/CHIP, Medicare, and no insurance—it is clear that the trends are different for individuals with private versus public insurance. As can be seen in Figure 6, from 2008 to 2020, the percentage of emergency department visits covered by private insurance decreased by approximately 28%, while the percentage of emergency department visits covered by Medicaid/CHIP grew by about 53%. The percentage covered by Medicare also grew about 18% in this time period.

Figure 7 shows the trend in visit volume by source of payment.

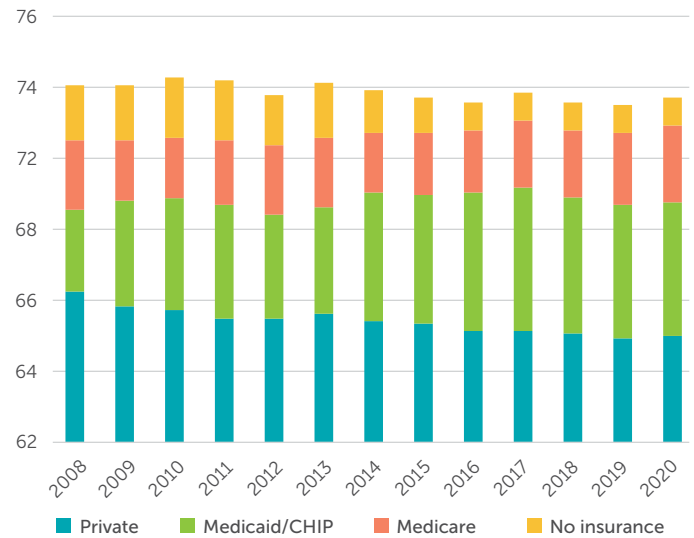
As can be seen in the graph, one decade ago, private insurers were the largest payer for emergency department visits. However, the amount of emergency department visits covered by private insurers has steadily decreased over time, while the number of emergency department visits covered by Medicaid/CHIP has rapidly increased, especially since 2014. While less drastic, the total number of Medicare visits has also been climbing steadily over time, a trend that can be directly contributed to the population growth of those 65+ since their use rate is declining.

Taken together, what we are seeing in the United States is a shifting of emergency department use from a mixed population of privately and publicly covered patients to being a site of care primarily for publicly insured patients. This shift is likely attributable to differences in overall access to care. During the course of a master facility planning process that we recently conducted for an inner-city hospital, our interviews and user group meetings provided strong anecdotal evidence that certain segments of the population continued to use the emergency department for care despite the potential availability of alternative settings because a visit to the ED may be their only interaction with the medical system over some period of time. Because EMTALA requires hospitals to treat all patients who come to the ED, the visit may be their one opportunity to get a more comprehensive assessment of their myriad medical issues. Such comprehensive evaluation and treatment are neither available through alternative immediate care settings, and, as we have discussed, these settings are not subject to EMTALA.

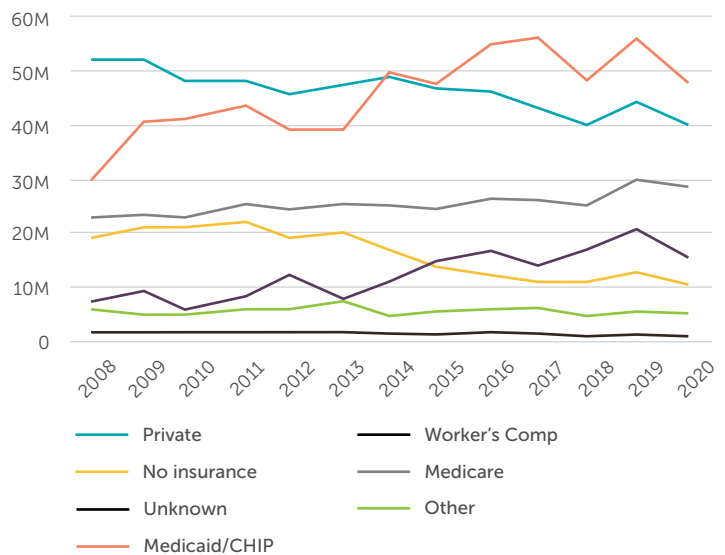
Accordingly, until and unless alternative sites of care emerge that provide comprehensive evaluation and care outside of the emergency department, ED use by these segments of the population is likely to continue at or above current levels despite the prevalence of alternative immediate care settings.

Facility planners must examine their hospital's catchment area and emergency department payor mix compared to national and regional averages. If the catchment area and/or hospital has a higher percentage of Medicaid/CHIP and Medicare, it is more likely that you will see increased ED use rates in the future. Conversely, if the hospital has a higher percentage of private insurance coverage, it is more likely to see steady or decreasing use rates. Combining those use rate assumptions with the projected population growth of the catchment area can help to inform future ED volumes and space needs.

