



ADVANCING NEW STANDARDS IN REPRODUCTIVE HEALTH

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# The Misuse of Science in Abortion Restrictions

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University of California, San Francisco | Bixby Center for Global Reproductive Health

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# ANSIRH

A program of the Bixby Center for Global Reproductive Health

Within the San Francisco Hospital Division of the Department of  
Obstetrics, Gynecology & Reproductive Sciences

**Mission:** To ensure that reproductive health care and policy are  
grounded in evidence

**Core values:** Ensuring Integrity, Working with Optimism,  
Embracing Complexity, Leading Change, Promoting Collaboration

**Multidisciplinary social science:** sociology, anthropology,  
demography, epidemiology, nursing, psychology, medicine, public  
health, and law



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August 31, 2010 | Slide 2



# Legal Framework

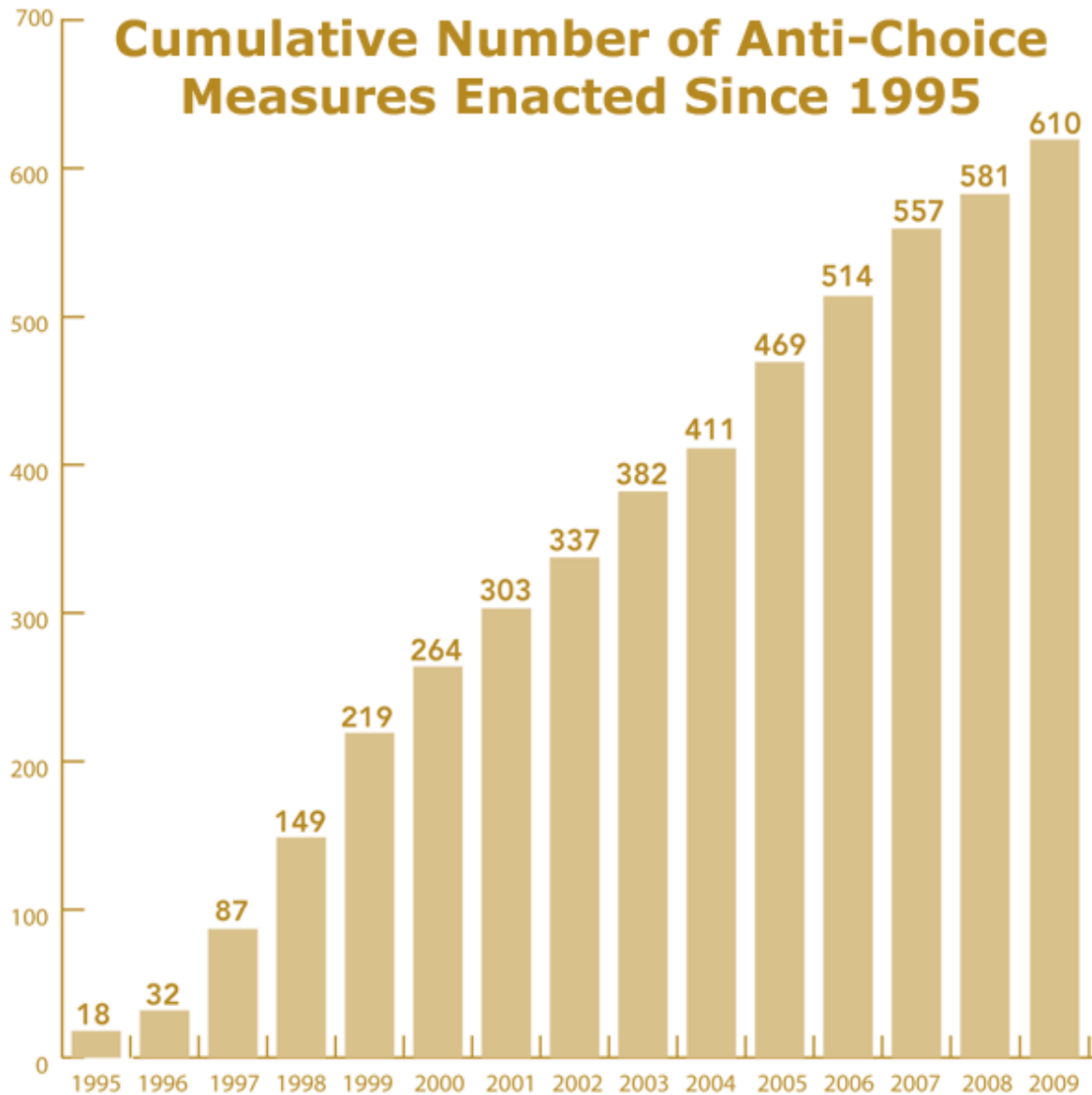
- *Roe v. Wade* [1973]
  - Abortion without restrictions in 1st Trimester
  - Restrictions in the 2nd Trimester for health indications
  - Health and life exception after “viability”
- *Planned Parenthood v. Casey* [1992]
  - Eliminated distinction between 1st and 2nd
  - Demoted abortion from being a fundamental right
  - Established “undue burden” as standard for constitutionality of abortion regulation
  - States are allowed to regulate abortion to demonstrate a preference for childbearing over abortion



