



Who Bears the Burden of External Injury Hospitalizations?

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External Injury Hospitalizations:

In 2016, the top four causes of death among younger adults were attributed to external injuries, which are defined as injuries caused by factors outside the body (Virginia Life Expectancy, 2018). In addition to causing death, external injuries can also result in hospitalizations. For example, hospitalizations related to opioid overdose and gun violence are two noteworthy types of hospitalizations caused by external injuries. The US is currently engaged in serious debates and discussions about public policies to reduce these and other types of external injuries.

Our project focuses on external injury hospitalizations related to opioid use, gun violence, and motor vehicle accidents. Vehicle accidents account for the second largest share of health care expenses related to injuries (Villaveces, 2013), and gun violence and opioid hospitalizations are important facets of the current public policy debates. These three types of external injuries have each been the focus of active policy discourse at varying times. Motor vehicle accidents have received a lot of focus in the past, while opioid use is currently receiving significant attention, and the policy response to gun violence is beginning to take shape. Bringing attention to these three types of hospitalizations is of great importance to Virginians' overall well-being.

Data and Methods:

This study used Virginia Health Information (VHI) inpatient hospital discharge data and focused on stays in short-term general hospitals by patients aged 18-34 from 2012 to 2015. External injuries were defined using prior literature that categorized ICD9 codes into CCS groups. Virginia population-level data were obtained from the U.S. Census FactFinder.

Discharges were identified as being either an opioid, motor vehicle, or gun violence hospitalization based on the primary diagnosis code. Discharge records and the population data were broken down by payer. Rates of hospitalization for each external injury were calculated and sorted by payer for every quarter from 2012 to 2015. Total charges for each injury were also calculated.

Exhibit 1: Trends in Hospitalizations

The rate of motor vehicle accident hospitalizations varied by payer over the time. In particular, the rate of motor vehicle accident hospitalizations increased among uninsured patients and decreased among publicly-insured patients. The opioid hospitalization rate rose for all payer types between 2012 and 2015, particularly for uninsured and publicly-insured patients. Finally, there was a near tripling of the rate of gun violence hospitalizations for uninsured patients, coupled with a significant increase in the rate of gun violence hospitalizations for patients covered by Medicaid.

