Child and youth violence and injury

Data, social and brain development information

Public Health – Seattle & King County

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The project

Deep-dive learning on violence and injury in children and youth birth to 24, including:

- Preliminary look at data on death, hospitalization, EMS response and self-reported risk and protective factors
- Child and youth social and brain development
- Research and best practices from the injury prevention field

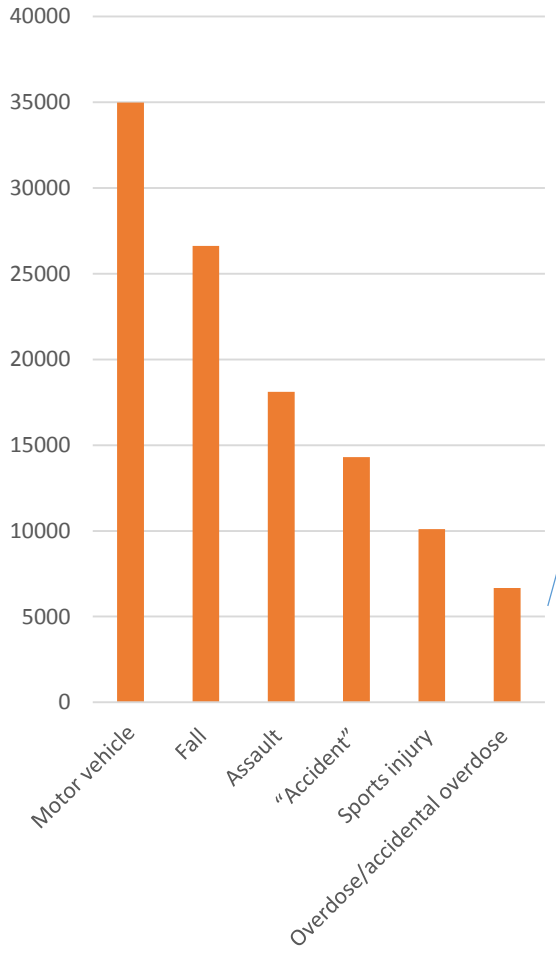
Data sources in this presentation

- Washington state death certificate data for King County, 2002 to 2014
- Hospitalization data (CHARS) for King County zip codes (slightly different population denominator), 2002 to 2014
- King County EMS data, 2002 to 2014

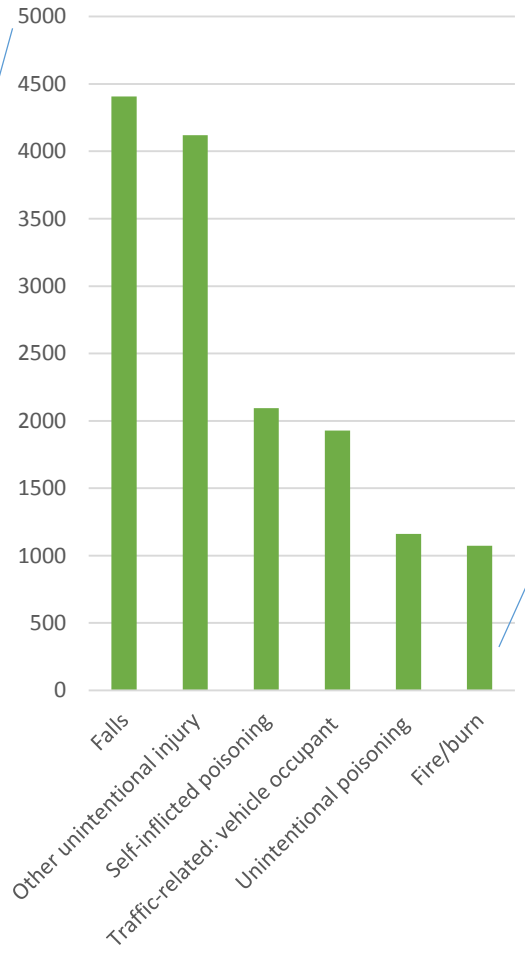
Disclaimer: I am not an epidemiologist. I AM a subject matter expert with basic data skills.

Leading causes of injury-related death, EMS response and hospitalization
Children, youth and young adults under 25
King County, 2002 to 2014

