

An aerial photograph of a large university campus at sunset. The campus features several large, modern academic buildings with multiple stories and many windows, some of which are illuminated from within. The buildings are situated on a green lawn. In the background, there are rolling hills and mountains covered in trees, with the sun setting behind them, creating a warm, orange glow across the sky and the landscape. The overall scene is peaceful and scenic.

ARE THERE GEOGRAPHIC DISPARITIES IN THE DISTRIBUTION OF LICENSED HEALTHCARE FACILITIES ACROSS TENNESSEE COUNTIES?

Presented by:

Navya Nadipalli

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MOTIVATION

- Access to healthcare is one of the strongest predictors of health outcomes.
- Unequal facility distribution worsens disparities in insurance coverage, financial sustainability, and population health.
- Findings can guide policymakers, health departments, and community advocates in resource allocation.



OVERVIEW

Focus:

To identify underserved areas, explore urban–rural gaps, and assess financial and demographic implications.

Approach:

- Data collection & cleaning (Python and Excel).
- Analysis & visualization (Python and Power BI dashboards & interactive maps).
- Linking facility data with demographics, patient volume, and financials.

Goal: Examine whether healthcare facilities are distributed evenly across Tennessee counties

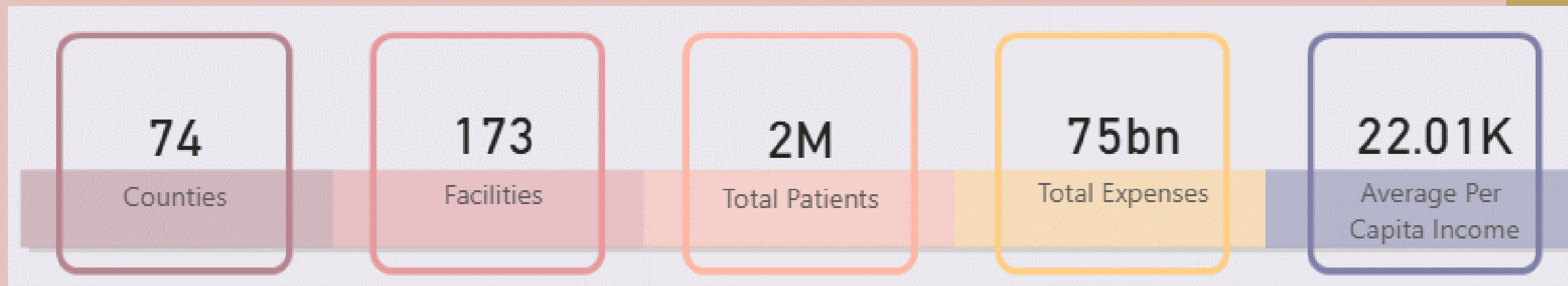


QUESTIONS



- ▲ Are healthcare facilities evenly distributed across Tennessee counties?
- Which counties have fewer facilities per capita, and are rural counties systematically underserved?
- How do facility availability and patient utilization differ between urban and rural counties?
- ◆ How does facility access correlate with income, poverty, and race/ethnicity?
- ★ What role do insurance coverage and financial sustainability play in shaping access disparities?