**FIGURE 6: PERCENT OF INSURANCE TYPE EXPECTED TO PAY FOR EMERGENCY DEPARTMENT VISITS**



**FIGURE 7: ESTIMATED EMERGENCY DEPARTMENT VISIT VOLUME BY SOURCE OF EXPECTED PAYMENT NHAMCS**





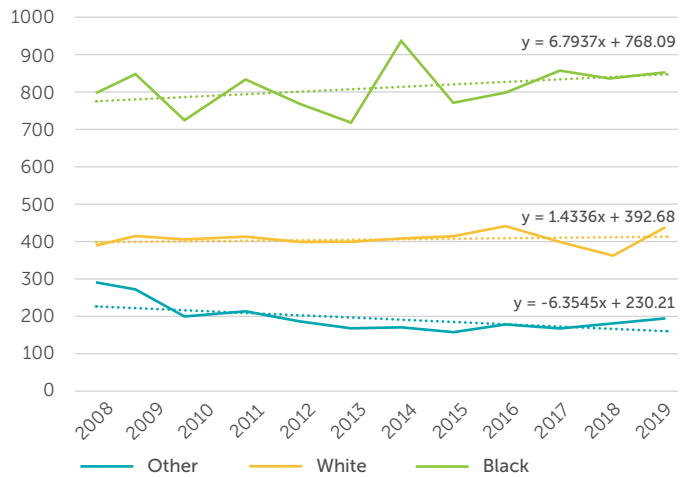
### 3 ED Use by Race

The topic of equity in healthcare is at the forefront of many health professionals' minds, especially after COVID highlighted the various and numerous inequities that exist. Unfortunately, segmenting ED use rate by race reveals the same disparity. As evidenced through NHAMCS data depicted in Figure 8, year-after-year, the emergency department use rate of black Americans is about double that of white Americans and quadruple that of other races. Further, the historical trend of ED use rate within each of these groups suggests that, without successful interventions, this disparity will continue to increase as the use rate among black Americans is increasing nearly 5x faster than among white Americans.

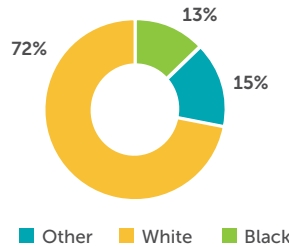
In addition, as illustrated in the pie charts in Figures 9 and 10, while white Americans still account for the majority of ED visits overall, averaging around 72% per year, their percentage of ED visits are proportional to their percentage of the population. Black Americans, on the other hand, have a disproportionate use of the emergency department, accounting for approximately 24% of ED visits nationally despite comprising only about 13% of the United States population (US Census Bureau, ACS 2019 1-year estimates).

Facility planners should examine racial demographics in their hospital's catchment area when planning for renovated, expanded, or new emergency departments. If there is a higher percentage of black Americans compared to national and regional averages, it may contribute to faster increases in future ED use rate. Conversely, if there is a higher percentage of white Americans, the hospital is more likely to experience a more moderate increase in use rates going forward. This factor should not be considered on its own but, rather, in tandem with the other demographic traits of the catchment area to form the most accurate picture of future ED use rate, volume trends, and space needs.

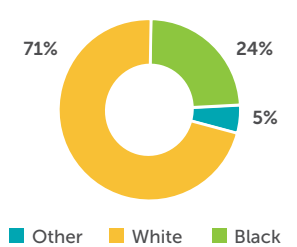
**FIGURE 8: ED USE RATE SEGMENTED BY RACE NHAMCS DATA**



**FIGURE 9: RACIAL PROFILE OF UNITED STATES 2022**



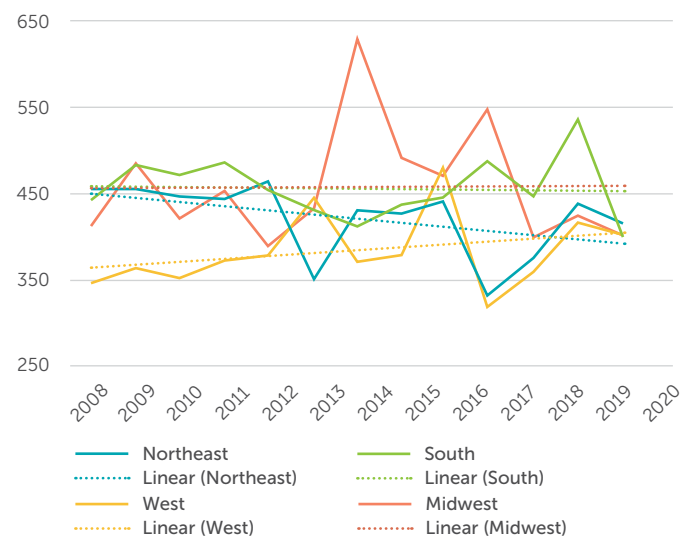
**FIGURE 10: RACIAL PROFILE OF US ED VISITS (AVG 2008-2019)**