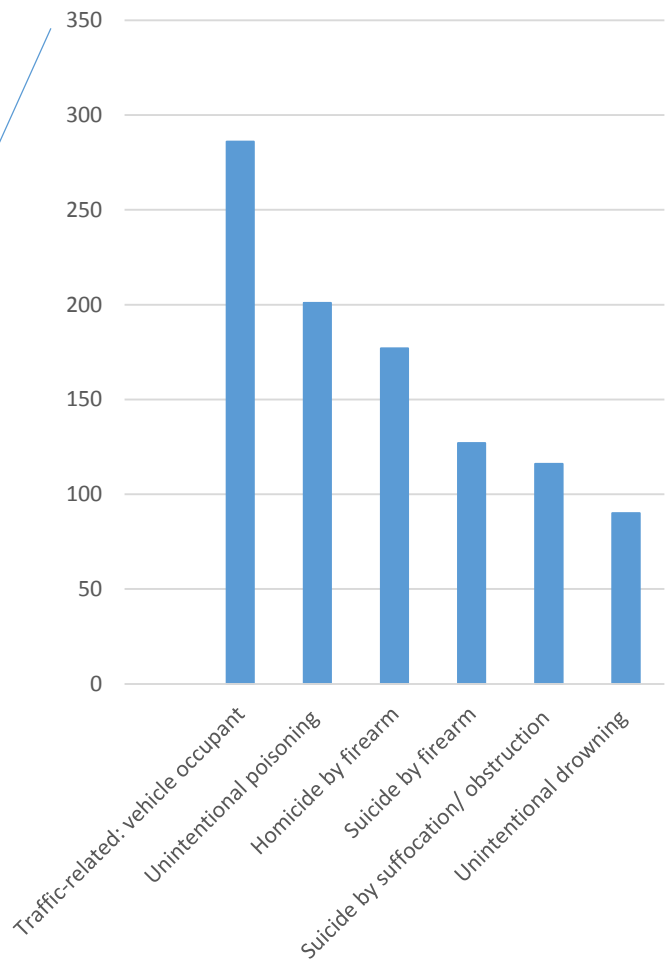
Injury-related EMS responses



Injury-related hospitalizations

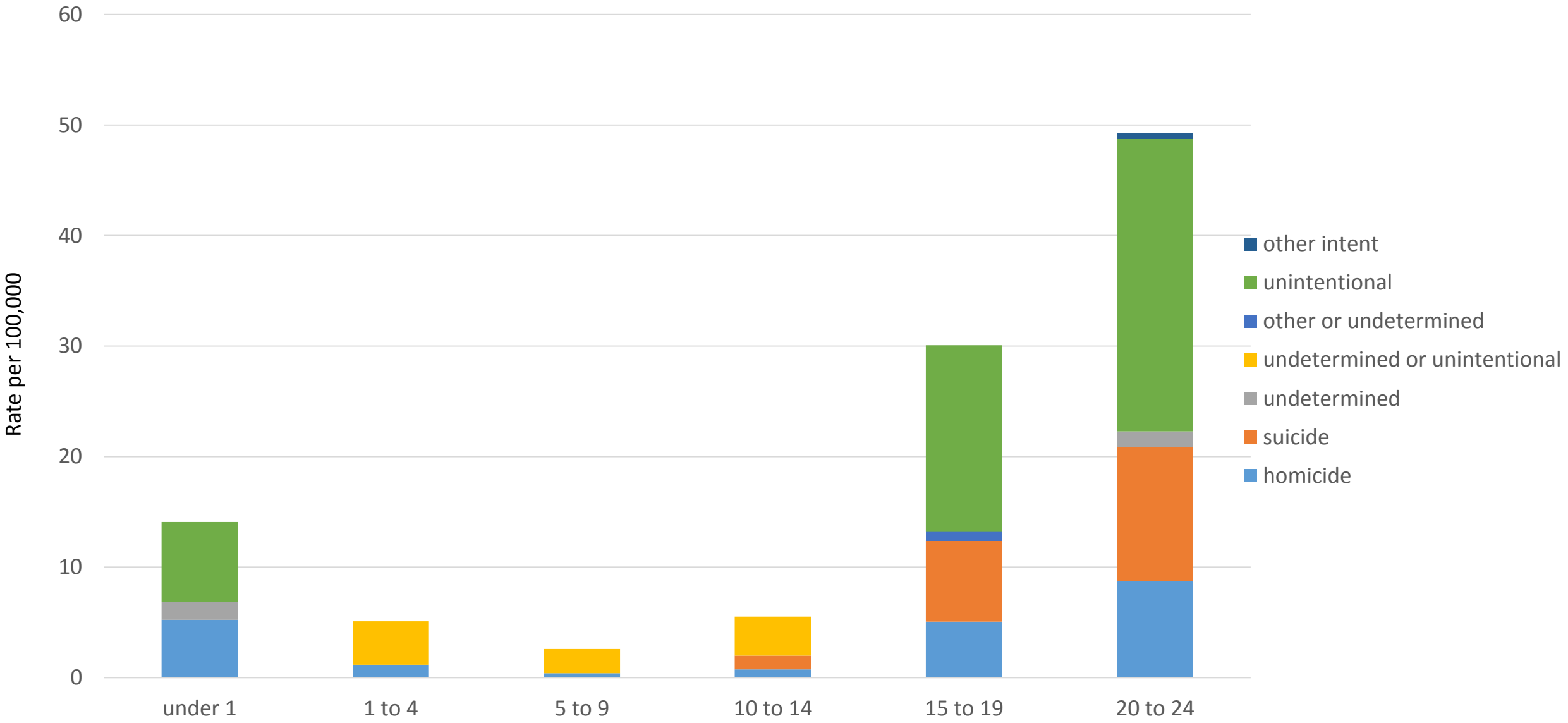


Injury-related deaths



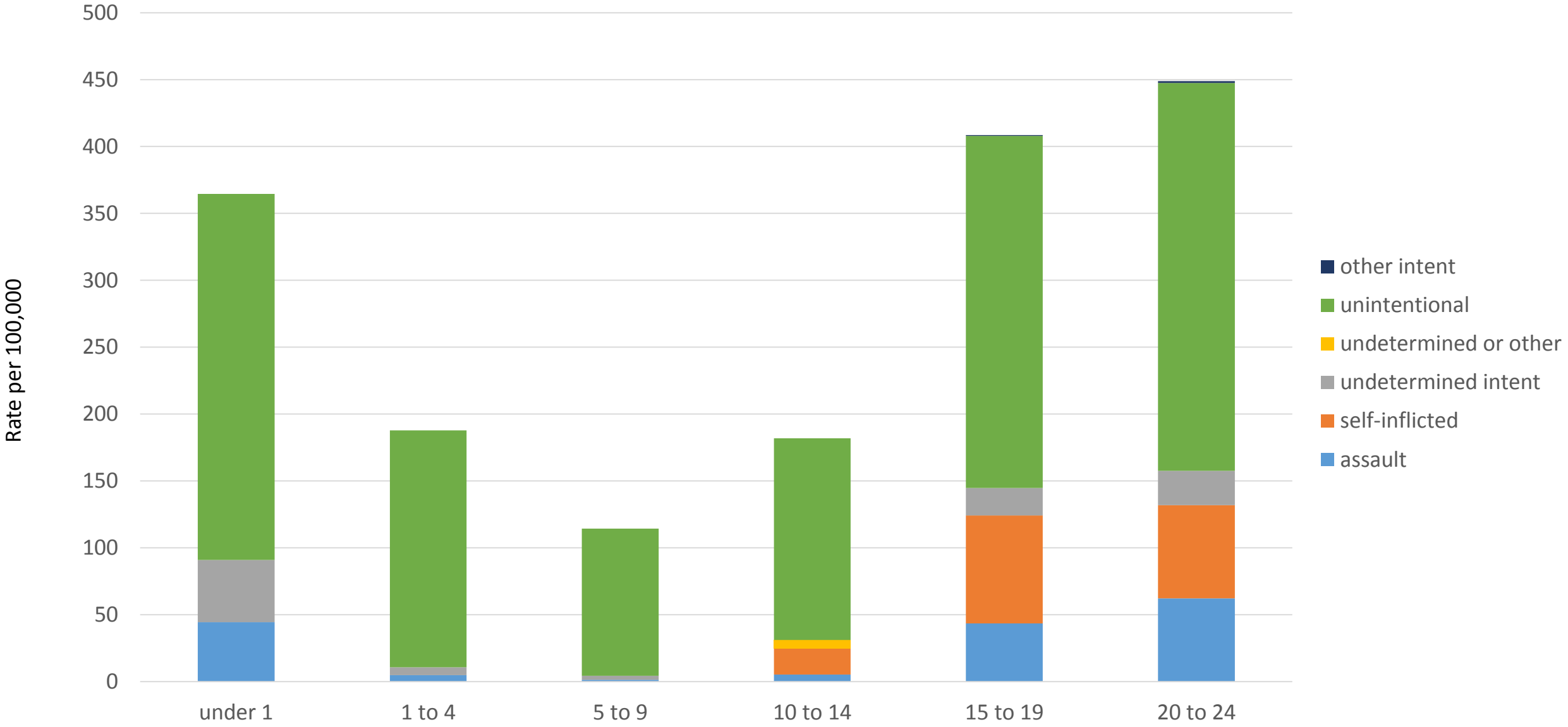
Fatal injury rates

Children and youth under 25, King County, 2002 to 2014



Rates of injury resulting in hospitalization

Children and youth under 25, King County, 2002 to 2014



Apparent disparities in fatal injury

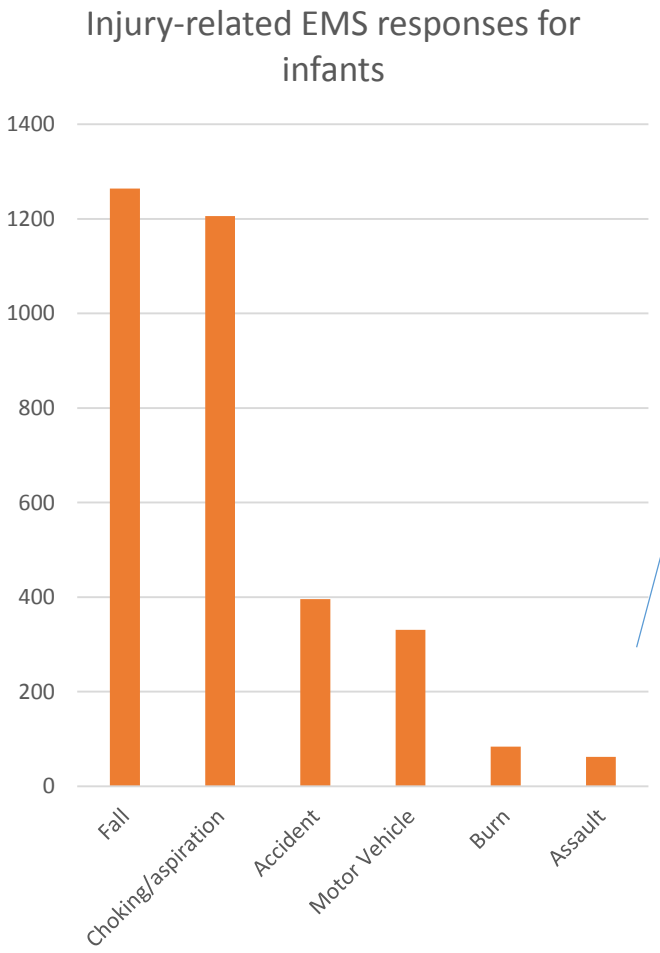
- Boys and young men have more fatal injuries and injury-related hospitalizations than girls and young women, with the exception of nonfatal suicide attempts.
- Many numbers are too small to draw conclusions from when less common injuries are disaggregated by age, race and ethnicity.
- Overall across all age groups:
  - Highest rates of unintentional injury among American Indian and Alaska Native, non-Hispanic and Black, non-Hispanic children and youth