DEMOGRAPHICS & PATIENT VOLUME

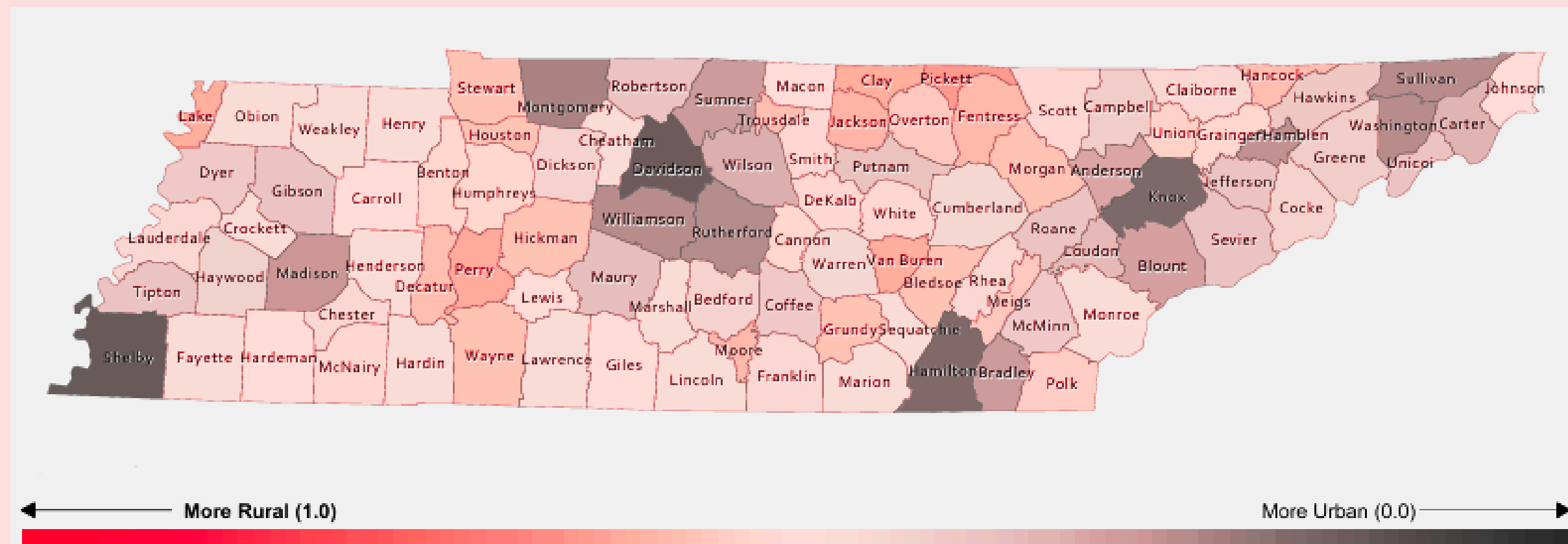


- Though the years 2021-2023, Tennessee's 74 counties, I identified 173 licensed healthcare facilities serving over 2 million patients annually.
- The average household income across these counties is approximately \$22,010, with notable variations that shape access and affordability.

