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March 25, 2019

The Honorable Representative Jennifer Williamson, Chair
The Honorable Representative Chris Gorsek, Vice-Chair
The Honorable Representative Sherrie Sprenger, Vice-Chair
House Committee on Judiciary, Members

RE: House Bill 3261 —Testimony in Support

Dear Chair Williamson, Vice-Chairs Gorsek and Sprenger, and Members of the Committee:

My name is Kristen Mackiewicz Seghete, PhD. I have substantial experience in adolescent cognitive and brain development, as I have been researching this and related topics for almost 20 years. I am currently Psychology Faculty (Assistant Professor) within the Department of Psychiatry at Oregon Health & Science University (OHSU) and am the Director of the Stress, Cognition, Affect, and Neuroimaging (SCAN) Lab. One of the focuses of my past and current research is the normative development of cognitive brain processes, particularly attention and executive function, during adolescence and young adulthood. Further, my research focuses on the impact of stress on cognitive and emotional brain processes during adolescence and adulthood. Additionally, I am a licensed psychologist, with expertise in pediatric neuropsychological evaluations. Neuropsychological evaluations are focused on assessing and conceptualizing cognitive functioning.

Adolescence is an important period of change and transition, not only behaviorally but also from a neurobiological perspective. Adolescence through early adulthood is marked by enhanced neuroplasticity. Neuroplasticity refers to a period of time when the brain is changing a lot in order to facilitate new behavioral skills. Full brain development and maturation coincides with the end of the adolescent period, typically between about 21-25 years of age. Brain maturation includes (but is not limited to):

1) pruning, or reduction in grey matter, after an increase in grey matter volume, which results in retaining neurons and connections of importance and trimming away those that are not being used in order to increase efficiency
2) increased integrity of white matter, or the “super highways” of the brain, that connect different regions of the brain
3) stronger functional connections between brain regions that are not anatomically close to each other but need to connect and “talk” in order to support mature cognitive and affective processes, such as decision making and regulation of emotional responding.

There are many differences in higher order cognitive processing and emotional regulation observed between adolescents and adults, which are

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believed to be driven by the protracted structural and functional development of the brain through early adulthood. Specifically, it has been found that there is often an imbalance between more "cool" cognitive control regions (or the "thinking brain") and more "hot" emotional responding regions (or the "emotional brain") in adolescents as compared to adults. This is reflective of earlier maturation of emotional and reward processing regions (e.g., limbic system) during early adolescence compared to later maturation of higher order cognitive control and emotional regulation processing regions (e.g., prefrontal cortex) in mid to late adolescence. Additionally, it reflects continuing maturation or strengthening of the connectivity between limbic regions and the prefrontal cortex from early adolescence through early adulthood. As a result of protracted and imbalanced development, basic cognitive maturation does not occur until late adolescence and psychosocial maturation does not occur until early adulthood.

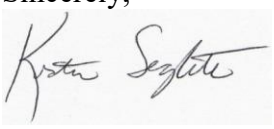
The timeline for cognitive and psychosocial maturation is important, as both elements are needed when considering adolescent ability to make decisions, particularly under emotional contexts. Adolescents' decisions are more strongly affected in situations of high emotional arousal, such as high reward or stress/threat, than adults. As a result, they are more likely to engage in impulsive behaviors, have poorer decision-making, and have a harder time weighing short term benefit (e.g., reward, removal of something negative) and long-term benefit. This means they are better able to make decisions and consider long-term consequences of their behavior when their emotions or the situation are less intense.

Specific to the proposed Bill, some studies have found adolescents, particularly in the early to middle adolescent period, do not actually understand their *Miranda* rights as well as adults even when they acknowledge understanding them. This includes reporting beliefs that they have a right to remain silent, but that this right is diminished when they are specifically questioned.

Please refer to the uploaded articles, referenced below, for further details, elaboration, and support of the presented information.

Thank you for your time and consideration in reviewing my personal written testimony. Based on our current knowledge of the developing adolescent brain and subsequent decision-making processes, I urge your yes vote.

Sincerely,



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