University of California
San Francisco

UCSF

Bixby Center for Global Reproductive Health

Department of Obstetrics
Gynecology and
Reproductive Sciences

3333 California Street
Suite 335, Box 0744
San Francisco, CA 94143-0744
(Use 94118 for FedEx or UPS)

tel: 415/502-4086
fax: 415/502-8479

http://bixbycenter.ucsf.edu

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Dear Representatives or Senators:

The legislature currently is considering "The Pain-Capable Unborn Child Protection Act." We are writing to comment on Section in which the Legislature makes findings related to fetal pain. These findings are inconsistent with published science and thus should not be used to inform potential policy change.

In 2005, a group of scientists at the University of California, San Francisco (UCSF) conducted a review of the available evidence related to the question about when a fetus is capable of feeling pain. This review was published in the *Journal of the American Medical Association* (Lee SJ, Ralston HJ, Drey EA, Partridge JC, Rosen MA. Fetal pain: a systematic multidisciplinary review of the evidence. *JAMA*. 2005 Aug 24;294(8):947-54). **This review concludes that based on the best available scientific evidence, a human fetus probably does not have the capacity to experience pain until the 29th week of pregnancy at the earliest**.

The authors of this review include experts in all the relevant fields:

- Mark Rosen, MD, is Professor of Anesthesia; Professor of Obstetrics, Gynecology and Reproductive Sciences; and Director of Obstetrical Anesthesia at UCSF. Dr. Rosen is a leading expert in anesthesia use in the context of fetal surgery.
- Henry J. Ralston III, MD, PhD, is Professor of Anatomy and faculty in the Neuroscience Graduate Program at UCSF. His research laboratory investigates the organization of the neural networks that serve somatic sensation, including pain, in the mammal.
- J. Colin Partridge, MD, is the Health Sciences Clinical Professor and the Academy Chair in Pediatric Education in the Department of Pediatrics at UCSF. Dr. Partridge is a neonatologist specializing in the care of extremely premature newborns.
- Eleanor Drey, MD, EdM, is Associate Professor of Obstetrics, Gynecology and Reproductive Sciences at UCSF. Dr. Drey is the Director of the Women's Options Center and is an expert in the provision of late abortion care.
- Susan Lee, JD, MD, was a medical student at UCSF at the time the article was published and is now a resident and research fellow in the Department of Surgery at UCSF.

In March 2010, the Royal College of Obstetrics and Gynecology (RCOG) published a review of all studies on fetal awareness and recommendations for practice. The review was the result of one year of study by ten experts from all relevant fields. Expert participants were:

- Professor Allan Templeton FRCOG (Chair)
- Professor Richard Anderson FRCOG, Reproductive Medicine Specialist,
- University of Edinburgh
- Ms Toni Belfield, Member of the RCOG Consumers' Forum
- Dr Stuart Derbyshire, Senior Lecturer, School of Psychology, University of Birmingham
- Mrs Kay Ellis, Department of Health Observer
- Ms Jane Fisher, Director, Antenatal Results and Choices (ARC)
- Professor Maria Fitzgerald, Professor of Developmental Neurobiology, UCL London
- Dr Tahir Mahmood, RCOG Vice President (Standards)
- Professor Neil Marlow, Neonatologist, UCL London
- Professor Vivienne Nathanson, Director of Professional Activities,
- British Medical Association
- Professor Donald Peebles FRCOG, Obstetrician, UCL, London
- Ms Stephanie Michaelides, Royal College of Midwives
- Supported by Mrs Charnjit Dhillon, RCOG Director of Standards, and Miss Maria Finnerty,
- Secretary to the Working Party

The RCOG study confirmed the key points of the UCSF review conducted 5 years earlier.

Below we provide a response to each of the four specific findings delineated in the proposed legislation with key findings of the UCSF and RCOG studies:

Legislative Finding At least by twenty weeks after fertilization, an unborn child has the physical structures necessary to experience pain.

What does the science say?
Brain circuitry responsible for relaying some types of sensory information begin developing around 23 weeks' gestation. However, the presence of the "wiring" does not necessarily mean that the circuits are actually functional. In fact, scientific evidence does not support the assumption that the presence of the physical structures means that the fetus can experience pain. The circuits must be connected to the brain in specific ways for pain to be experienced. The cortex, the part of the brain required for sensing pain, is not developed until well into the third trimester. Studies suggest that the first pathways associated with pain perception are not complete before approximately 25 -29 weeks of gestation.
The RCOG review found that there is NO evidence or rationale for subcortical and transient brain regions which emerge before 24 weeks being capable of sensing pain. After 24 weeks, there is gradual development of the brain but no cognitive experience of pain probably until birth

Legislative Finding There is substantial evidence that, by twenty weeks after fertilization, unborn children seek to evade certain stimuli in a manner which in an infant or an adult would be interpreted as a response to pain.

What does the science say?
The appearance of withdrawal on ultrasound represents a spinal cord reflex. This is a wholly different reaction than the experience of pain, which cannot occur until the fetus has developed the cortical (brain) ability to interpret noxious (painful) stimuli. Reflex responses occur independent of pain sensation, such as the 'knee jerk' reflex. Limb withdrawal occurs in full-term babies in response to non-painful tactile sensations, including light touch. Studies

demonstrating the presence of fetal movement in response to stimuli (noxious or not) do not establish the existence of fetal pain.

Legislative Finding Anesthesia is routinely administered to unborn children who have developed twenty weeks or more past fertilization who undergo prenatal surgery.

What does the science say?
Performing surgery on a fetus and providing an abortion are two very difference scenarios. For fetal surgery, analgesia/anesthesia is primarily used to prevent possible adverse surgical outcomes, to relax the uterus to prevent premature contractions, to immobilize the fetus, and to prevent possible long-term neurological developmental problems resulting from the hormones released during surgery. None of these objectives is applicable to an abortion.

Legislative Finding There is substantial evidence that abortion methods used at and after twenty weeks would cause substantial pain to an unborn child;

What does the science say?
This issue is not specifically addressed in the review article but is inconsistent with clinical practice. As detailed above, studies suggest that fetuses are not capable of feeling pain before 29 weeks of gestation. The procedures used at that point in pregnancy would not cause pain to the fetus as it is identical to birth. While the most common procedure used before approximately 22 weeks' gestation is the medical technique of dilation and evacuation (D&E), after that point, physicians usually induce labor to terminate the pregnancy. Prior to inducing the labor, a medication (either digoxin or KCL) is injected into the fetus to stop the fetal heart. Thus, no D & E procedures are performed after the point at which there is the potential for fetal pain (29th week of pregnancy). It is also standard practice in Nebraska to use digoxin prior to initiating any abortion procedure after 20 weeks of pregnancy.

In summary, scientific evidence does not support the elimination of legal abortion at 20 weeks' gestation based on concerns about the existence of fetal pain.

Sincerely,

Philip Darney, MD, MSc
Professor, Department of Obstetrics, Gynecology and Reproductive Sciences

Chief of Service, Obstetrics and Gynecology,
San Francisco General Hospital
University of California, San Francisco

Mark Rosen, MD
Professor, Departments of Anesthesia and Obstetrics, Gynecology and Reproductive Sciences
Director of Obstetrical Anesthesia
University of California, San Francisco