### 4 ED Use by Geographic Region

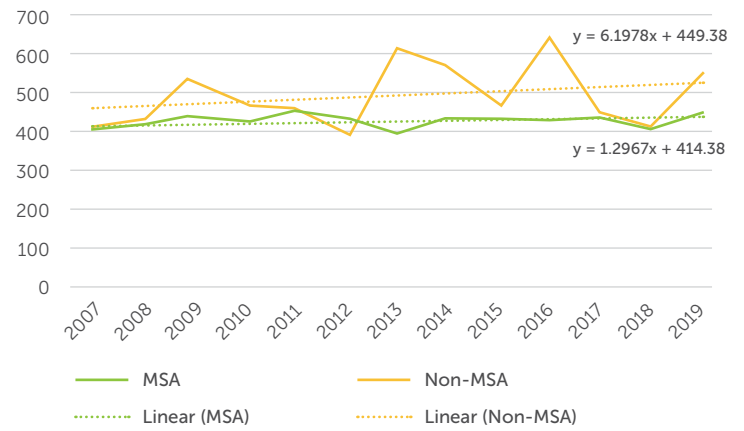
We examined the trend in ED use rate across four major geographic regions – Northeast, South, Midwest, and West. The trends are somewhat inconclusive with significant fluctuation year over year in each region. In general, as shown in Figure 11, the ED use rate has remained relatively flat in the Midwest and South but has trended substantially downwards in the Northeast. Surprisingly, given the higher level of managed care penetration usually associated with the West, the use rate in that region has trended upwards.

**FIGURE 11: GEOGRAPHIC USE RATE CHANGES OVER TIME**



Another way to look at geographical differences is to examine ED use rates in metropolitan areas versus non-metropolitan areas. When using this lens, a more significant upward trend in ED use rate can be observed in non-metropolitan areas than in metropolitan areas. The difference between these two use rate trends may, in fact, demonstrate the success that urgent care centers and other alternative immediate care sites can have. The Urgent Care Center Association’s 2018 benchmarking report noted that 78% of urgent care centers are located in suburban areas (which are generally included in an MSA), while only 4.1% of urgent care centers are located in rural areas

**FIGURE 12: MSA VS NON-MSA USE RATE CHANGE OVER TIME**



Where the vast majority of urgent care centers are located, the growth in use rate, while still positive, has been controlled over time and is less severe than areas where these other alternatives are less readily available. Regardless of whether this finding is a true demonstration of the success of alternative immediate sites of care in reducing ED utilization, there is a clear difference in the use rates of MSAs versus non-MSAs, with the former increasing slowly and the latter having much more variability and generally more rapid growth.

Based on these findings by geographic region, facility planners in the Northeast and the West should take into account the directionality of the respective trends in those regions when evaluating future ED space needs. For those in the South and Midwest, the variability of the trends may call for more conservative planning efforts. In these regions, facility planners might rely more heavily on the other contributing factors discussed above.

The second aspect of regionality we examined, metropolitan versus non-metropolitan areas, suggests that hospitals in metropolitan areas will likely want to rely more on demographic characteristics driving use rate changes, while those in non-metropolitan areas should also take into account locational considerations in planning for their future ED space needs.

We would be remiss not to close this paper without acknowledging that, as of the most recent 2023 release of one of the leading industry benchmark provider’s projections, for the first time in a long time, the site of care shift for the emergency department is not forecasted to cause declines in use rate on a national level. It remains to be seen whether this revised projection is temporary—as healthcare continues to adjust post-COVID—or more permanent and an acknowledgement that, barring some other advancement, low-acuity volume that could shift has already shifted and the remaining low-acuity volumes will be constant.

While low-acuity volumes have reached what appears to be a steady-state, a trend that emerged post-COVID is a rise in the number of higher acuity visits and the overall acuity in the emergency department. Along with this trend, hospitals across the county have also reported sharp increases in the number of patients seeking care for mental health crises in the emergency department. The care demands of these patient populations—higher acuity and mental health—present unique challenges for emergency department spaces. The next paper in this series will detail the trends around these patient populations along with ideas and recommendations for designing emergency department spaces that can help optimize efficiency and better serve these patients and their unique needs.



# About Array Advisors

*Discovering Your Healthcare Solutions Together.*

## ▶ WHAT WE DO

Array Advisors partners with health systems to strategically position them for success. Our approach goes beyond conventional planning services and focuses on developing sustainable business solutions for an evolving healthcare environment. Using Lean principles as a foundation, we develop a tailored plan to help you overcome challenges, prepare for value-based models, and seize capital planning opportunities to improve health outcomes.

## ▶ WHO WE ARE

We are healthcare experts, innovators, planners, and engineers—inspired by transforming our clients’ operations through custom solutions to demanding challenges. Our team members have active listening best practices in their DNA, leading with a collaborative process rooted in Lean methodologies and unparalleled data analysis. And at the heart of everything we do is an unrelenting drive to help clients achieve exceptional health care, create healthier communities, and realize the quintuple aim.

## ▶ OUR APPROACH

We layer strategy, transformation, and dynamic planning into our approach, pairing an understanding of how clients work with the right cross-functional perspectives to gain consensus around future goals.

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