# GEORGIA

## INFORMED CONSENT REPORT

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***The Informed Consent Project*** conducts evaluations of the medical accuracy of state-mandated abortion-related informed consent materials in the United States

We define medical accuracy as information that is both 'truthful' (defined as "scientifically correct in terms of biological development") and 'nonmisleading' (meaning that it gives a "correct impression"). These reflect the constitutional standard for 'informed consent' materials established by the U.S. Supreme Court in *Planned Parenthood of Southeastern Pennsylvania et al. v. Robert P. Casey et al*. (505 U.S. 833 (1992)[1]

[1] For a full discussion of our methodology and legal standards, seeour 2016 article: https://read.dukeupress.edu/jhppl/article-abstract/41/2/181/13810/Informed-or-Misinformed-Consent-Abortion-Policy-in?redirectedFrom=fulltext

# STATE PROFILE: **GEORGIA**

## RESULTS OVERVIEW:

Percentage of all statements that were inaccurate: 24 %

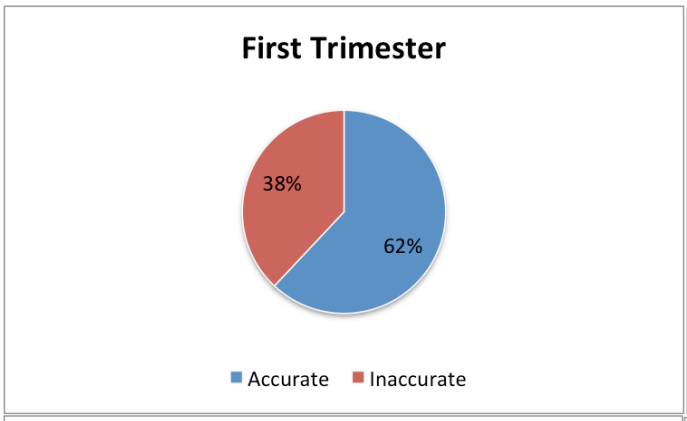
Total number of statements: 137

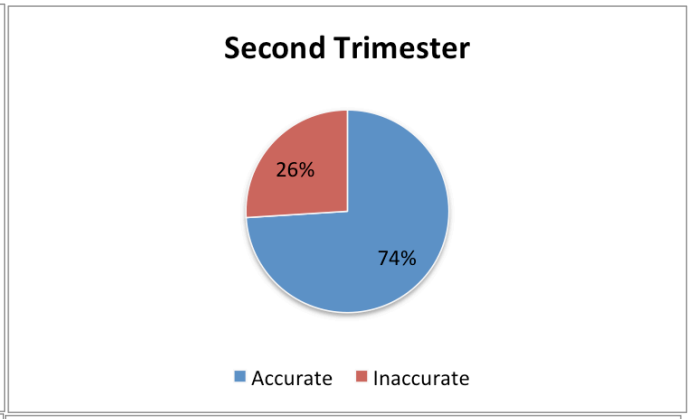
Total number of medically inaccurate statements: 33