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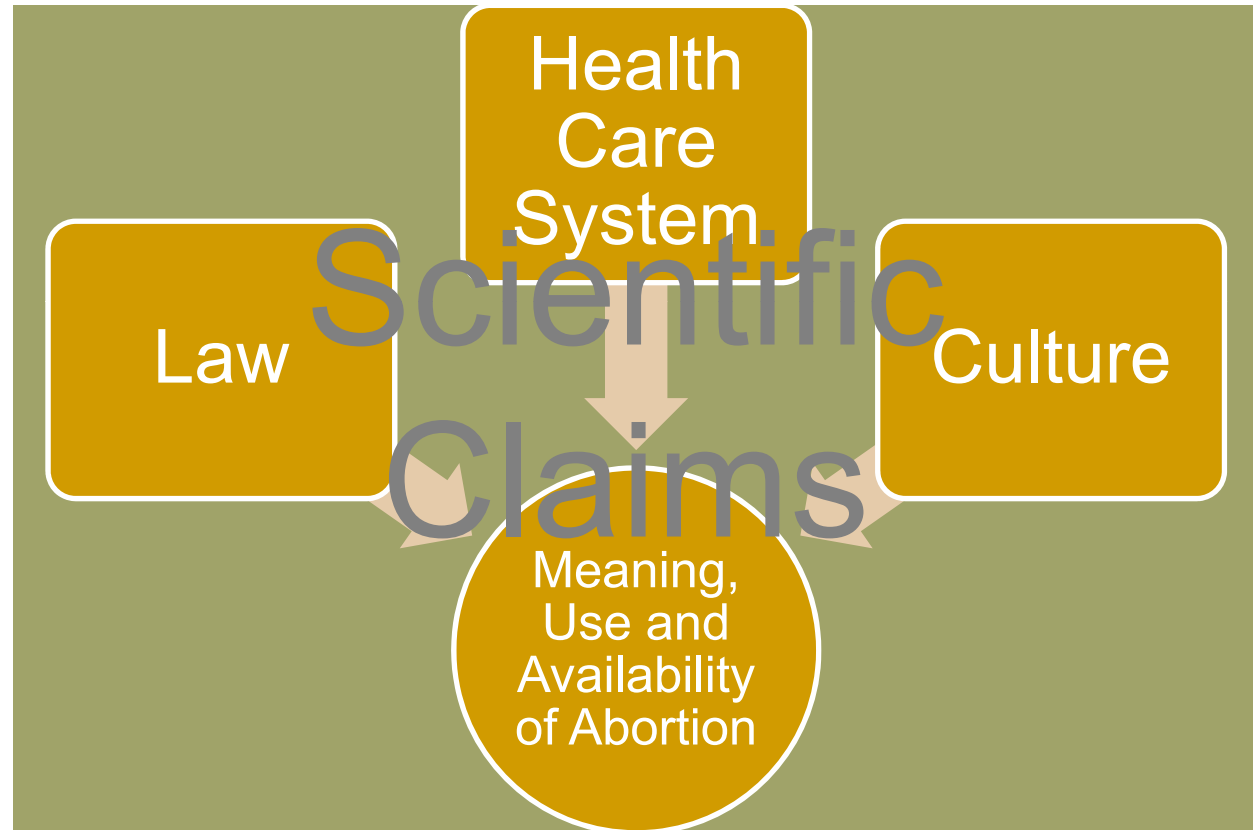
August 31, 2010 | Slide 4

# Proliferation of Abortion Policies

- Funding restrictions
- Parental involvement
- Waiting periods  
(usually 24-48 hours)
- State-mandated  
information
- Ultrasound viewing
- Public facilities/employee  
exclusions
- Broad refusal clauses
- Facilities restrictions  
(TRAP) laws
- Hospital admitting  
privileges
- Physician-only limits
- Malpractice restrictions
- Abortion procedure bans
- Reporting requirements
- “Choose life” license  
plates
- Abortion alternatives  
funding



# My Theoretical Approach



# The Realms of Scientific Claims

- Claims about the fetus (Fetal Science)
  - Fetal pain
  - Viability
- Claims about the woman (Maternal Science)
  - Bonding
  - Psychological well-being
- Claims about technique (Clinical Care Science)
  - Safety
- Distinct from moral or ethical claims



# Why should lawyers and health researchers care about how scientific claims are mobilized?

- Judges are asked to adjudicate scientific claims
  - More and more scientific disagreements are resolved through legal cases
- Scientific literacy is low in the public
- The media's approach to balance and preference for controversy creates perceptions of equal sides in any scientific debate
- Science is increasingly politicized
- Science is a process not a product, thus ambiguity is inevitable but policies are based on static interpretations of science