  - Highest rates of homicide among Black non-Hispanic and American Indian and Alaska Native, non-Hispanic children and youth
  - Highest rates of suicide among American Indian and Alaska Native, non-Hispanic and white, non-Hispanic children and youth

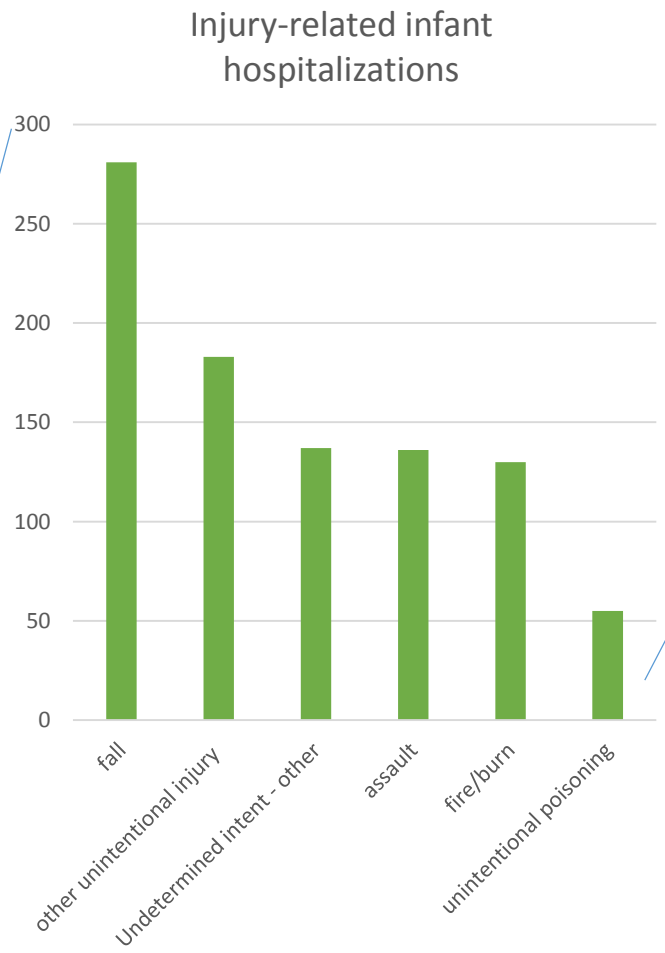
AGE GROUP: 0 to 1

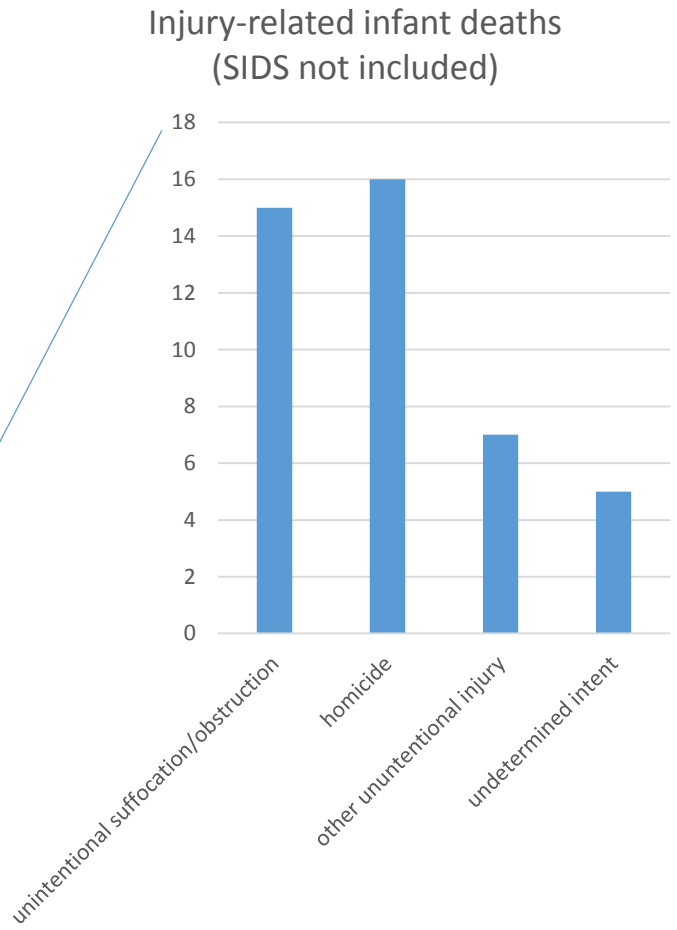
Brain and social development

- Rapid and complex brain development
- Rapid development in motor skills
- Improvement in clarity and distance of vision
- Facial recognition and attachment to familiar adults
- Language development and recognition of native language – inability to communicate with words for much of this time period, which can be frustrating for caregivers

Leading causes of injury-related death, EMS response and hospitalization
Infants under 1 year old
King County, 2002 to 2014