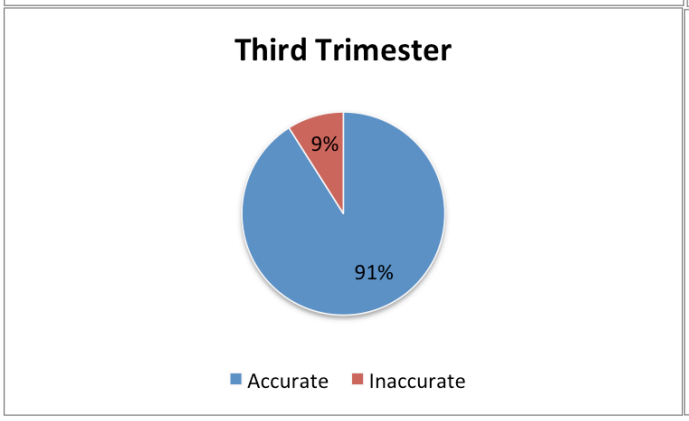
1st Trimester medically inaccurate: 38%

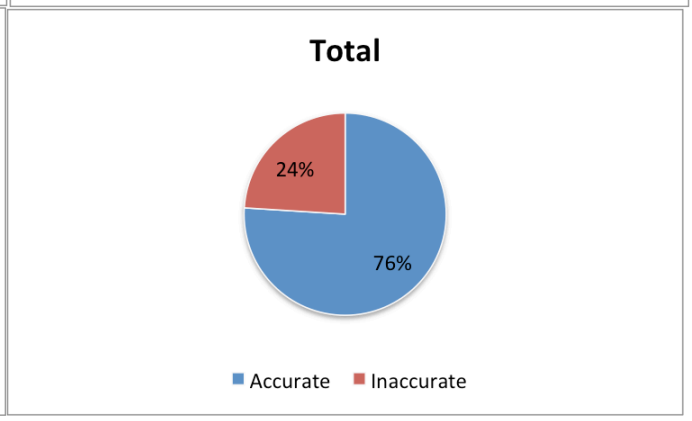
2nd Trimester medically inaccurate: 26%

3rd Trimester medically inaccurate: 9%



**TWO-STAGE EVALUATION:**

**1) First, a panel of experts in human anatomy determined these statements (as presented at the specified week of pregnancy) to be either *scientifically incorrect* or *misleading* in terms of biological development. For more information on this evaluation, please SEE http://informedconsentproject.com/our-methods-and-approach/**

**2) Second, all statements regarding embryological/fetal development were corroborated with reference to leading embryological textbooks (see Appendix for reference list).**

## MEDICALLY INACCURATE STATEMENTS (All weeks are LMP):

| | |
|---|---|
| Week 6 | The embryo…has developed a head |
| Week 6 | The embryo…has developed…a trunk |
| Week 8 | The embryo is about ½ inch long |
| Week 8 | Fingers…begin to form |
| Week 8 | …toes begin to form |
| Week 8 | Reflex activities begin |
| Week 8 | ..the brain… develop[s] |
| Week 8 | [the] nervous system develop[s] |
| Week 8 | Cells begin to form the eyes… |
| Week 8 | Cells begin to form the… ears |
| Week 8 | Cells begin to form the… jaws |
| Week 8 | Cells begin to form the… lungs |
| Week 8 | Cells begin to form the… stomach |
| Week 8 | Cells begin to form the… intestines |
| Week 8 | Cells begin to form the… liver |
| Week 12 | Fingers and toes are distinct…. |
| Week 12 | Fingers and toes…have nails |
| Week 14 | Joints and muscles allow full body movement |
| Week 14 | There are eyelids |
| Week 14 | …the nose is developing a bridge |
| Week 16 | …the arms…are developed |
| Week 16 | …the legs…are developed |

Week 16 A fine layer of hair has begun to grow on the head

Week 18 The fetus can grasp

Week 18 The fetus can…move its mouth

Week 20 All organs …have been formed

Week 20 All structures…have been formed

Week 22 The fetus has fingerprints

Week 22 The fetus may suck its thumb

Week 26 Reflexes continue to develop

Week 28 Mouth and lips show more sensitivity

Week 30 The fetus can…cry

Week 36 The fetus can…lift its head

# APPENDICES:

## Embryological Textbook References:

Babler, W. J. (1991). Embryologic development of epidermal ridges and their configurations. *Birth Defects Original Article Series*, *27*(2), 95-112.

Cochard, L. R. (2012). *Netter's Atlas of Human Embryology* (updated ed.). Philadelphia: Elsevier/Saunders.

Gingras, J. L., Mitchell, E. A., & Grattan, K. E. (2005). Fetal homologue of infant crying. *Archives of Disease in Childhood-Fetal and Neonatal Edition*, *90*(5), F415-F418.

Moore, K. L., Persaud, T. V. N., Torchia, M. G. (2016). *The Developing Human: Clinically Oriented Embryology* (10th ed.). Philadelphia: Elsevier.

Moore, K. L., Persaud, T., & Torchia, M. G. (2016). *Before We Are Born: Essentials Of Embryology And Birth Defects* (9th ed.). Philadelphia: Saunders.

Okajima, M. (1975). Development of dermal ridges in the fetus. *Journal of Medical Genetics*, *12*(3), 243-250.