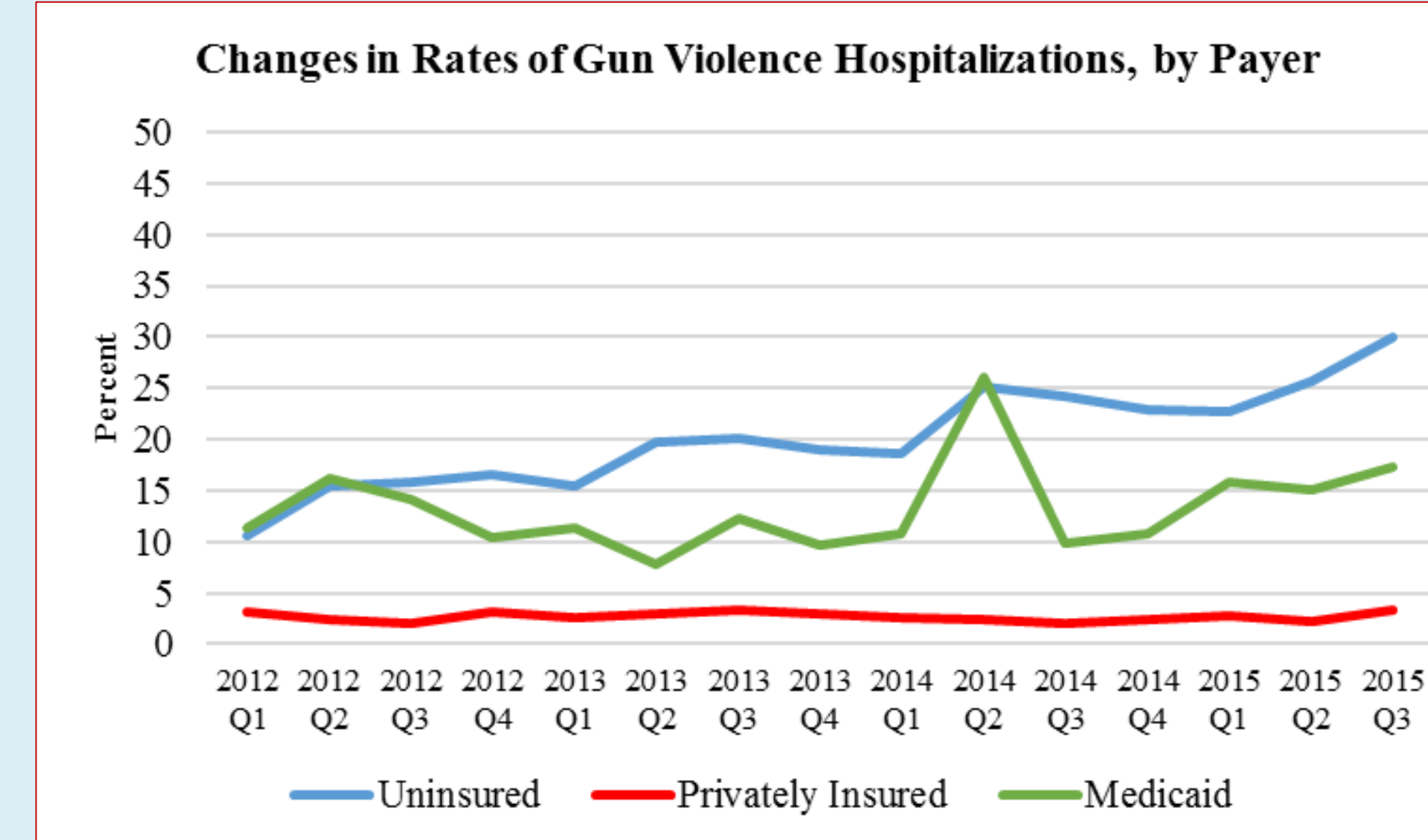