CHARITIES

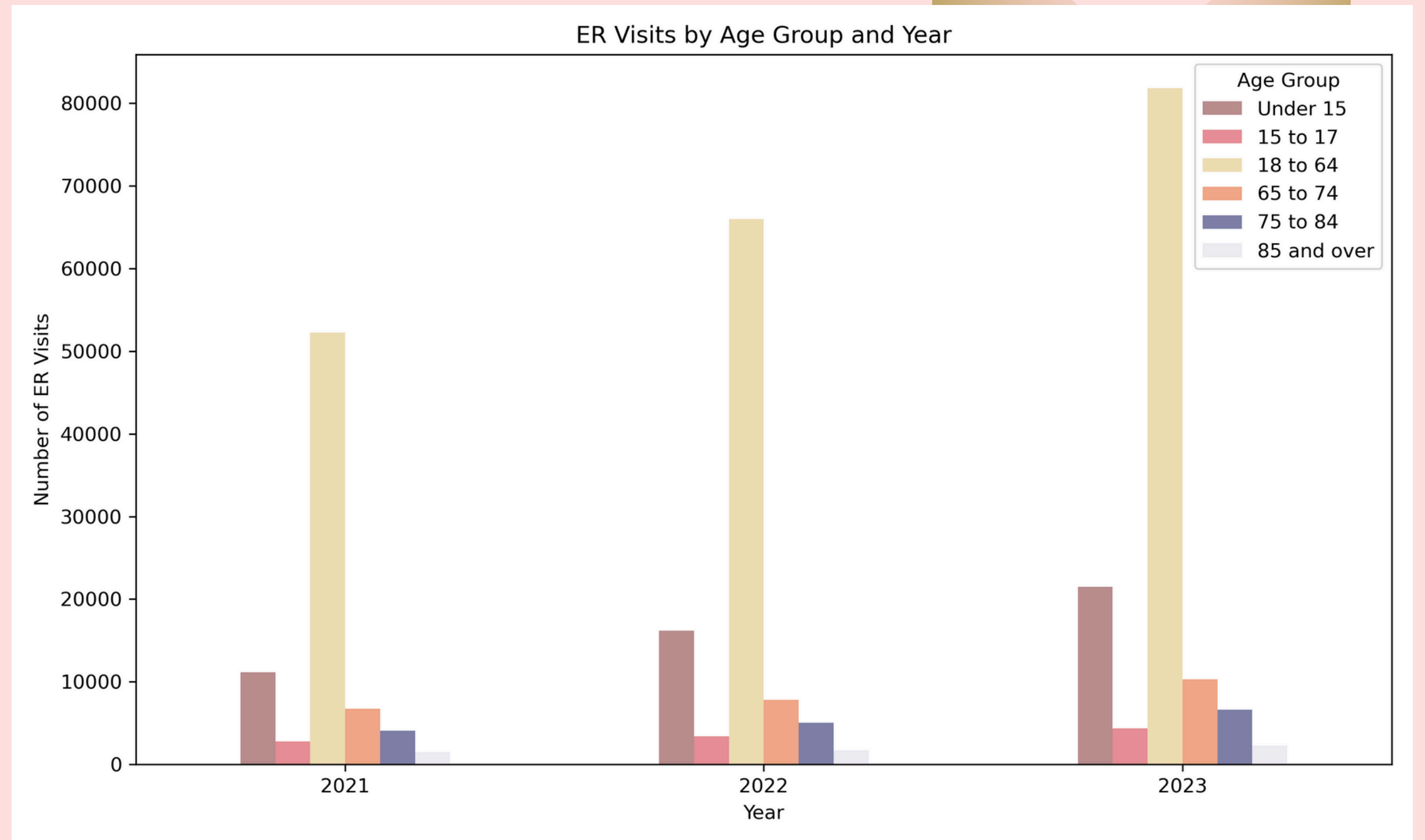
with lower median incomes,

- structural barriers to care,
of the population, often with



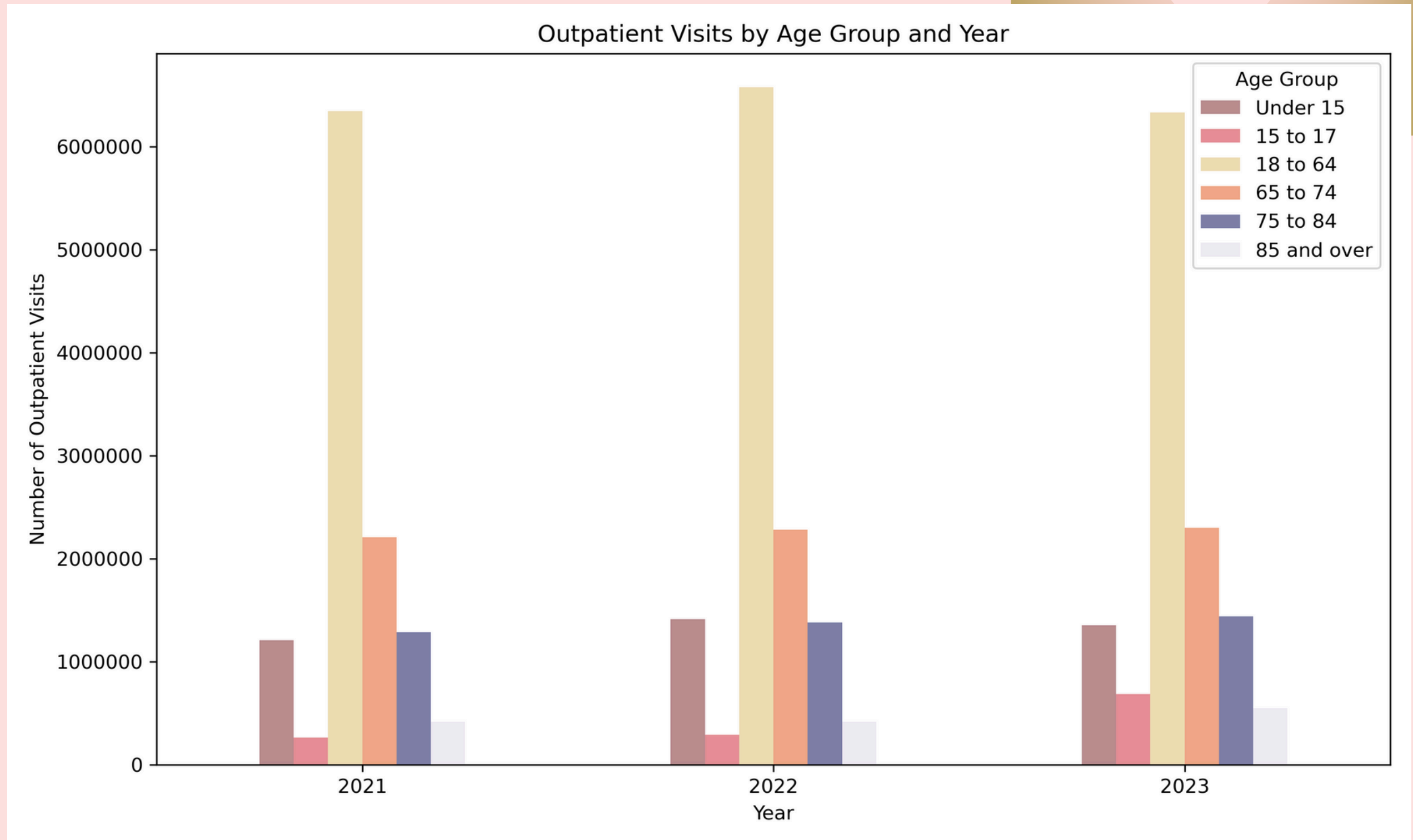
ER PATIENTS BY AGE

- The 18–64 age group constitutes the largest segment of patients.
- The number of ER visits increased steadily for all age groups