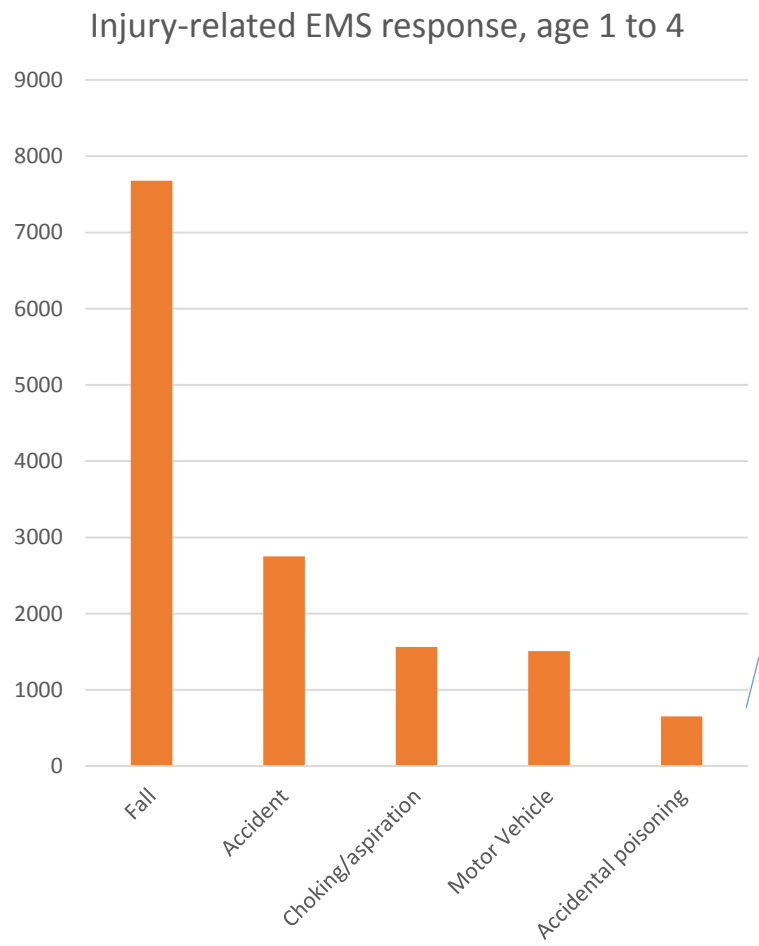


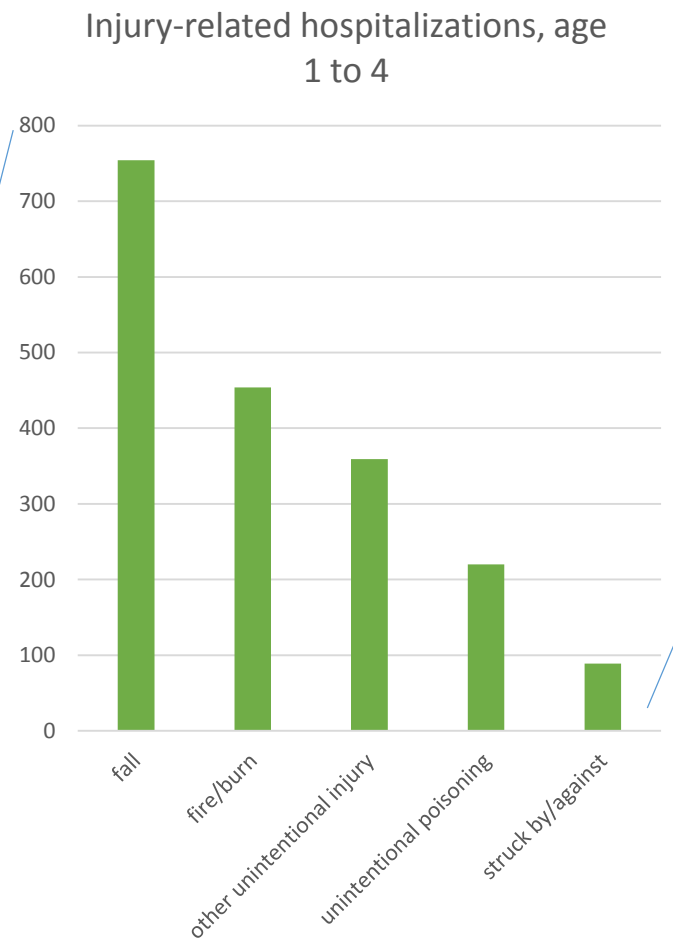
AGE GROUP: 1 to 4

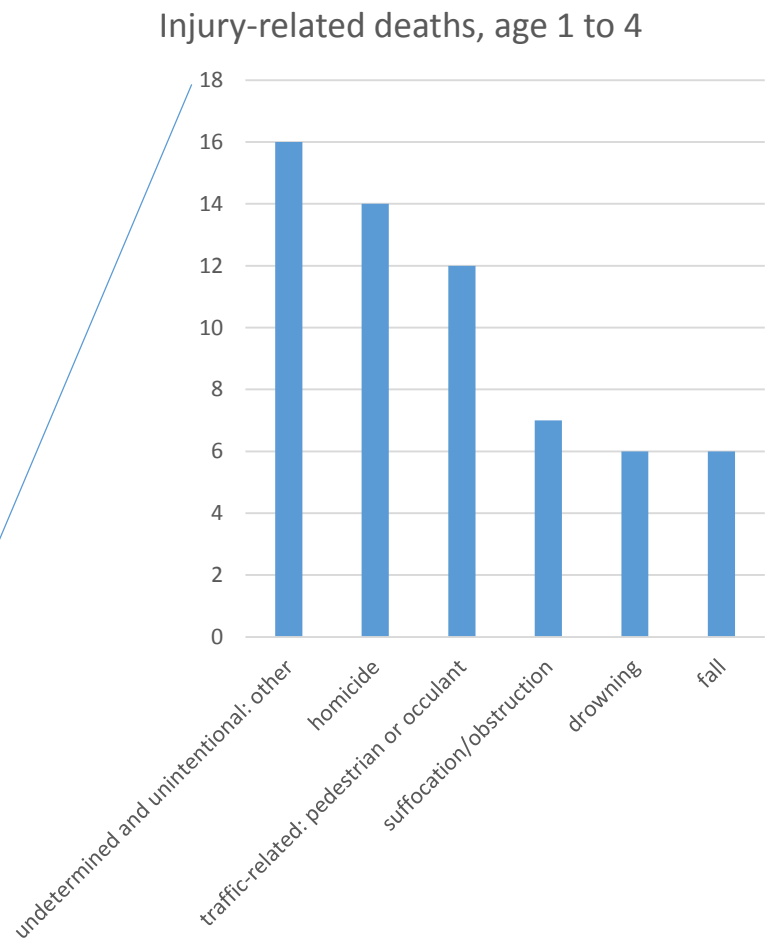
Brain and social development

- Rapid learning and brain development continue - this is a critical period.
  - 80% of brain growth complete by age 3; toxic stress and neglect can impact brain development
- Developing ability to communicate with language
- Mastering gross and fine motor skills: learning to walk, climb and run, improving hand-eye coordination, using scissors and drawing tools, opening containers
- Pursuing independence, sometimes through risky or defiant behavior, and learning to express and manage feelings
- Curiosity and exploration

Leading causes of injury-related death, EMS response and hospitalization
Children age 1 to 4
King County, 2002 to 2014