Reissland, N., Francis, B., Aydin, E., Mason, J., & Schaal, B. (2014). The development of anticipation in the fetus: A longitudinal account of human fetal mouth movements in reaction to and anticipation of touch. *Developmental psychobiology*, *56*(5), 955-963.

Sadler, T. W. (2012). *Langman's Medical Embryology* (12th ed.). Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins.

Schoenwolf, G. C., & Larsen, W. J. (2009). *Larsen's Human Embryology* (4th ed.). Philadelphia, PA: Churchill Livingstone/Elsevier.

Stevenson, D. K., Cohen, R. S., & Sunshine, P. (2015). *Neonatology: Clinical Practice and Procedures*. New York: McGraw-Hill Education Medical.

Tawfik, H. A., Abdulhafez, M. H., Fouad, Y. A., & Dutton, J. J. (2016). Embryologic and Fetal Development of the Human Eyelid. *Ophthalmic plastic and reconstructive surgery*, *32*(6), 407.

van Manen, M. A. (2017). The First Cry of the Child. *Qualitative health research*, *27*(7), 1069-1076.

Zhang, L., & Ducsay, C. A. (2014) *Advances in Fetal and Neonatal Physiology: Proceedings of the Center for Perinatal Biology 40th Anniversary Symposium.* New York: Springer.

| | Week | Statement from Booklet | Reference | Source |
|---|---|---|---|---|
| | 6 | …has developed a head | The most distinctive feature in the development of the head and neck is the presence of pharyngeal arches. These arches appear in the fourth and fifth weeks of development (6 and 7 LMP) and contribute to the characteristic external appearance of the embryo. | Langman's, (p. 260) |
| | | …has developed… a trunk | | |
| | 8 | Cells begin to form the eyes… | In the 6th week (8 LMP), largely because retinal pigment has formed, the eyes are now obvious (Moore, 9th ed, 80). Early in the fourth week (6 LMP), a thickening of surface ectoderm, the otic placode, appears on each side of the mylenecephalon, the caudal part of the hindbrain (Moore, 9th ed, 441). When the embryo is approximately 4 weeks old (6 LMP), the respiratory diverticulum (lung bud) appears as an outgrowth from the ventral wall of the foregut (Langman, 201). At 6 weeks, (8 LMP), the mandible is small (Langman 326). During the 4th week (6 LMP), a slight dilation indicates the site of the primordium of the stomach...During the next 2 weeks (8 LMP), the greater curvature of the stomach develops (Moore, 9th ed, 215). In the sixth week (8 LMP), the intestines enter the extraembryonic coelom in the proximal part of the umbilical cord...the herniation occurs because the abdominal cavity is too small at this age to accommodate the rapidly growing intestine (Moore, 9th ed, 80). The liver grows rapidly and, from the 5th-10th weeks (7-12 LMP), fills a large part of the upper abdominal cavity (Moore, 9th ed, 222). | Langman's, (p. 201, 326) Moore, 9th edition, (p. 80, 441, 215, 80, and 222) |
| | | …ears | | |
| | | …jaws | | |
| | | …lungs | | |
| | | …stomach | | |
| | | …intestines | | |
| | | ...and liver | | |
| | 8 | Fingers…begin to form | By the end of the sixth week (8 LMP), mesenchymal tissue in the hand plates has condensed to form digital rays. These mesenchymal condensations outline the pattern of the digits (fingers) in the hand plates. During the 7th week (9 LMP), similar condensations of mesenchyme condense to form digital rays and digits (toes) in the foot plates (Moore, 9th ed, 374). Webbed fingers are present at 50 days (10 LMP) and webbed toes are present at 52 days (10 LMP) (Moore, 9th ed, 375 Figure 16-4) | Moore, 9th edition, (p. 374 and 375, Figure 16-4) |
| | | ... toes begin to form | | |