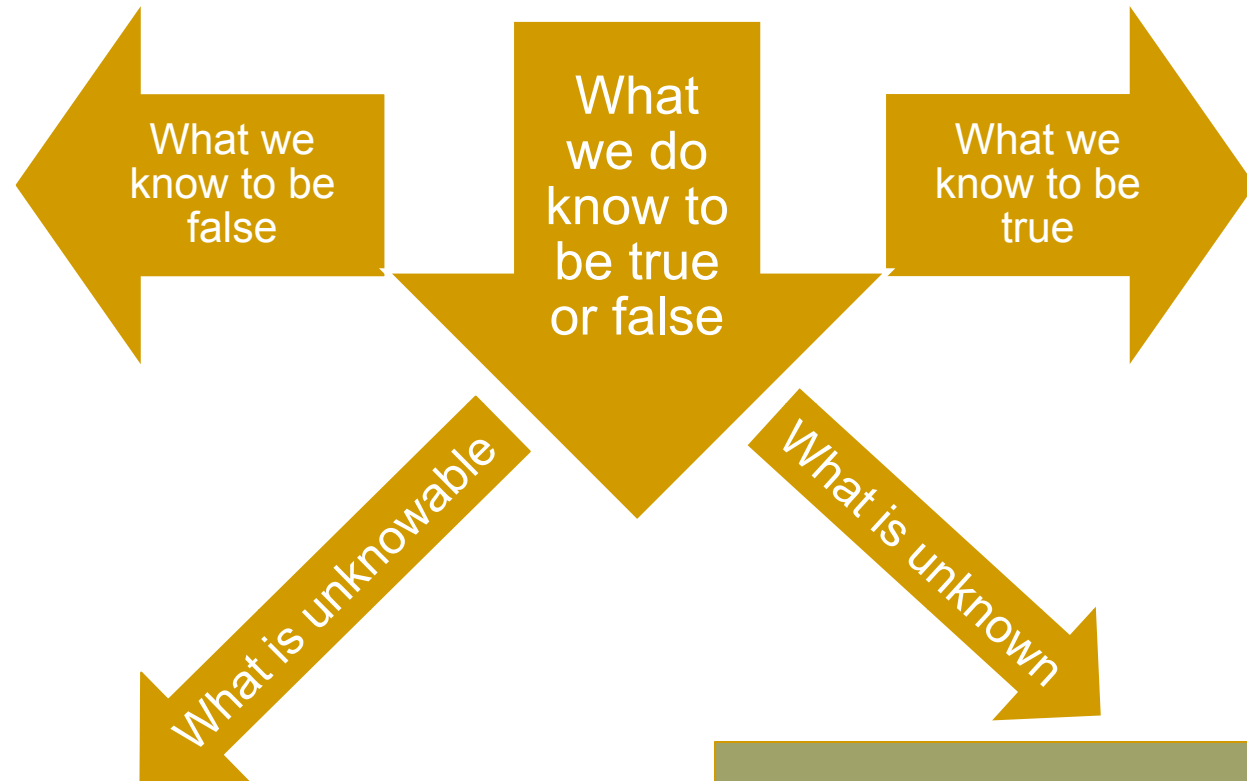




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# Assessing Scientific Knowledge



How science is funded?  
Who conducts research?  
Which questions are valid?  
What methods are accepted?

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# Important Distinctions to Remember

## Ontology

Our assumptions about how the world is made up and the nature of things

## Epistemology

Our beliefs about how one might discover knowledge about the world

## Methodology

The tools and techniques of research



# Mark Twain's Words of Caution

“It ain't what you don't know that gets you into trouble. It's what you know for sure that just ain't so.”



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# Misusing Fetal Science in Abortion Restrictions



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August 31, 2010 | Slide 12

# Fetal Pain

- 9 states include information on the ability of a fetus to feel pain in the information women must receive before their abortion
- 6 require the information be given verbally
- Most states limit requirement to women >20weeks



# Nebraska

- LB1103
- “Pain-Capable Unborn Child Protection Act.”
- Bans abortions after 20 weeks post fertilization on the basis of the ability of the fetus to feel pain
- Limits the health exception for abortions after this period
  - Serious risk of substantial and irreversible physical impairment of a major bodily function
  - “No condition shall be deemed a medical emergency if based on a claim or diagnosis that the woman will engage in conduct which will result in her death or in substantial and irreversible physical impairment of a major bodily function”



# Compromise based in Science

- State Sen. Mike Flood, speaker of the legislature, and author of the bill at the Judiciary Hearing (2/25/10)
  - “I hope to set on a track for an honest, civil, and thoughtful discussion of this bill...I believe that this bill LB1103 presents a middle ground on which folks on both sides of the abortion divide might agree.”
- Common ground because
  - Abortions after 20 weeks are “rare” (only 1.3% of all abortions in the United States, approx 17,000)
  - Draws a bright line
  - “To the extent that there is consensus, it’s at 20 weeks” (Flood, Floor debate 3/30/10)