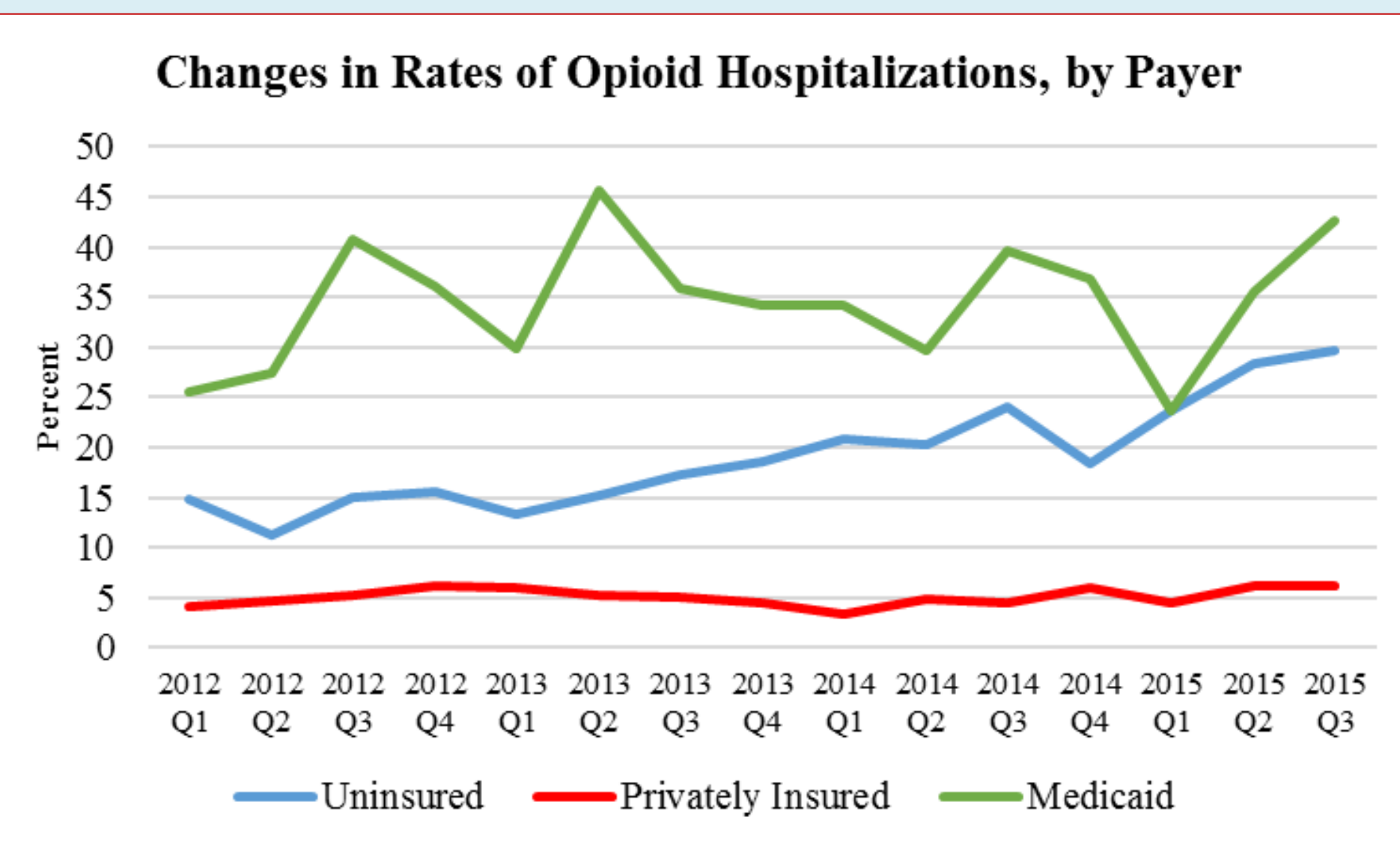