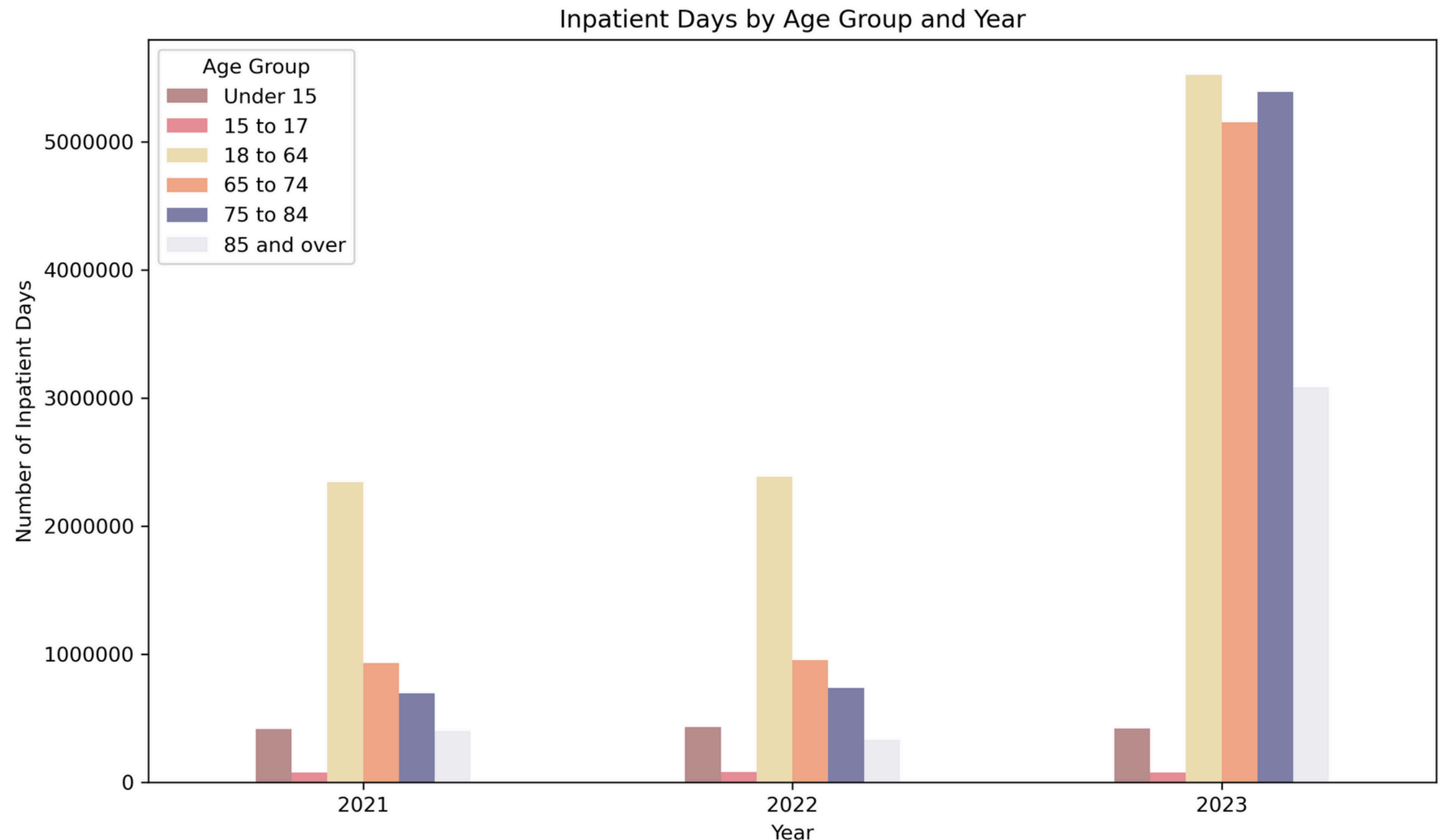
OUTPATIENTS BY AGE

- The outpatient visits were the highest in 2022 for 18-64 and under 15
- For all other groups the visits increased steadily over the years
- One notable exception is th 15-17 group saw a big jump in 2023 visits