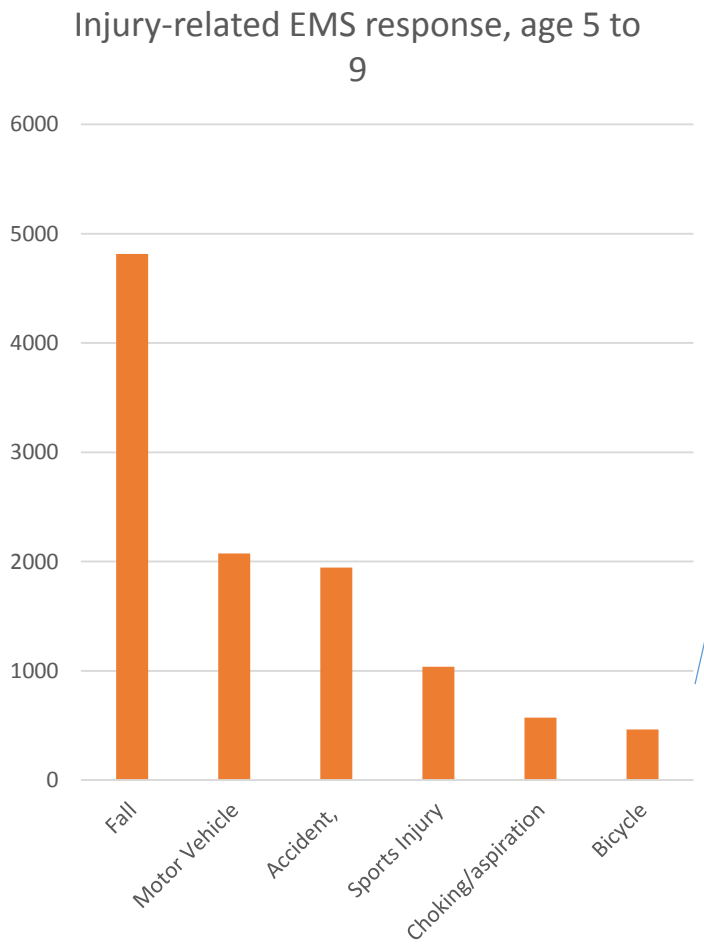


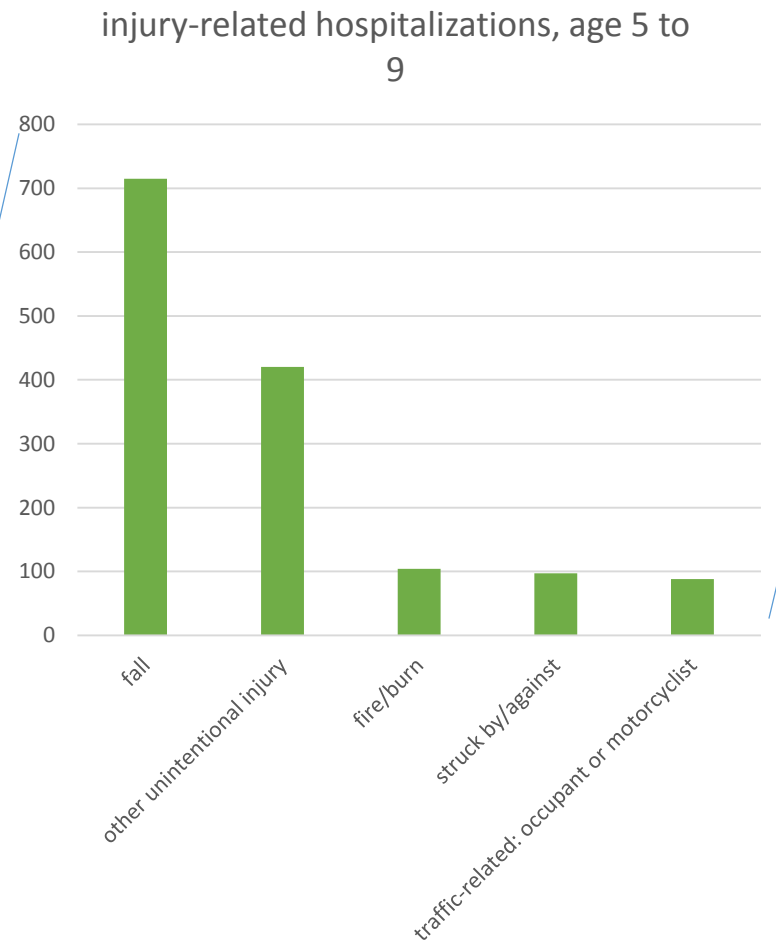
AGE GROUP: 5 to 9

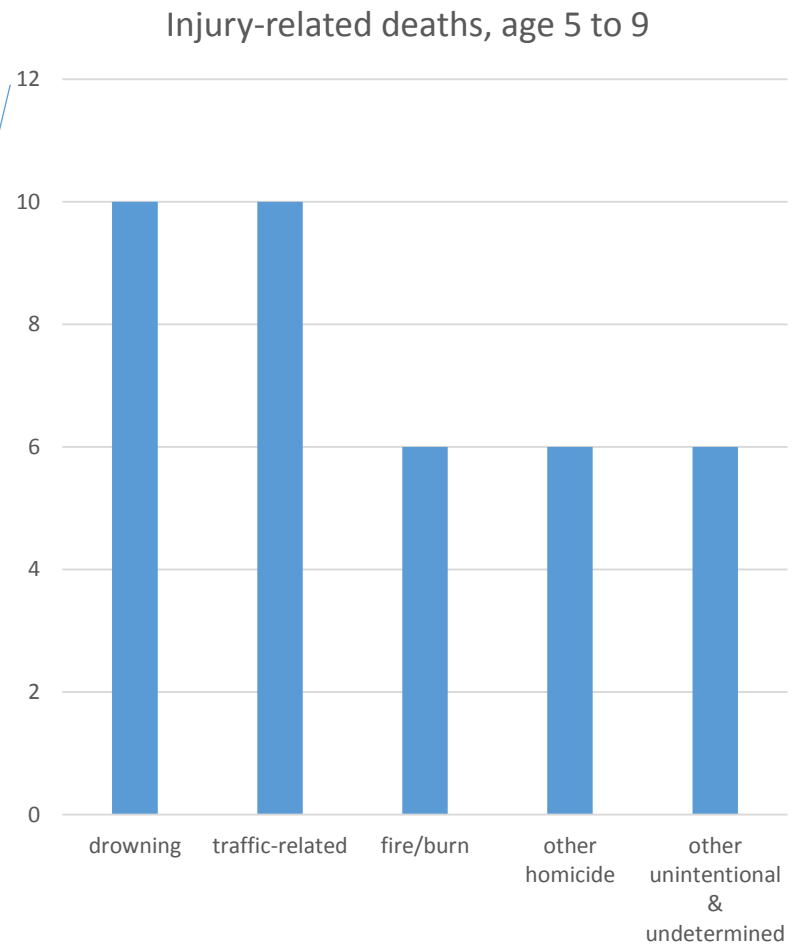
Brain and social development

- Less neuroplasticity than in early childhood.
- Synaptic pruning focuses and refines brain activity and is heavily dependent on the environment. Enriching and supportive environments can mitigate genetic predisposition to problems or earlier difficulties.
- Increasing ability to focus and regulate thoughts, feelings and actions.
- Look to rules for guidance and safety – rules considered most rigid around age 7-8.
- Increased understanding of others' feelings and needs and social roles. Peer relationships and pleasing adults are important.
- Better integration of motor and spatial skills, but still improving (for example, unable to judge the speed of an approaching vehicle accurately)

Leading causes of injury-related death, EMS response and hospitalization
Children age 5 to 9
King County, 2002 to 2014