# KJS “Sunny” Anand MBBS, DPhil

- Professor of Pediatrics, Anesthesiology, Pharmacology and Neurobiology
- Formerly at UAMS now at University of Tennessee Health Science Center in Memphis, TN
- Credited with changing clinical practice around the management of pain in extreme neonates
- Provided testimony to Congress during the debate over PBA
- Two core findings
  - Fetus feels pain
  - Pain is more intense than at term
- His work is presented by proxy





## Other Scientific Perspectives not included in the Nebraska Debate

- Royal College of Obstetricians and Gynaecologists. *Fetal Awareness Review of Research and Recommendations for Practice*. London, UK: Royal College of Obstetricians and Gynaecologists; 2010 March.
- Systematic review conducted at UCSF
  - Lee SJ, Ralston HJ, Drey EA, Partridge JC, Rosen MA. Fetal pain: a systematic multidisciplinary review of the evidence. *Journal of the American Medical Association* 2005;294:947-54



# Scientific Findings of the Legislature

- Legislative Finding 1) 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. The circuits must be connected to the brain in specific ways for pain to be experienced. That happens later in pregnancy.
  - Studies suggest that the first pathways associated with pain perception are not complete before approximately 29 weeks of gestation, (Lee et al) and 24 weeks (RCOG) , well into the third trimester.
  - There is increasing evidence that the fetus never experiences a state of true wakefulness in utero and is kept in a continuous sleep-like unconsciousness or sedation, by the presence of its chemical environment. This state can suppress higher cortical activation in the presence of intrusive external stimuli.



# Legislature Findings Continued

- Legislative Finding 2) 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.



# Legislature Findings Continued

- Legislative Finding 3) 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.



# Legislature Findings Continued

- Legislative Finding 4) 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?***
  - 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.



# A Social Movement Discredits Science

- *JAMA* article firestorm
- Authors accused of having a “conflict of interest”
  - COI is not financial put political
  - Drey, directs and abortion service at SFGH
  - Lee was an intern at NARAL before going to medical school
- Supporters of abortion rights afraid to use article because it is seen as “political”
- No similar experience for cancer scientists who sit on boards for Cancer advocacy organizations (i.e. brain tumor foundation)



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# The Name Alone is Enough to Create a Shared Understand that Pain Exists and is Relevant



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August 31, 2010 | Slide 23

# Real Goal is to Challenge *Roe*

- All supporters of the bill do not believe in abortion at any point in pregnancy
- Most think the fetus can feel pain at much earlier gestation
- Avoidance of pain is not even a consideration in the law
- Goal is to replace viability
  - "My bill does not center around viability. It creates a new standard."  

State Sen. Mike Flood, speaker of the legislature,  
and author of the bill
  - Prove a new state interest in the fetus
  - Create a bright line that excludes physician discretion
    - *Roe* was a physician decision
    - Only penalties are for the physician ("the mother is not criminalized")





# What are Their Legal Arguments?

- *Planned Parenthood of Southeastern Pennsylvania v. Casey*, 505 U.S. 833 (1992)
  - The state has a duty to define its interest in the abortion debate
- *Gonzales v. Carhart*, 550 U.S. 124 (2007)
  - Kennedy majority opinion: “The Court has given state and federal legislatures wide discretion to pass legislation in the areas where there is medical and scientific uncertainty.”
  - Ginsberg’s dissent: “..the decision blurs the line firmly drawn in Casey between previability and postviability abortions.”



# How Strong is the Science of Viability?

■ “when, in the judgment of the attending physician on the particular facts of the case before him, there is a reasonable likelihood of the fetus’ sustained survival outside the womb, with or without artificial support. Because this point may differ with each pregnancy, neither the legislature nor the courts may proclaim one of the elements entering into the ascertainment of viability – be it weeks of gestation or fetal weight or any other single factor – as the determinant.”

[Colautti v. Franklin, 1979]



# Fetal Survival

- In 1995, the landmark EPICure Study Group was conducted of the survival and later health status of children born at 25 weeks or less gestation in the United Kingdom and Ireland
- The study found that the possibility of *survival* increases for premature babies the longer the gestational age
  - 25 percent in the 23rd week, 42 percent in the 24th week, 57 percent in 25th week.
  - However, approximately half of the babies that survived at each gestational age had some level of impairment, and over half of those were multiple and severe disabilities.
- Despite media hype, there have been no significant improvements in the survival rate of very premature babies over the last decade



# Contested Meanings of Viability

- The Physician
  - Perinatologists
  - Neonatologists
  - Those that include abortion in their practice
- Where the patient is cared for in the hospital
- Extrauterine and intrauterine location of the fetus
- Legal expectations for resuscitation



# Larger Research Questions

- What is the difference between a line at viability and a line at fetal pain?
- How do we resolve competing claims about pain?
- Is pain even a relevant concept in the context of abortion?
- Should medicine and science be the final arbitrators of the meaning of life?