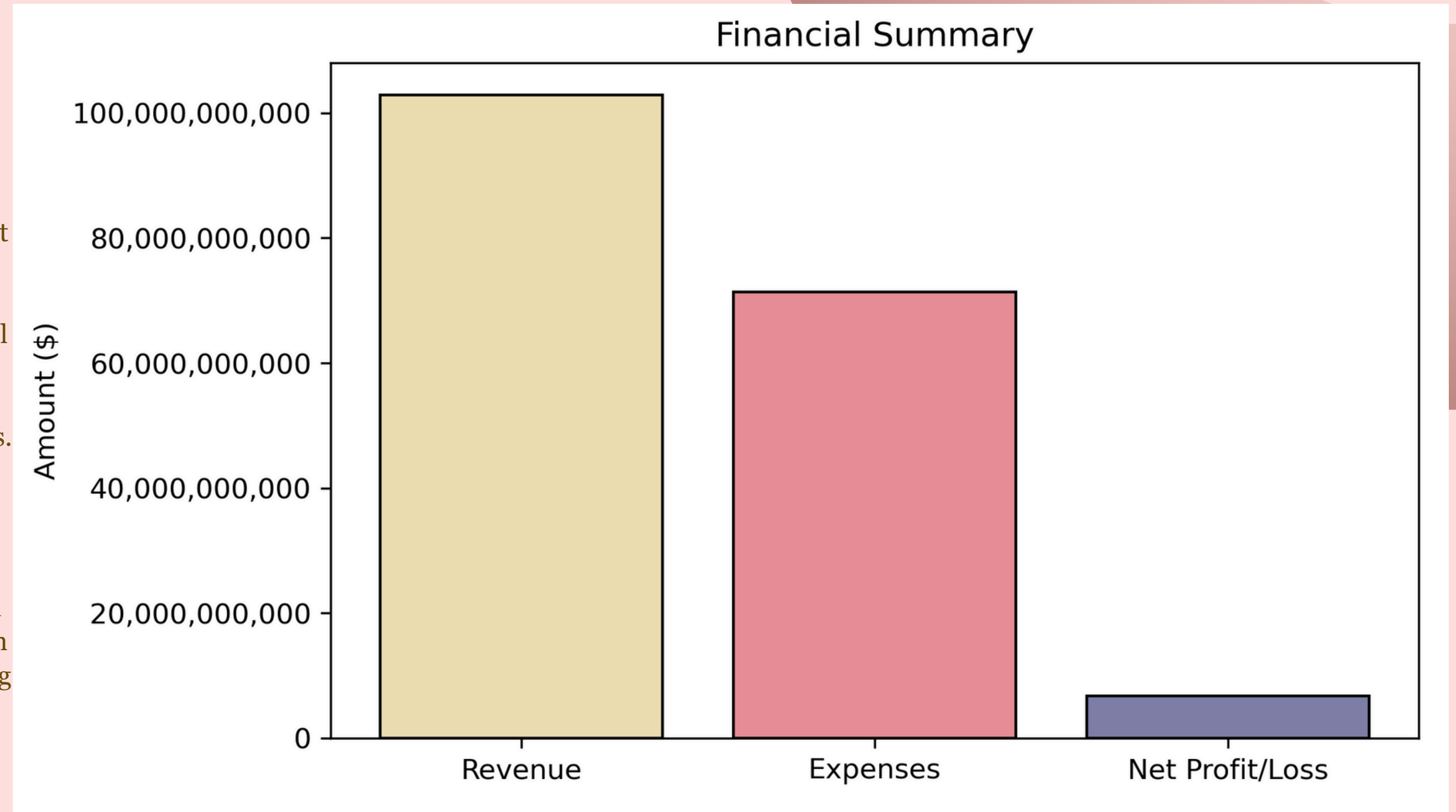
INPATIENTS BY AGE

- The inpatient days didn't see a lot of increase over the years for 17 and under ages
- The inpatient days significantly increased for all ages over 17 in 2023



REVENUE CYCLE INSIGHTS

- Hospitals generate strong revenues across the system.
- Operating expenses account for a significant portion of revenues.
- Positive net results indicate overall financial stability.
- The gap between revenue and expenses shows potential for efficiency improvements.
- Surpluses allow reinvestment into infrastructure, staff, and patient care.
- Overall, hospitals are financially stable and well-positioned, but sustaining this strength will depend on controlling costs, diversifying services, and ensuring access for all communities



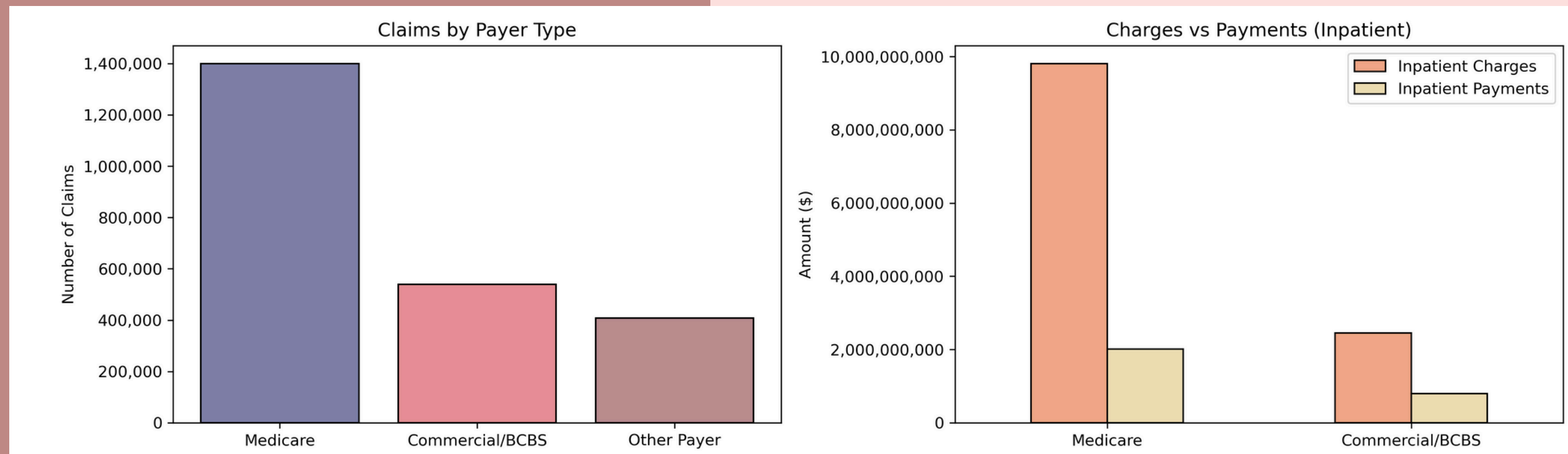
CLAIMS & CHARGES

Claims by Payer Type

- Medicare accounts for the majority of claims.
- Commercial/BCBS and Other Payers make up smaller portions.
- Heavy reliance on Medicare funding.