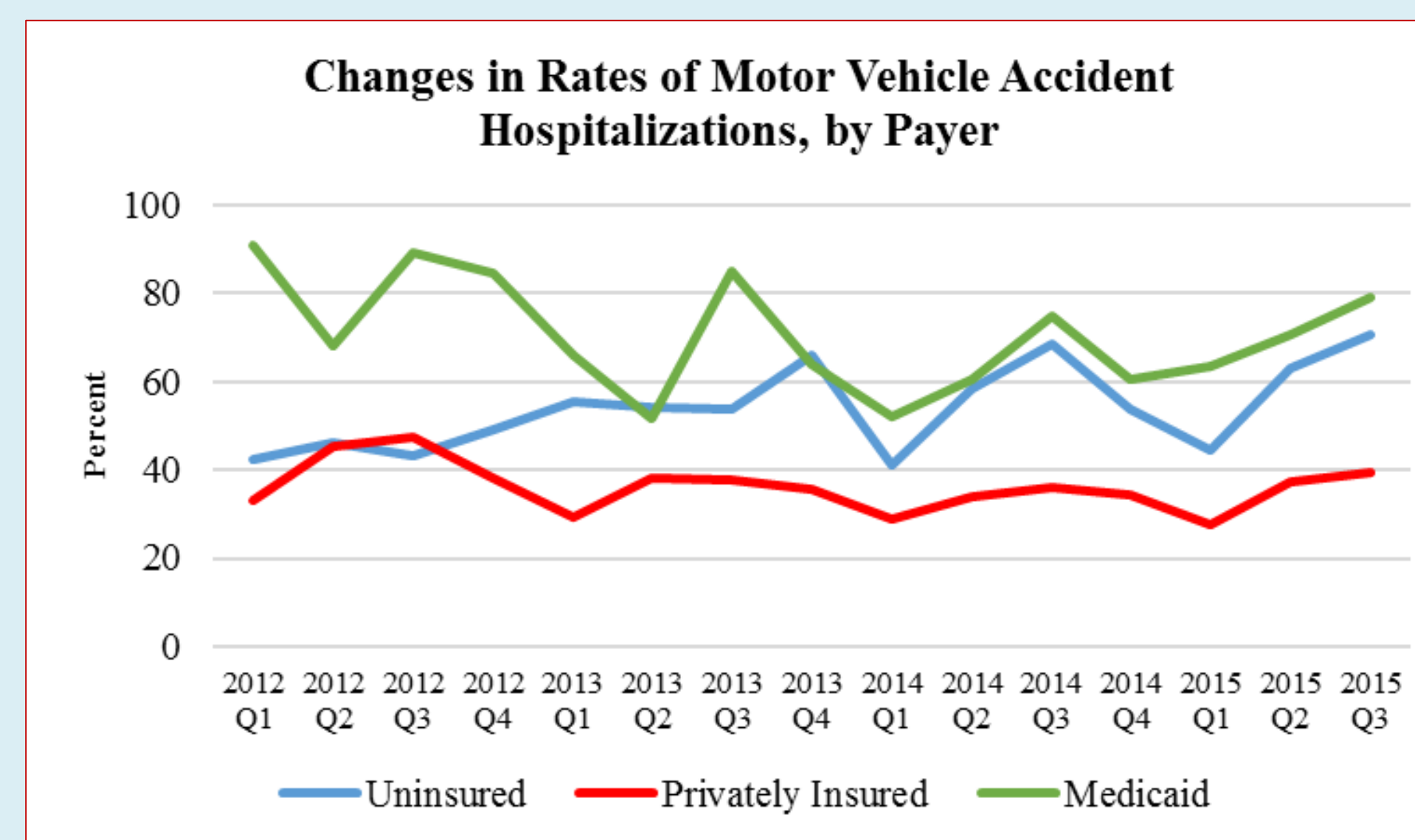
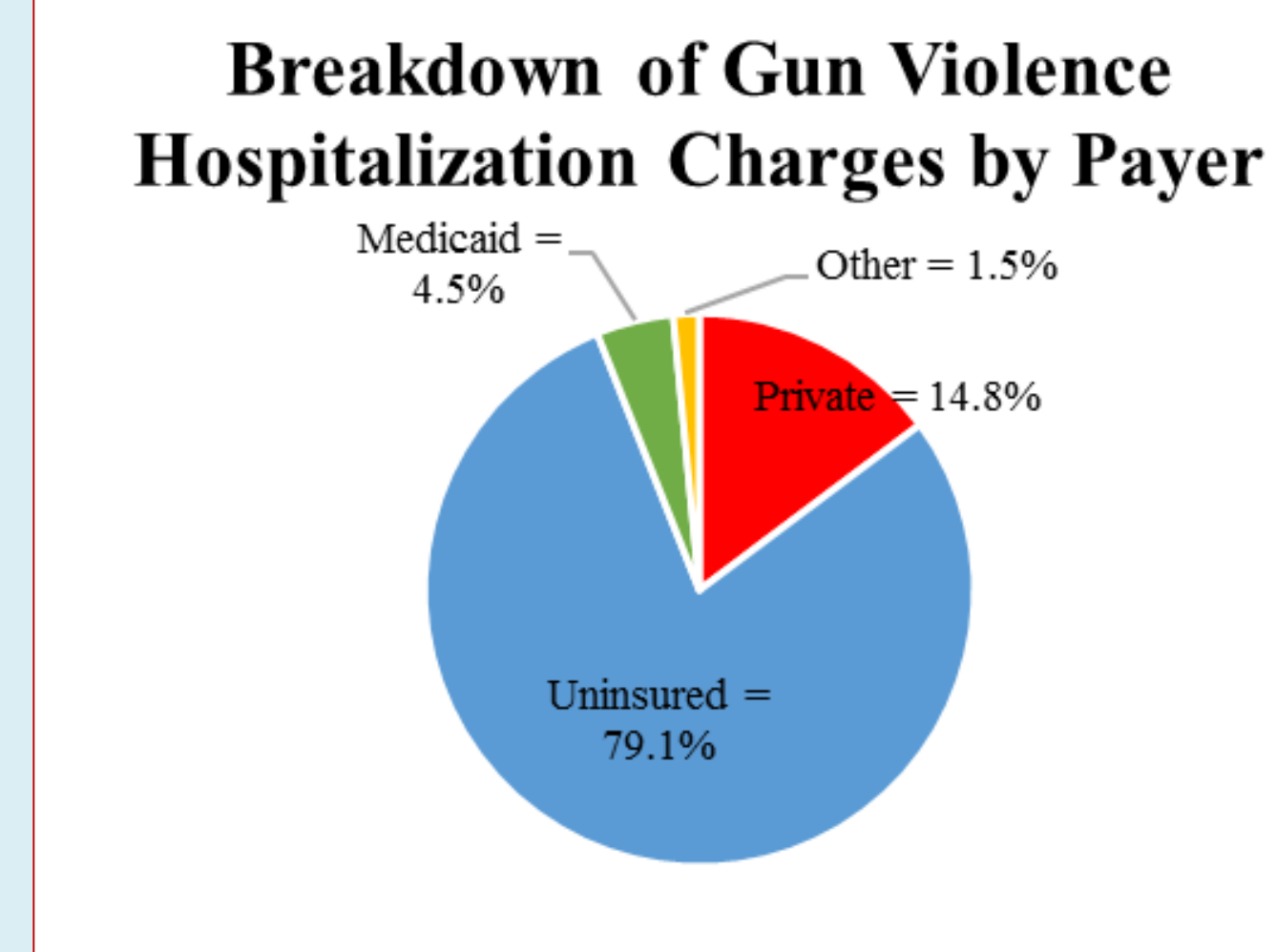