| | | | | |
|---|---|---|---|---|
| | 8 | Reflex activities begin… | Fetal facial responses can be induced by bitter-tasting substances at 26-28 weeks… indicating that reflex pathways between taste buds and facial muscles are established by this stage (Moore, 9th ed, 177).<br>At this stage, the cranial 2/3s of the neural plate and tube, as far caudal as the fourth pair of somites, represent the future brain (the primordia of which are the forebrain, midbrain, and hindbrain), and the caudal 1/3 of the plate and tube represents the future spinal cord (Moore, 391). | Moore, 9th edition, (p. 177) |
| | | ...brain and nervous system develop | | |
| | 12 | Fingers and toes are distinct… | At the beginning of the final week of the embryonic period (10 LMP), the digits of the hand are separated but noticeably webbed. Notches are now clearly visible between the digital rays of the feet. By the end of the eighth week, all regions of the limbs are apparent, the digits have lengthened and are completely separated (Moore, 9th ed, 86). Early fingernail development occurs at week 10 (12 LMP), and early toenail development begins at week 14 (16 LMP) (Moore, 9th ed, 94, Table 6-1). The fingernails reach the fingertips by approximately 32 weeks (34 LMP); the toenails reach the toe tips by approximately 36 weeks (38 LMP) (Moore, 9th ed, 460). Fingernails are present by 24 weeks. Between 26-29 weeks, the toenails become visible (Moore, 7th ed, 107) | Moore, 9th edition, (p. 86, 94 (Table 6-1), and 460) Moore, 7th edition, (p. 107) |
| | 12 | Fingers and toes ...have nails. | | |
| | 14 | There are eyelids | No resource indicated eyelid development at this stage. | |
| | 14 | Joints and muscles allow full body motion | Synovial joints appear at the beginning of the fetal period (week 9 non-LMP), coinciding with functional differentiation of the limb muscles and their innervation.; Joints begin to develop during the sixth week, and by the end of the eighth week they resemble adult joints. | Moore and Persaud (p. 411, 437) |
| | 14 | …the nose is developing a bridge | *no text describes this as the bridge of the nose "forming" at this stage. Langman refers to the "frontonasal prominence," which later becomes the forehead, bridge of nose, and medial and lateral nasal prominences. The facial prominences are fused at day 48, week 9 lmp. | Langman's (p. 277) |
| | 16 | …the legs are developed | Ossification of the bones of the extremities, endochondral ossification, begins by the end of | Langman's, (p. 151) |

| | | | | |
|---|---|---|---|---|
| | | | the embryonic period (10 LMP). Primary ossification centers are present in all the long bones of the limbs by the 12th week (14 LMP) of development | |
| | 16 | …the arms are developed | Ossification of the bones of the extremities, endochondral ossification, begins by the end of the embryonic period (10 LMP). Primary ossification centers are present in all the long bones of the limbs by the 12th week (14 LMP) of development | Langman's, (p. 151) |
| | 16 | A fine layer of hair has begun to grow on the head | At Week 20 (Week 22 LMP), hair appears on the head.; At Week 20, head and body hair (lanugo) visible. | Netter's Atlas of Human Embryology (p.5); Moore and Persaud (p. 109) |
| | 18 | The fetus can grasp | Firm grasp of hand appears at Week 36 (week 38 LMP) | Netter's Atlas of Human Embryology (p.5) |
| | 18 | The fetus can...move its mouth | Sucking movements at week 24 [26 lmp] | Langman's (p. 99) |
| | 20 | Respiratory movements occur, but the lungs have not fully developed | By 24 weeks, the secretory epithelial cells in the interalveolar walls of the lung have begun to secrete surfactant, a surface-active lipid that maintains the patency of the developing alveoli of the lungs, Although a 22- to 25-week fetus born prematurely may survive if given intensive care, it may die during early infancy because its respiratory system is still immature.; During the canalicular period (week 16-25 non-LMP), the lumina of the bronchi and terminal bronchioles become larger, and the lung tissue becomes highly vascular. By 24 weeks, each terminal bronchiole as given rise to two or more respiratory bronchioles, each of which then divides into three to six tubular passages - the alveolar ducts. Respiration is possible toward the end of the canalicular period because some thin-walled terminal sacs have developed at the end of the respiratory bronchioles, and the lung tissue is well vascularized. | Moore and Persaud (p. 114, 263) |
| | 20 | All organs… | 16-26 wk (18-28 lmp) lungs are in the | Langman's |