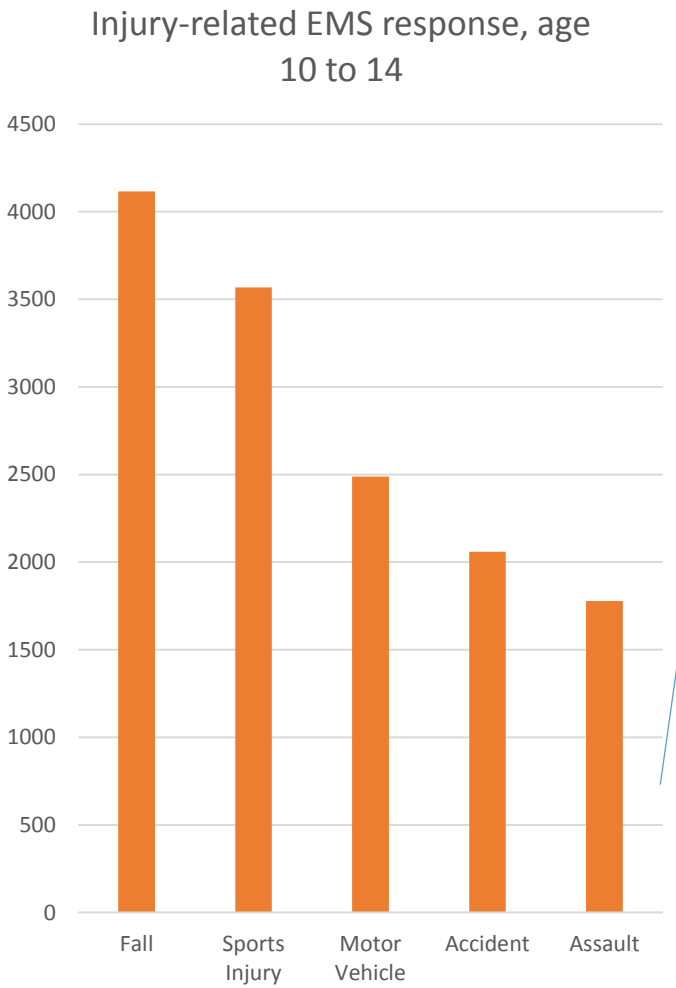


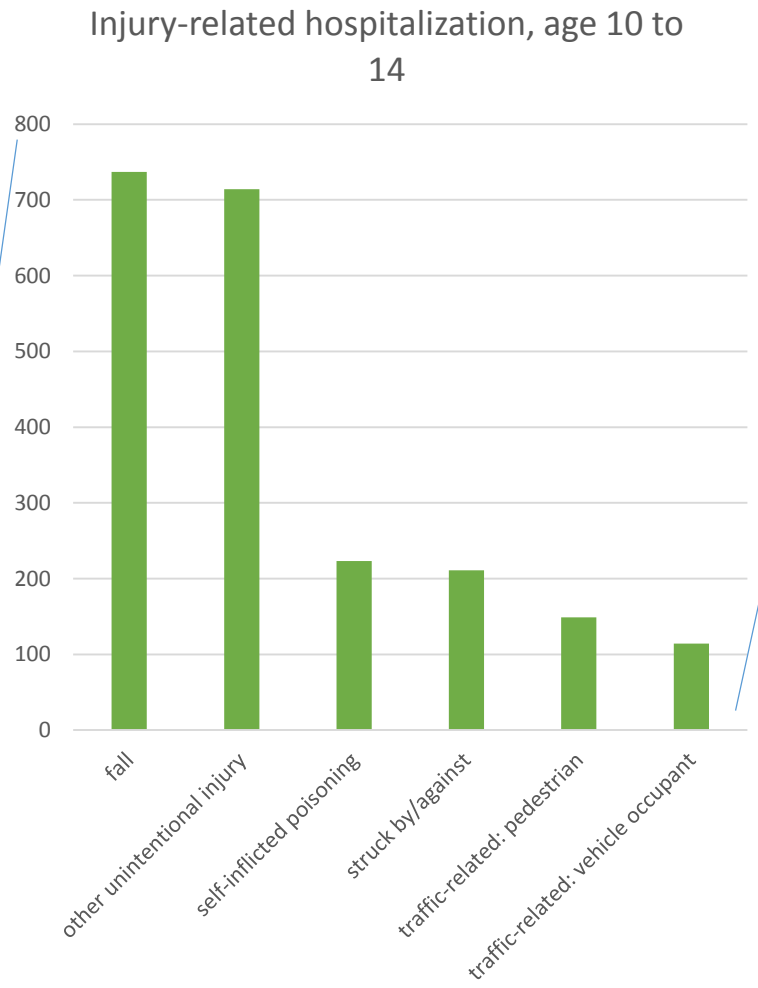
AGE GROUP: 10 to 14

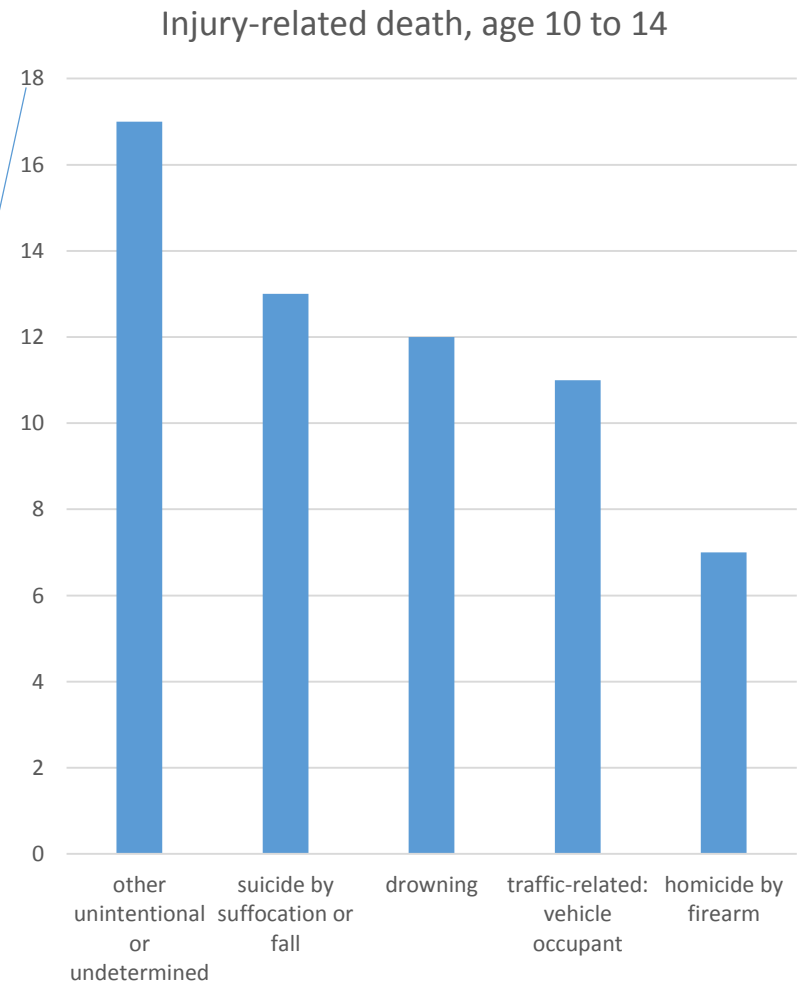
Brain and social development

- Beginning of adolescence, a period of great physical and emotional change.
- Neuroplasticity increases again during this time.
- Growth spurts and puberty; adjusting to body changes can be difficult
- Emergence of mental health and substance use disorders
- Brain development begins to expand hypothetical, abstract and logical thinking, problem-solving and concrete thinking. (This is not yet complete and can be affected by earlier trauma and damage.)
- Myelination, which improves communication through brain circuitry, begins around puberty as triggered by sex hormones.
- Peer relationships become priority – beginning to distance self emotionally from family and seek support and identity from peers.
    - Susceptibility to risk behaviors in pursuit of peer acceptance or admiration.