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# Misusing Maternal Science in Abortion Restrictions



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August 31, 2010 | Slide 30

# Ultrasound Laws

- 8 states require verbal counseling or written materials to include information on accessing ultrasound services.
- 17 states regulate the provision of ultrasound by abortion providers.
  - 3 states mandate that an abortion provider perform an ultrasound on each woman seeking an abortion, and require the provider to offer the woman the opportunity to view the image.
  - 2 states require the abortion provider to perform an ultrasound on each woman obtaining an abortion after the first trimester, and to offer the woman the opportunity to view the image.
  - 10 states require that a woman be provided with the opportunity to view an ultrasound image if her provider performs the procedure as part of the preparation for an abortion.
  - 3 states require that a woman be provided with the opportunity to view an ultrasound image.



# Oklahoma

- HB2780
- Enacted April 2010 with 3/4<sup>th</sup> override of governor's veto
  - Original vote:  
87-7 in the House  
35-11 in the Senate
- Injunction granted 7/10 with pre-trial hearing date for January 21, 2011
- Requires an ultrasound be performed for every woman who seeks an abortion. The law mandates that the screen be turned so the patient can see the ultrasound and requires the doctor to describe the size of the fetus and any viewable organs and limbs.



[http://www.catholicnewsagency.com/news/okla\\_ultrasound\\_law\\_is\\_constitutional\\_and\\_commonsense\\_abortion\\_regulation\\_backer\\_says/](http://www.catholicnewsagency.com/news/okla_ultrasound_law_is_constitutional_and_commonsense_abortion_regulation_backer_says/)



# Role of Ultrasound in Society's Perception of Abortion

“The number of Americans who consider themselves pro-life has climbed significantly -- a shift that some doctors and abortion opponents say may be due to advances in the use of ultrasound, which allows pregnant women to see images of their babies before they're born.” (Fox news)



# Ultrasound Images

- Pregnancy is a disembodied experience and ultrasound images produce new medically disciplined understandings of pregnancy
  - Stormer (1992), Petchesky (1987), Mitchell (2001), Casper (1997, 1998, 1999)
- Ultrasound is a way for medicine to produce bonding
  - Fletcher & Evans, *New England Journal of Medicine* (1983) “Maternal and fetal bonding in early fetal ultrasound examinations,”
    - suggests that seeing the sonogram will cause “a shock of recognition” and may lead women to resolve “ambivalent pregnancies in favor of the fetus
    - based on the content of only two interviews with pregnant women
    - Often cited in anti-abortion arguments as the first study to “prove”

## Newer Research

Ji, Newton, Uyan, Hull, Hollenbach, et al. (2005). Effects of ultrasound on maternal-fetal bonding: a comparison of two- and three-dimensional imaging. *Ultrasound in Obstetrics and Gynecology*

- OBJECTIVES: The purpose of this study was to evaluate the effect of two-dimensional (2DUS) compared to three-dimensional ultrasound (3DUS) imaging on the maternal-fetal bonding process.
- METHODS: Fifty mothers who had 2DUS and 50 who had 2DUS and 3DUS were included in the study. A postpartum survey by telephone interview was carried out to assess maternal-fetal bonding. Bonding was evaluated by analysis of extent of prenatal image sharing, maternal ability to form a mental picture of the baby and mother's comments about their ultrasound images. Data were analyzed using the independent t-test, Chi-square and Mann-Whitney U-tests.



# RESULTS

- Mothers who received 3DUS showed their ultrasound images to more people (median, 27.5; interquartile range, 14.5-40.0) than mothers receiving 2DUS alone (median, 11.0; interquartile range, 5.0-25.5) ( $P < 0.001$ ,  $Z = -3.539$ ).
- 82% of the subjects screened with 3DUS had a greater tendency to form a mental picture of the baby postexamination compared to 39% of the 2DUS subjects ( $P < 0.001$ ,  $Z = -3.614$ ).
- Mothers receiving a 3DUS study were more likely to receive comments on the similarities/differences of the neonate compared to those having 2DUS studies.
- Furthermore, 70% of the mothers receiving 3DUS felt they 'knew' the baby immediately after birth vs. 56% of the mothers receiving 2DUS ( $P = 0.009$ ,  $Z = -2.613$ ).
- Both 2DUS and 3DUS experiences were positive, however, the comments made by the mothers undergoing 3DUS ( $n = 18$ ) were more exclamatory (amazed, wonderful, fabulous) than those undergoing 2DUS ( $n = 4$ ). Patients having a 3DUS examination consistently scored higher than those having a 2DUS examination alone for all categories of maternal-fetal bonding.



## Image is the “Truth” and Affects Decision

“The abortion industry tries to hide the truth from women about the baby in the womb. This law will help provide to the women a window on her womb.”