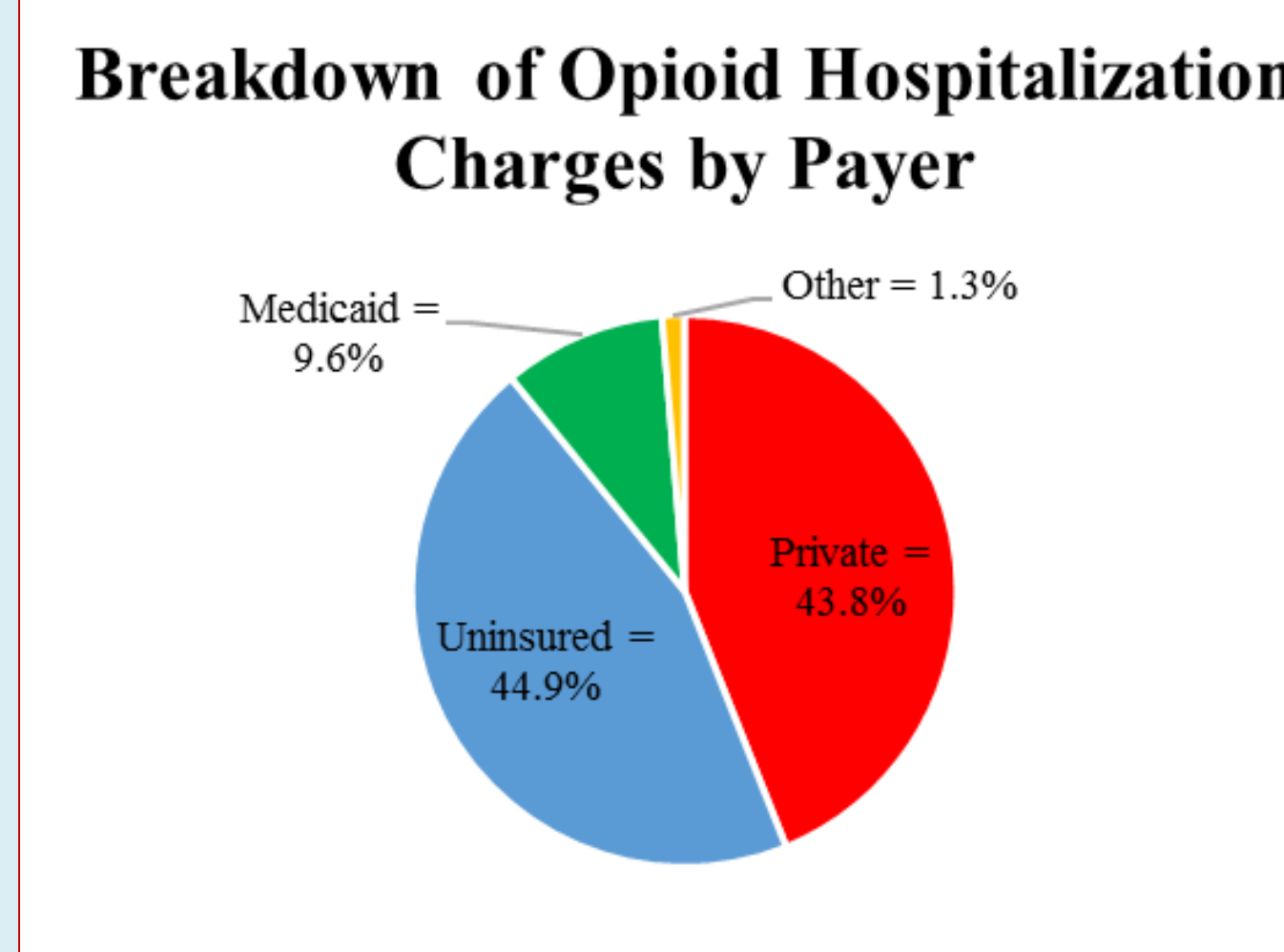