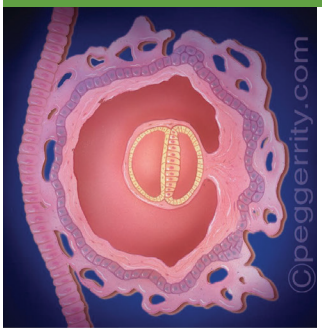
| | | | | |
|---|---|---|---|---|
| | | have been formed | canalicular period-- "each terminal bronchiole divides into two or more respiratory bronchioles, which in turn divide into three to six alveaor ducts." The terminal sacs (future alveoli) will not form until the 26th week [28 lmp].; "Although several organ systems are able to function, the respiratory system and the central nervous system have not differentiated sufficiently, and coordination between the two systems is not yet well established." | (p. 205); Langman's (p. 99) |
| | 20 | All… structures have been formed | | |
| | 22 | The fetus may suck its thumb | "Sucking movements" do not begin until week 24 [26 lmp].; "Hand-head contact may 'appear from the 10th week [12 lmp] onwards and at first they usually represent an accidental contact of a hand with the face or mouth." | Langman's (p. 99) |
| | 22 | The fetus has fingerprints | No sources used in this analysis describe fingerprints at this point of development. | |
| | 26 | Reflexes continue to develop | No sources used in this analysis discuss 'reflexes' at this point of development. | |
| | 28 | Mouth and lips show more sensitivity | No sources used in this analysis refer to ‘sensitivity’ of the mouth and lips | |
| | 30 | Fetus can ... cry | No sources used in this analysis describe the fetus 'crying' | |
| | 34 | Eyes close during sleep and open during alert times | No sources used in this analysis describing eyes closing during sleep and opening during alert times. | |
| | 36 | The fetus can turn and lift its head | No sources used in this analysis indicate fetus lifting its head. | |

# Fetal Development

## CONCEPTION: 2 WEEKS


- Conception means a woman's egg has been fertilized by a man's sperm.
- Within a day, the egg begins to divide and develop rapidly.
- A few days later a cluster of cells arrives in the uterus (womb).
- By the eighth day after conception, this cluster has increased to hundreds of cells and attaches to the wall of the womb where it continues its rapid growth.

## FIRST TRIMESTER: 4 WEEKS




- After the cluster of cells attaches to the womb it is called an embryo.
- The embryo is between 1/100 and 4/100 inch long at this time.
- The embryo continues rapid growth.

## FIRST TRIMESTER: 6 WEEKS


- The embryo is about ¼ inch long and has developed a head and a trunk.
- Structures that will become arms and legs, called limb buds, first appear.
- A blood vessel forms and begins to pump blood. This will develop into the heart and circulatory system.
- At this time, a ridge of tissue forms down the back of the embryo. That tissue will develop into the brain and spinal cord.

## FIRST TRIMESTER: 8 WEEKS


- The embryo is about ½ inch long.
- The heart now has four chambers.
- Fingers and toes begin to form.
- Reflex activities begin as the brain and nervous system develop.
- Cells begin to form the eyes, ears, jaws, lungs, stomach, intestines and liver.

## FIRST TRIMESTER: 10 WEEKS


- The embryo is about 1 to 1¼ inches long (the head is about half this length) and weighs less than ½ ounce.
- The beginnings of all key body parts are present, but they are not completed.
- Structures that will form eyes, ears, arms and legs can be seen.
- Muscles and skeleton are developing and the nervous system becomes more responsive.

## FIRST TRIMESTER: 12 WEEKS


- The fetus is about 2½ inches long and weighs about ½ ounce.
- Fingers and toes are distinct and have nails.
- Hair begins to develop, but won't be seen until later in the pregnancy.
- The fetus begins small, random movements, too slight to be felt.
- The fetal heartbeat can be detected with a heart monitor.
- All major external body features have appeared.
- Muscles continue to develop.

## FIRST TRIMESTER: 14 WEEKS


- The fetus is about 3½ inches long and weighs about 1½ ounces.
- The fetus begins to swallow, the kidneys make urine, and blood begins to form in the bone marrow.
- Joints and muscles allow full body movement.
- There are eyelids and the nose is developing a bridge.
- External genitals are developing.

## SECOND TRIMESTER: 16 WEEKS


- The fetus is about 4½ inches long and weighs about 4 ounces.
- The head is erect and the arms and legs are developed.
- The skin appears transparent. A fine layer of hair has begun to grow on the head.
- Limb movements become more coordinated.