Tony Lauinger, state chairman of Oklahomans for Life and vice president of the National Right to Life Committee

*“Someday, she will see an ultrasound – on television, on a magazine cover, on a friend’s refrigerator. This bill allows her to see it when it can still influence her life-or-death decision.”* (Oklahoman’s for Life)



# APHA Presented Study

- Patient Characteristics and Attitudes about Viewing an Ultrasound in a Pregnancy Resource Center: Chicago And Boston Studies
  - Z. Harry Piotrowski, MS
  - Donald S. Childs, MD, FAAFP
  - Eric J. Keroack, MD, FACOG

American Public Health Association  
132 Annual Meeting  
Washington DC, November 9, 2004



## Relative Impact of Ultrasound Viewing

In faith-based pregnancy resource centers that provide pregnancy testing and counseling to pregnant women who are considering elective termination of their pregnancy does offering and viewing a fetal ultrasound change a women's intention and the outcome of their pregnancy?

	<i>Chicago</i>		<i>Boston</i>	
	U/S	No U/S	U/S	No U/S
Live Birth	113	92	277	116
Elective Term LTO –F-Up	162	264	294	425
Odds Ratio	2.00		3.45	
(95% CI, P)	(1.41 – 2.85, .0001)		(2.63 – 4.53, .0001)	



# The Mismatch

- Women do not have abortions because they believe the fetus is not a human or because they don't know the truth
  - 60% of abortion patients have already delivered a child
  - Most women have abortions because of the material conditions of their lives
  - Other women have abortions because of what the ultrasound told them about the fetus





# What does the research say?

- Two small studies at UCSF ANSIRH
  - Qualitative interviews with women about abortion regulation in which they talked about the ultrasound (funded by the David and Lucile Packard Foundation)
  - Qualitative interviews with ultrasound providers and clinic administrators about clinical practices surrounding ultrasound viewing in the abortion context (funded by the Society of Family Planning)



# Our Study

- Heartland Abortion Regulation Project (HARP)
  - 20 women from US Heartland
  - Recruited from 3 abortion providers in 2 states
  - All the women had ultrasounds
  - Diverse in age, race, religious background
- Methods
  - 1-2 hour long interviews on perspectives on abortion and abortion policy
  - Transcribed interviews and pseudo names assigned
  - We searched the data for the terms: sonogram, ultrasound or picture(s)
- 13 of our participants discussed the above topics



# Summary Results

- Why might women want to be offered to look:
  - To assess or experience their own reaction. This may be part of the decision process...but it also might be part of “accepting” their decision
  - They may want to see proof of the stage of fetal development. For some women, this means comforting themselves that the fetus is not a “baby”
  - They may consider the ultrasound “medical information”
  - They may have never had the opportunity to see something like that before
  - Women may fear the effects of “not looking” on their future emotions about their abortion



## Ultrasound was Part of the Education

- Jennifer:
- 27 yrs
- White/Caucasian
- No children
- College graduate

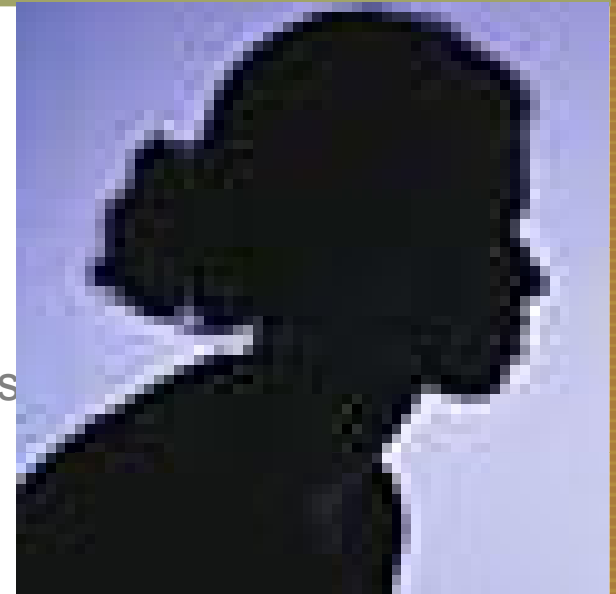


I really liked it. I really liked it because it made it feel more real. It made it -- just made me understand more what was going on. And I think that's essential. It's just another part of the education of it and it's something I've never seen before, so I liked it."



## Part of Being Completely Aware

- Joy:
- 26 yrs
- White/Caucasian
- No children, 2 previous abortions
- In school and working



“I had an ultrasound so I could actually see it right there. And I actually have that imprinted in my mind. You know, **I wanted to be completely aware as to what I was doing.** I think it’s also again, kind of traumatizing but it is what’s occurring. I don’t think there’s any reason to pretend like it’s not, you know.”