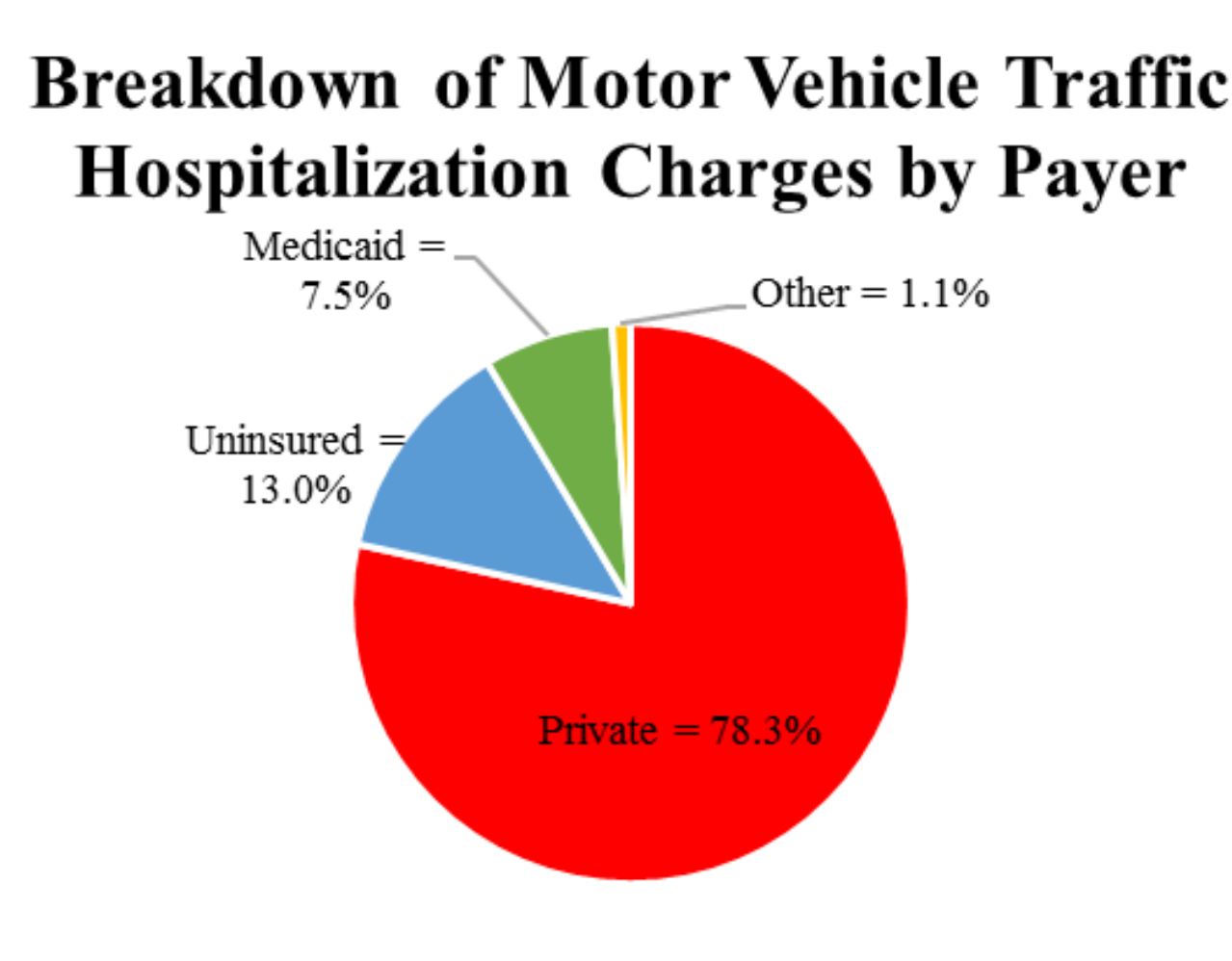