Leading causes of injury-related death, EMS response and hospitalization
Children age 10 to 14
King County, 2002 to 2014





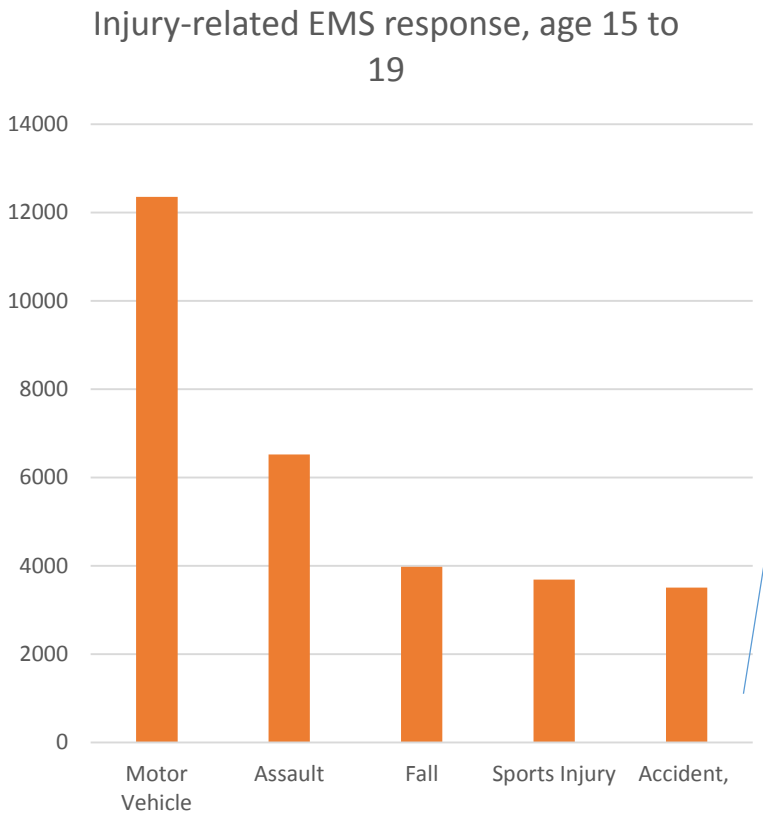


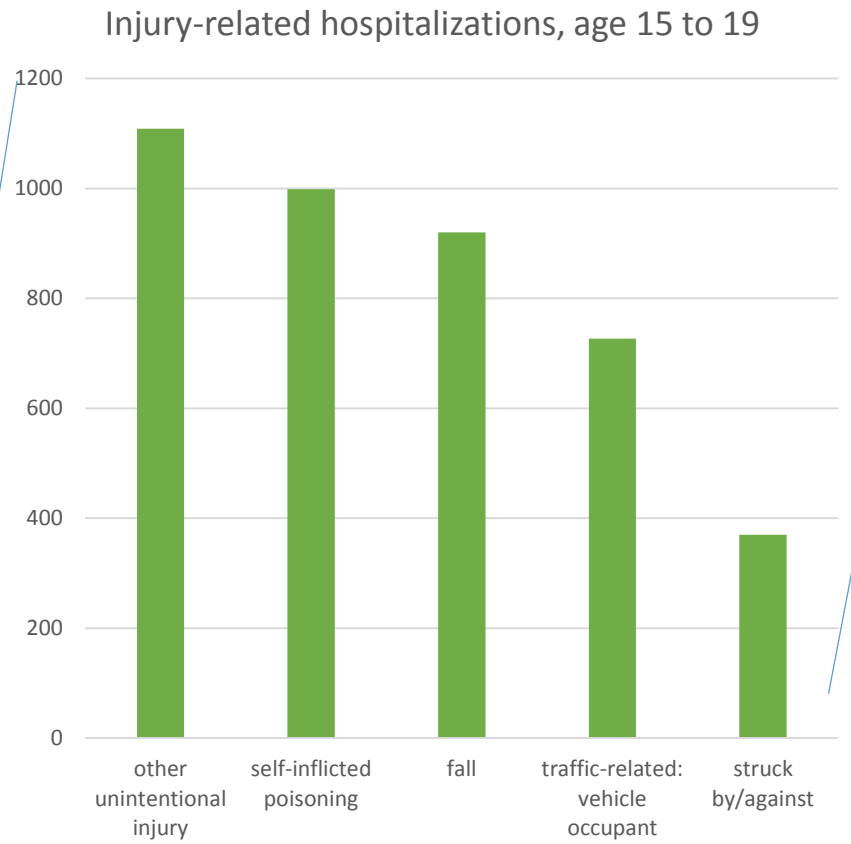
AGE GROUP: 15 to 19

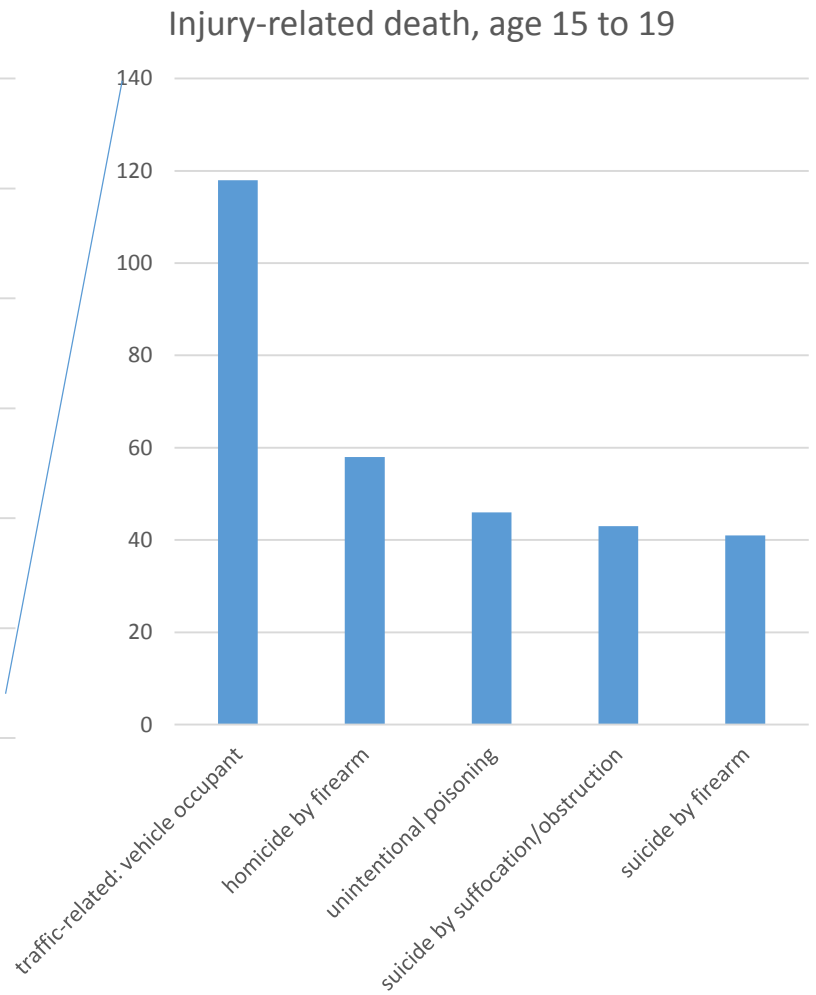
Brain and social development

- Late adolescence, transitioning to adulthood
- Neuroplasticity is an advantage for learning and development of independence but also creates vulnerability – trauma, chronic stress and substance abuse can damage the transition of the brain to adulthood.
- Strengthening of brain circuitry related to problem solving, multitasking and processing complex information
- Friendships and intimate relationships are more intimate and based on loyalty and trust. This can lead to pressure to engage in risky behaviors.
- Increased independence from family - beginning to work, drive, engage in activities and have more mature intimate relationships

Leading causes of injury-related death, EMS response and hospitalization
Youth age 15 to 19
King County, 2002 to 2014





