Good afternoon Chairman (Delegate) Parrott, and esteemed colleagues, as an OB/GYN licensed in the state of Maryland, it is my honor to offer the following comments in favor of HB 1312:

The International Association for the Study of Pain defines pain as “an unpleasant sensory and emotional experience”

• The inability to communicate verbally does not negate the possibility that an individual is experiencing pain. Pain can be expressed non verbally by movement in responses to a stimulus or physiological changes, such as changes in heart rate or blood pressure.
• Despite discrete physiological changes that occur in response to pain, its measurement and expression is always subjective. Because of this subjectivity we cannot “know” what the feeling of pain is like for another person.

The way pain is perceived involves four processes:

1. Transduction: pain is first registered by specialized cells in the body (skin, muscle, bone, organs). These cells detect pain, heat, cold, pressure and convert it to an electrical impulse
2. Transmission is the sending of this electrical impulse along nerves, to the spinal cord, up to the brain
3. Modulation is the process where counter influences are sent to reduce pain
4. Perception: the organism’s ability to experience a given stimulus as unpleasant

Fetuses possess the wiring and chemistry needed to experience pain up to the level of thalamus and subcortical plate by 20 weeks gestation along with the beginning of connections to the cerebral cortex.

Scientific dogma\(^i\) maintains that our ability to consciously perceive pain can only arise when the connections between the thalamus and cortex begin to function, which some say isn’t until 29-30 weeks gestation.

However, many experts in pain and consciousness research are challenging these outdated, old school ideas\(^ii\) and are distressed that they have led to mistaken notions about people with impaired, immature or absent cortical function and ignore a large body of research.

Is a functioning cerebral cortex needed to consciously experience pain?

1. Penfield operated on 750 awake patients, removing large portions of the brain and cerebral cortex without the patients ever losing consciousness\(^iii\). He recognized that other subcortical structures were mediating consciousness. Consciousness can exist even when great quantities of the cortex are absent\(^iv\).
2. Studies of the hydranencephalic infants and children provide confirming evidence for this subcortical system, and for the ability to experience pain in the absence of a cerebral cortex.

The Webster’s Third New International Dictionary defines consciousness as “the state or activity that is characterized by sensation, emotion, volition, or thought”.

Shewmon, Brusseau, and other investigators have studied children born with hydranencephaly, a rare condition where the cerebral cortex does not form. When these babies were born and were discovered to have this condition, the parents were told by the specialists that they would die soon or remain in a permanent vegetative state. This was not the case at all. The authors found that they readily responded to their loving foster parent who provided lots of stimulation and these children clearly demonstrated elements of consciousness and responded to painful and pleasurable stimuli in a coordinated manner similar to intact children, such as smiling, laughing, “fussing”, and crying.

Bellieni noted that anencephalic infants (no brain, no skull) react to painful stimuli by withdrawing. These “cortex-less” children clearly possess awareness and of a variety of cognitive capacities indicative of “ordinary consciousness”. They recognize faces, have appropriate affective responses (turn and smile when called by name), have musical preferences (facial expressions changed to reflect the song’s mood and instruments).

3. Is the developing fetus in a coma-like state, essentially unconscious?
• Not based upon the actions of fetal surgeons who provide sedation and pain meds to reduce fetal movement, to prevent a hormonal stress response (which is associated with poor surgical outcomes in newborns) and to prevent long term developmental problems associated with ‘remembering’ pain.
• Putting a needle directly into the fetus’ abdomen causes it to react with vigorous body and breathing movements which doesn’t happen when the needle is placed in the umbilical cord, which has no nerves.
• The idea that long term adverse effects can occur in response to painful stimuli is counter-intuitive to the notion that the unborn child is considered to be in a coma.

4. Fetuses use novel ways to process pain and are not merely “tiny adults”.
• There is substantial evidence that fetuses’ use different structures to process pain that differ from those of normal adults.
• Structures such as the subcortical plate are present at specific times during development and fulfill the role of pain processing without the need for the cerebral cortex.
• Connections from the thalamus to the subplate zone may be sufficient.
• If Lee’s assertions are correct, then the majority of premature babies in the NICU do not feel pain either.

5. Stimulating or removing the adult thalamus alters pain perception; not so with the cerebral cortex.
• Removal of an entire hemisphere of the brain does not alter consciousness
• Consciousness can exist even when great quantities of the cortex are absent
• Stimulating the cerebral cortex does not change pain perception
• Stimulation of the thalamus DOES change the perception of pain in adults
• Clearly, the thalamus plays a key role in pain perception of adults, adds credence to the mounting evidence that the fetus doesn’t need a fully functioning cortex to feel pain

Clearly, the thalamus plays a key role in pain perception of adults, adds credence to the mounting evidence that the fetus doesn’t need a fully functioning cortex to feel pain.

Substantial evidence exists that the 20 week fetus has a functioning nervous system, capable of experiencing pain.

The practice of medicine is founded on the commitment to first do no harm. On the question of fetal pain perception, unless there is unequivocal evidence that unborn children at 20 weeks from conception cannot feel pain, the default must be to err on the side that they are capable of suffering in response to painful stimuli.

Anand, 2005, p.38, “My opinion is, based on evidence suggesting that the types of stimulation that will occur during abortion procedures, very likely most fetuses at 20 weeks after conception will be able to perceive that as painful, unpleasant, noxious stimulation.*”

From the testimony of Dr. Sunny Anand, Director, Pain Neurobiology Laboratory, Arkansas Children’s Hospital Research Institute, and Professor of Pediatrics, Anesthesiology, Pharmacology, and Neurobiology, University of Arkansas College of Medicine U.S. Congress. House of Representatives. Committee on the Judiciary. Pain of the Unborn