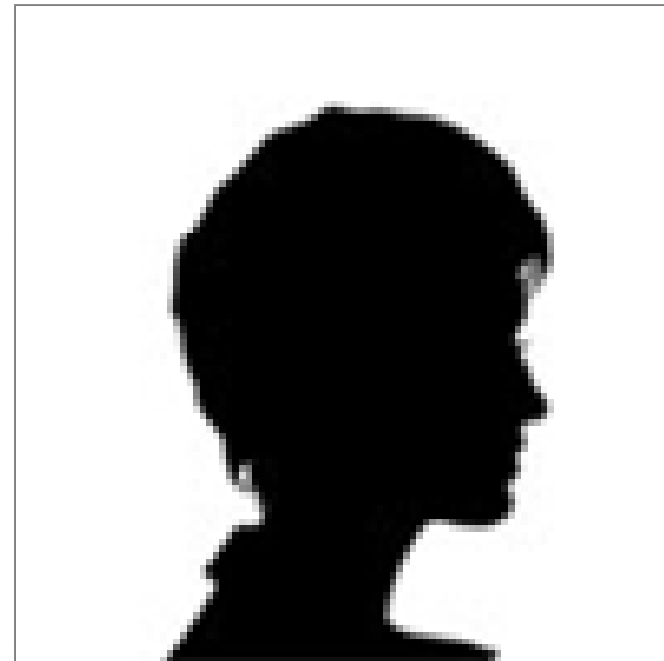
## Can Effect the Decision

- Amanda
- 25 years
- White/caucasian
- 4 children
- In school



## Women May Need Permission to See

- Lisa:
- 23 yrs
- White/Caucasian
- 2 children, 1 previous abortion
- In nursing school



# Clinical Practices Study Design

- Research Question: What is the range of policies/practices clinics already have in place regarding ultrasound provision?
- Methods:
  - Qualitative interviews with 27 sonogram providers in 19 clinics in 17 states
  - Ethnographic observations in 4 clinics in 4 states
  - 2 states with regulation and 2 without
  - Review of existing and pending ultrasound legislation





# Information and Decision Making

- Majority interviewed felt viewing had little or no impact on a woman's decision

*"I've not had a patient change their mind simply by seeing the ultrasound...just seeing the ultrasound hasn't made anyone say, 'Okay, well, I don't want to do this.'"*

- Information gathered through the ultrasound was useful to women in making a decision.
  - Gestational age
  - Multiple gestations
  - Paternity



# Multiple gestation

- Special meaning for some women

*“I think that multiple gestation has always been and will continue to be something that gives women pause. They are the most common reason for an ultrasound to [make a woman] choose to wait and take more time in a decision...But it’s rare that she doesn’t come back, she just needs more time to process.”*

