

To: Judicial Proceedings Committee
Date: February 6, 2023
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TESTIMONY IN SUPPORT OF SB 86

Chair Smith, Vice Chair Waldstreicher, and Members of the Judicial Proceedings Committee: thank you for the opportunity to testify in support of SB 86, the Raise the Age Act of 2023. This bill would raise the age for the sale, purchase, of possession for all firearms and ammunition to 21. This would make the current rule for handguns (under both state and federal law) and regulated firearms generally applicable to all firearms, while providing important exceptions.

In the field of neuroscience, there is a well-developed literature on cognitive development. This literature shows that the frontal lobes of the brain, which are the part of the brain that exercise impulse control, are among the last cerebral areas to mature.¹

The development of dopamine receptors in the frontal lobes is also delayed until after adolescence—which can bias adolescent behavior toward motivation rather than inhibition.² Motivational responses can diminish effective self-control and lead to risky choices.³

The developing brains of adolescents and young adults may put these young people at higher risk of making risky and dangerous decisions. While the frontal lobes and other higher order association areas mature relatively late, limbic areas are dense with hormone receptors that are awakened during puberty.⁴ These changes in the limbic system can impact self-control, decision making, emotions, and risk-taking behaviors. Of particular concern, changes in the limbic system can heighten aggressive behaviors.⁵ These are all skills and abilities that are critically important to responsible firearm use and ownership.⁶

¹ Elizabeth R. Sowell, et al., "In Vivo Evidence for Post-adolescent Brain Maturation in Frontal and Striatal Regions," *Nature Neuroscience* 2, no. 10 (1999): 859.

² B.J. Casey, "Beyond Simple Models of Self-control to Circuit-based Accounts of Adolescent Behavior," *Annual Review of Psychology* 66 (2015): 301–302.

³ *Id.* at 302.

⁴ Mariam Arain, et al., "Maturation of the Adolescent Brain," *Neuropsychiatric Disease and Treatment* 9 (2013): 450.

⁵ Allan Siegel and Jeff Victoroff, "Understanding Human Aggression: New Insights from Neuroscience." *International Journal of Law and Psychiatry* 32, no. 4 (2009): 210–211.

⁶ See Daniel Webster, et al., "Firearms on College Campuses: Research Evidence and Policy Implications," Johns Hopkins Bloomberg School of Public Health, 2016, <https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-gun-policy-and-research/pdfs/GunsOnCampus.pdf>.

In addition, lower impulse control put young people at higher risk for suicide by firearm.⁷ Because impulse regulation and emotional control continues to develop into the mid-20s young people, including adolescents and people under age 21, are at higher risk for suicide than older populations.⁸ Data from the Centers for Disease Control and Prevention shows that suicide attempts that result in death or hospital treatment peak at age 16, but are at the highest rates from age 14 through age 21.⁹

Additionally, suicide risk is often much higher in the early stages of the onset of major psychiatric conditions, and these symptoms usually first develop in adolescence or early adulthood.¹⁰ Most mental illnesses have their onset by age 24, meaning that people under age 21 are at a heightened risk of experiencing psychiatric symptoms for the first time.¹¹ These psychiatric vulnerabilities are exacerbated for young people over age 18 who are leaving home for the first time and experiencing shifts in social connections, reduced structure, and social support.¹²

Maryland law already acknowledges and reflects these realities with respect to handguns and regulated firearms, but the heightened risk to young people of harming self or others applies to all firearm types. Maryland should update its laws to reflect these realities and protect young people. Giffords urges a favorable report on SB 86.

Respectfully Submitted,

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ABOUT GIFFORDS

Giffords is a nonprofit organization dedicated to saving lives from gun violence. Founded and led by former Congresswoman Gabrielle Giffords, Giffords inspires the courage of people from all walks of life to make America safer.

⁷ See Johanna Birckmayer and David Hemenway, "Suicide and Firearm Prevalence: are Youth Disproportionately Affected?," *Suicide and Life-Threatening Behavior* 31, no. 3 (2001); Matthew Miller and David Hemenway, "The Relationship between Firearms and Suicide: a Review of the Literature," *Aggression and Violent Behavior* 4, no. 1 (1999).

⁸ Nitin Gogtay, et al., "Dynamic Mapping of Human Cortical Development During Childhood Through Early Adulthood," *Proceedings of the National Academy of Sciences* 101, no. 21 (2004): 8174, 8178.

⁹ Centers for Disease Control and Prevention, Web-based Injury Statistics Query and Reporting System (WISQARS), "Fatal and NonFatal Injury Data," last accessed Feb. 26, 2019, <https://www.cdc.gov/injury/wisqars>.

¹⁰ Merete Nordentoft, Preben Bo Mortensen, and Carsten Bøcker Pedersen, "Absolute Risk of Suicide after First Hospital Contact in Mental Disorder," *Archives of General Psychiatry* 68, no. 10 (2011): 1058, 1060.

¹¹ Ronald C. Kessler, et al., "Lifetime Prevalence and Age-of-onset Distributions of DSM-IV Disorders in the National Comorbidity Survey Replication," *Archives of General Psychiatry* 62, no. 6 (2005): 593, 595.

¹² Carole Hooven, Karen A. Snedker, and Elaine Adams Thompson, "Suicide Risk at Young Adulthood: Continuities and Discontinuities from Adolescence," *Youth & Society* 44, no. 4 (2012).