Exhibit 2: Distribution of Total Charges

The distribution of total charges across different payer types varied for the three types of external injuries. Private insurance covered nearly 80% of motor vehicle accident hospitalizations. Opioid hospitalizations had the most balanced distribution, as both uninsured and privately-insured patients represented around 44% of total charges. Uninsured patients contributed to almost 80% of charges for gun violence hospitalizations.



Summary:

The burden of external injury hospitalizations is dependent on the type of external injury:

- Privately-insured patients had the lowest rates of hospitalizations for all three types of external injury hospitalizations, and their hospitalization rates did not change much over time.
- The uninsured have seen a significant rise in the rate of gun violence hospitalizations, suggesting a link between socioeconomic status and gun violence, corroborating with findings by Beard in 2017, among others.
- Both Medicaid and uninsured patients have seen their rates of opioid hospitalizations climb.
- Charges for the privately insured still constitute a large share of total charges for both opioid and motor vehicle hospitalizations.
- Gun violence hospitalization charges are primarily attributable to uninsured patients, again suggesting that there is an important link to socioeconomic status.

Conclusion:

There are obvious disparities in the payer breakdown which show the burden of charges, with motor vehicle accidents and gun violence representing near opposite charge breakdowns for uninsured and privately insured discharges. This suggests that external injuries that result in hospitalizations could involve multiple different, policy responses, depending on the cause of the injury. It could prove useful to examine the potential socioeconomic links (determined by type of insurance) that affect hospitalizations, especially for opioids and gun violence.

Additional research could focus on identifying factors that reduce injury rates. This type of study could provide rewarding information on closing the gaps between uninsured and insured patients in Virginia.

Works Cited:

1. Causes of Injuries Treated in the Emergency Department by Villaveces et. al. (2013)
2. Intervention, Treatment, and Prevention Strategies to Address Opioid Use Disorders in Rural Areas by Chiara Corso and Charles Townley (2016)
3. Quantifying Disparities in Urban Firearm Violence by Race and Place by Beard, et. al. (2017)
4. Virginia Causes of Death by Age and Gender by Virginia Life Expectancy (2018)

Virginia Health Information (VHI) has provided non-confidential patient level information used in this study which it has compiled in accordance with Virginia law but which it has no authority to independently verify. By using this study, the user agrees to assume all risks that may be associated with or arise from the use of inaccurate data. VHI cannot and does not represent that the use of VHI's data was appropriate for this study or endorse or support any conclusions or inferences that may be drawn from the use of VHI's data.