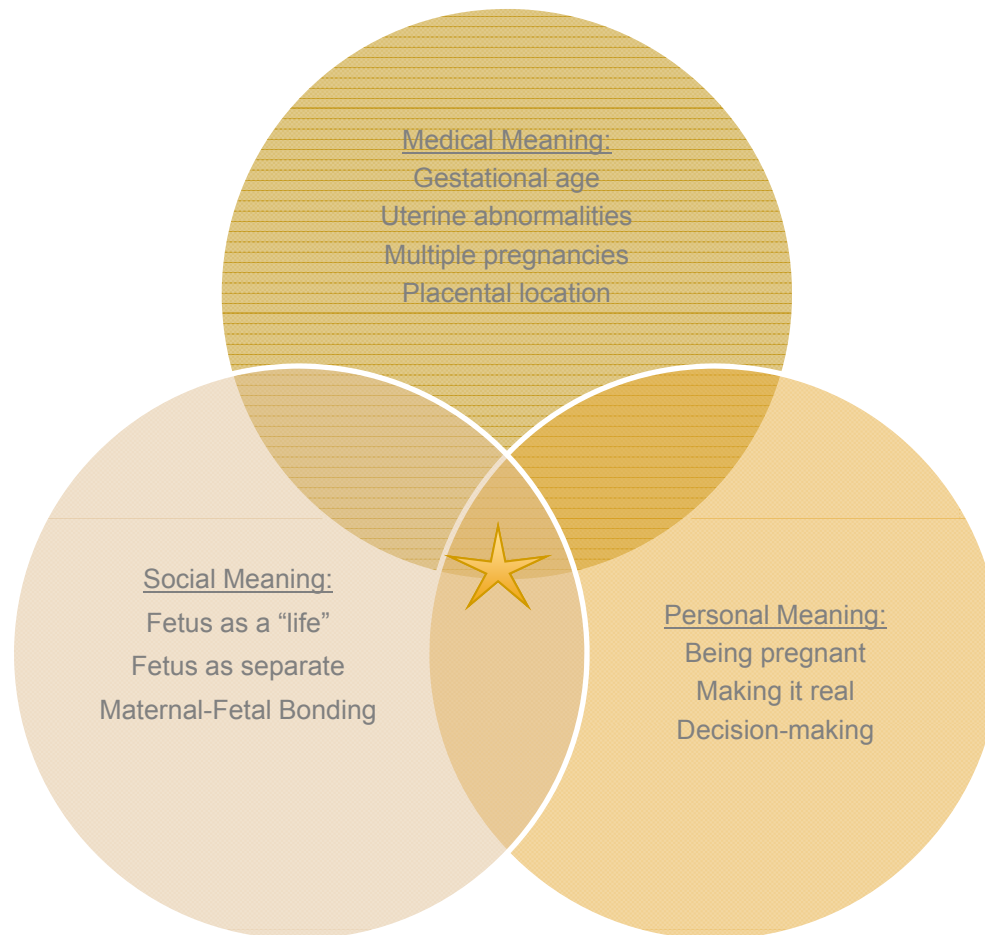


# Findings

- All clinics offer *some* women the opportunity to view
- Information not *image* matters to women and providers
- The *position* of ultrasound in the processes of care mean ultrasound and counseling become necessarily engaged
- Gestational age *influences* practices
- Professional *identity* of sonographers influences beliefs
- Providers want *discretion* in determining the best course of patient care



# Navigating the Multiple Meanings of Ultrasound in the Abortion Context



# Larger Research Questions

- Need to understand the effect on society not mediated through the clinical experiences of women
- Role that law plays in social meaning of abortion and the status of the fetus
- Role of social stigma, shame, and judgment
- Role that pro-choice and anti-choice discourses play in expectations of women's agency, decision-making, and coping capacity
  - Suk, Dubler, Gugel, Creed. (2010) The Trajectory of Trauma: Bodies and Minds of Abortion Discourse. *Columbia Law Review*, 110(5).
  - Jody Lyneé Madeira, Indiana University, constructions of women in abortion and infertility



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August 31, 2010 | Slide 54

# Surgical Facilities Requirements

- Currently, 6 states require that 2nd-trimester abortion providers meet the states' standards for ambulatory surgical facilities:
- 4 other states require that 2nd-trimester abortions after a particular gestational age be performed in ASCs:



# Virginia

- Last week Virginia Attorney General Ken Cuccinelli issued a legal opinion
  - based an evaluation of existing law and court decision
  - concludes that the "the commonwealth has the authority to regulate (abortion clinics) so long as the regulations adhere to constitutional limitations"
- "The state has long regulated outpatient surgical facilities and personnel to ensure a certain level of protection for patients. There is no reason to hold facilities providing abortion services to any lesser standard for their patients. Even pharmacies, funeral homes, and veterinary clinics are regulated by the state."





## Comparability of Abortion to Other Procedures Performed in Unregulated Physicians' Offices

- Procedures with magnitude > abortions up to 20 wks:
  - hysteroscopy
  - surgical treatment of miscarriage
  - diagnostic dilation & curettage
  - endometrial biopsy
  - ovum retrieval
  - sigmoidoscopy
  - vasectomy
- Procedures with magnitude > abortions up to 14 wks:
  - Drainage neck/intraoral abscesses
  - changing of tracheotomy tubes
  - treatment of post-tonsillar bleeds
  - drainage of peri-tonsillar abscesses
  - nasal polypectomies
  - minor ear surgeries
  - reduction of nasal fractures
  - removal of salivary stones
  - palatal surgery



# Abortion Rights Opponents Claim

Terina Keen of Naral-Pro Choice America

Cuccinelli's opinion will require Virginia's 21 clinics to meet the same standards as hospitals and that will make about 17 of them financially unable to make the changes. That means valuable services will be lost.



# Texas Example: Immediate and Persistent Reduction in Access

Abortions performed in Texas Before and  
After the Implementation of a ACS Law

	2003	2004	Change from 2003		2006	Change from 2003	
			#	%		#	%
All abortions in TX	79,166	75,053	-4,113	-5%	82,056	2890	3.65
Post-16 weeks of gestation	3,066	403	-2,663	-87%	1,414	-1652	<b>-54%</b>

(Jones & Weitz, *AJPH*, 2009)

# Safety of Abortion

- What makes abortion more safe
  - Legality
  - Earlier procedures
  - Trained providers
  - Proper use of ultrasound



# Unsafe Abortion

- 19 million unsafe abortions every year
- 97% in developing countries
- 68,000 deaths due to unsafe abortion every year
- Where access to safe abortion is limited, unsafe abortion causes more than 30% of maternal deaths



# U.S. Risk in Perspective: Mortality

- From terminating a pregnancy
  - All legal abortions 1 in 100,000
  - Before 9 weeks 1 in 1,000,000
  - Between 13 and 15 weeks 1 in 60,000
  - After 21 weeks 1 in 11,000
- From childbirth in US: 7.4/100,000
- From ectopic pregnancy: 31.9/100,000

(Grimes, 2006)



## Summary and Discussion

Abortion restrictions are justified using three types of scientific claims

fetal science, maternal science, clinical care science

Goal is to change the legal justifications for abortion,  
decrease the use of abortion, and drive providers out  
of practice

Scientific responses to these claims should be grounded in  
evidence with caution about reification of the notions of  
“Truths”





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# Thank you

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