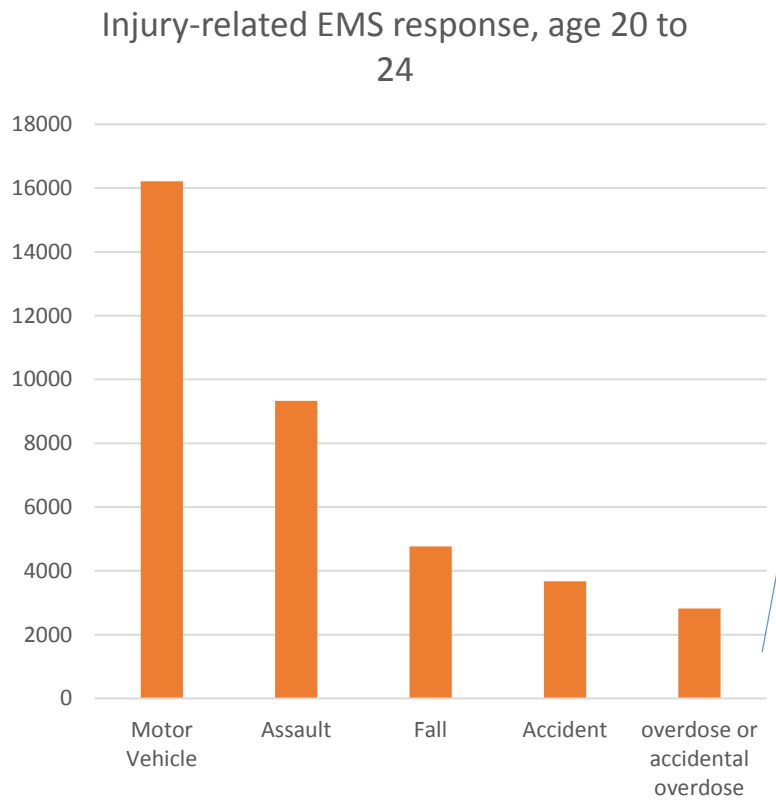


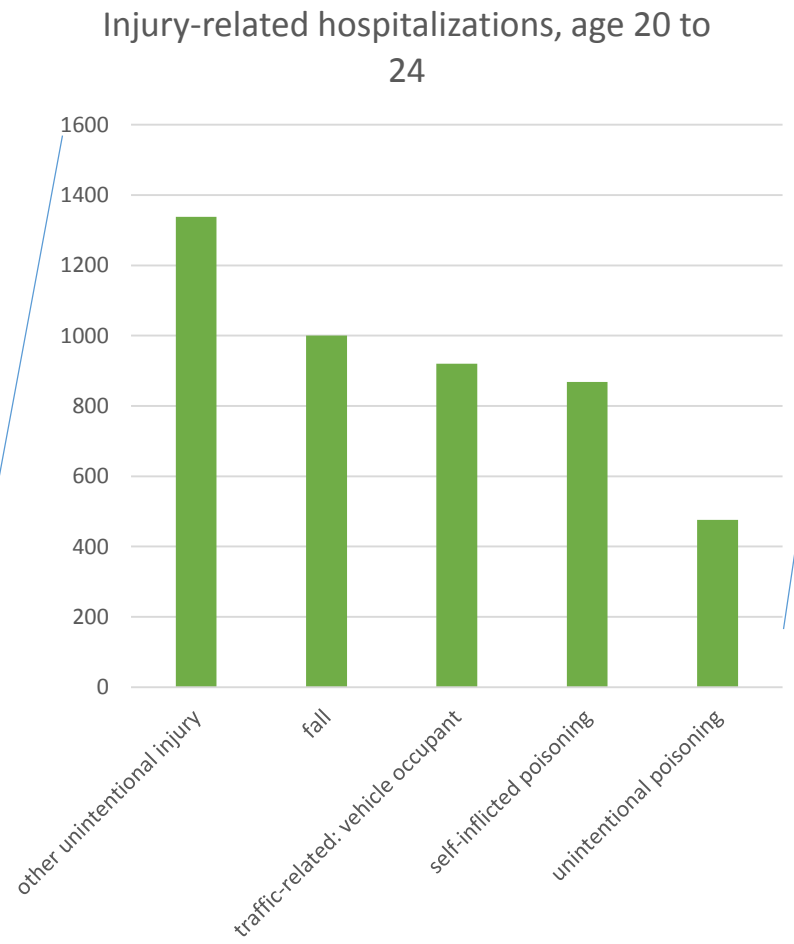
AGE GROUP: 20 to 24

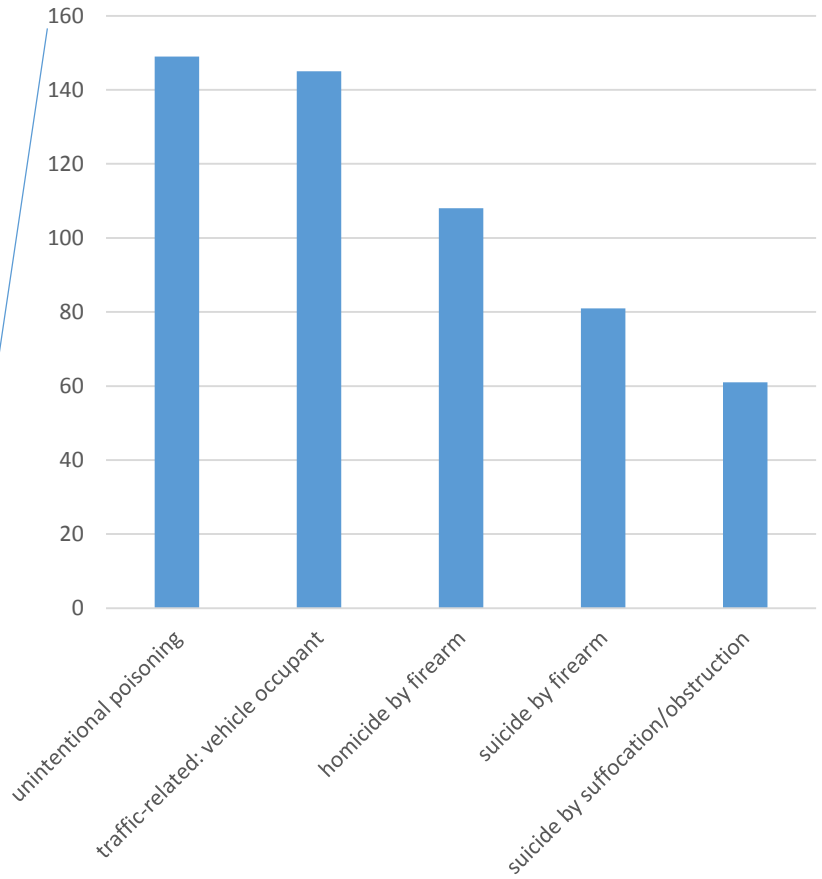
Brain and social development

- Responsibilities and pressures of young adulthood while adolescent brain development continues – less neuroplasticity than in adolescence.
- Large amount of development in the prefrontal cortex (judgment, decision-making and impulse control)
- Unaddressed earlier trauma and chronic stress impact prefrontal cortex development and can affect decision-making, planning and understanding possible consequences of actions.
- Peer group and intimate partners are key to identity and support.
- Responsibilities may include children, long-term relationships, higher education, work

Leading causes of injury-related death, EMS response and hospitalization
Young adults age 20 to 24
King County, 2002 to 2014







Questions?

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