Charges vs Payments (Inpatient)

- Large gap between charges billed and payments received.
- Medicare and Commercial/BCBS both show underpayments.
- Indicates reimbursement shortfalls in inpatient services.



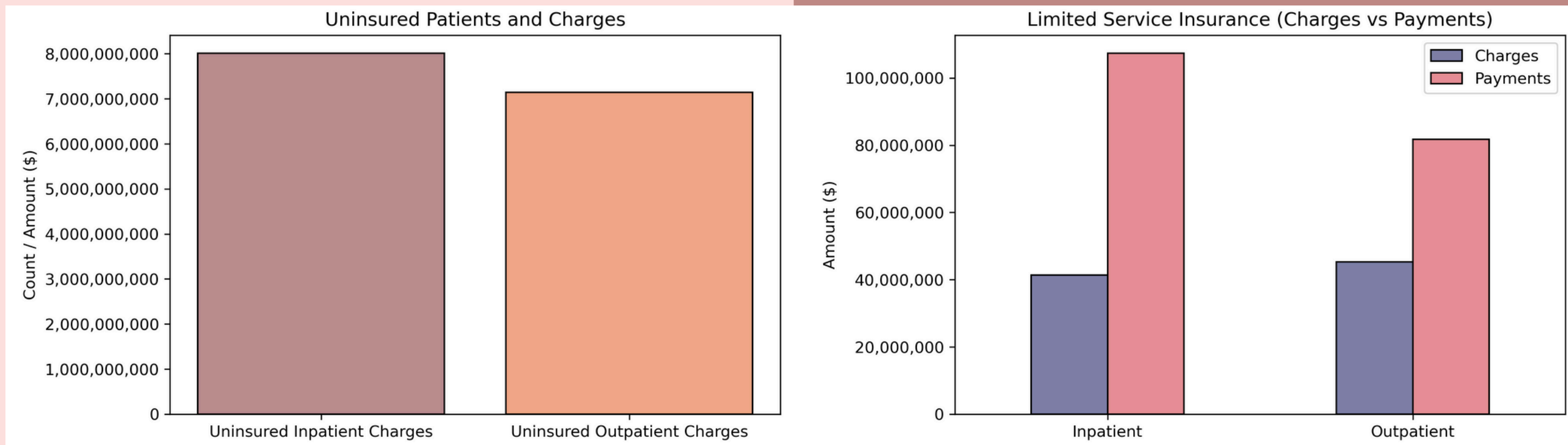
UNINSURED & LIMITED SERVICE INSURED

Uninsured Patients and Charges

- High financial burden from uninsured patients.
- Inpatient charges are slightly higher than outpatient charges.
- Uninsured care contributes significantly to uncompensated costs.

Limited Service Insurance (Charges vs Payments)

- Inpatient: payments exceed charges (possible cost-shifting).
- Outpatient: payments also exceed charges, but at a lower margin.
- Limited service insurance shows an atypical payment structure.



CLOSING

- Healthcare facility distribution in Tennessee shows clear geographic disparities : urban counties are well-served while rural and low-income areas face access challenges.
- Counties with higher poverty and lower education levels consistently have fewer facilities and higher patient-to-facility ratios.
- Medicare is the primary payer, reflecting the aging population, while commercial insurance (Blue Cross Blue Shield) plays a secondary but important role.
- The imbalance between charges, payments, and coverage highlights the ongoing sustainability challenge in the healthcare system.
- Addressing these gaps requires targeted policy interventions, improved insurance coverage, and support for rural and safety-net hospitals.
- Overall, while Tennessee's healthcare system provides broad coverage through Medicare and other payers, inequities in facility distribution, patient access, and financial sustainability remain significant challenges.



I'D LOVE TO
HEAR FROM YOU!

Email
navyasri0245@gmail.com