## SECOND TRIMESTER: 18 WEEKS


- The fetus is about 5½ inches long and weighs about 7 ounces.
- The skin is pink and transparent and the ears are clearly visible.
- All the body and facial features are now recognizable.
- The fetus can grasp and move its mouth.
- Nails begin to grow.
- The fetus has begun to kick. Some women feel this movement.

## SECOND TRIMESTER: 20 WEEKS


- The fetus is about 6¼ inches long and weighs about 11½ ounces.
- All organs and structures have been formed, and a period of growth begins.
- The skin is wrinkled and appears pink to reddish in color due to being thin and close to the blood vessels.
- A protective skin coating, called vernix, is beginning to develop.
- Respiratory movements occur, but the lungs have not fully developed.
- By this time, mothers usually feel the fetus moving.
- At this time an ultrasound can often identify the sex of the fetus.

## SECOND TRIMESTER: 22 WEEKS


- The fetus is about 7½ inches long and weighs about one pound.
- The fetus has fingerprints and perhaps some head and body hair.
- The fetus may suck its thumb and is more active.
- The brain is growing extremely rapidly.
- The fetal heartbeat can be easily heard.
- The kidneys start to work.
- At 23 weeks, approximately 31% of babies born survive. Babies born at this age require intensive care and usually have lifelong disabilities and chronic medical conditions.

## SECOND TRIMESTER: 24 WEEKS


- The fetus is about 8¼ inches long and weighs about 1¼ pounds.
- Bones of the ears harden making sound conduction possible. The fetus hears mother's sounds such as breathing, heartbeat and voice.
- The first layers of fat are beginning to form.
- This is the beginning of substantial weight gain for the fetus.
- Lungs continue developing.
- At 25 weeks, approximately 68% of babies born survive. Babies born at this age require intensive care and usually have lifelong disabilities and chronic health conditions.

## SECOND TRIMESTER: 26 WEEKS


- The fetus is about 9 inches long and weighs about 2 pounds.
- The fetus can respond to sounds from inside and outside the womb.
- Reflexes continue to develop and body movements are stronger.
- Lungs continue to develop.
- The fetus now wakes and sleeps.
- The skin is slightly wrinkled.

At 27 weeks, approximately 87% of babies survive. Babies born at this age require intensive care and have an increased risk of developmental delays and chronic health conditions.

## THIRD TRIMESTER: 28 WEEKS


- The fetus is about 10 inches long and weighs about 2 pounds, 3 ounces.
- Mouth and lips show more sensitivity.
- The eyes are partially open and can perceive light.
- More than 90% of babies born at this age will survive. Some survivors have developmental delays and chronic health conditions.

## THIRD TRIMESTER: 30 WEEKS


- The fetus is about 10½ inches long and weighs about 3 pounds.
- The lungs are capable of breathing air, although medical help may be needed.
- The fetus can open and close its eyes, suck its thumb, cry and respond to sound.
- The skin is smooth.
- Rhythmic breathing and body temperature are now controlled by the brain.
- Most babies born at this age will survive.

## THIRD TRIMESTER: 32 WEEKS


- The fetus is about 11 inches long and weighs about 3 pounds, 12 ounces.
- The connections between the nerve cells in the brain increase.
- Fetal development now centers on growth.

Almost all babies born at this age will survive.

## THIRD TRIMESTER: 34 WEEKS


- The fetus is about 12 inches long and weighs about 4½ pounds.
- Ears begin to hold shape.
- Eyes open during alert times and close during sleep.

Almost all babies born at this age will survive.

## THIRD TRIMESTER: 36 WEEKS


- The fetus is about 12 to 13 inches long and weighs about 5½ to 6 pounds.
- Scalp hair is silky and lies against the head.
- Muscle tone has developed and the fetus can turn and lift its head

Almost all babies born at this age will survive.

## THIRD TRIMESTER: 38 WEEKS


- The fetus is about 13½ to 14 inches long and weighs about 6½ pounds.
- Lungs are usually mature.
- The fetus can grasp firmly.
- The fetus turns toward light sources.

Almost all babies born at this age will survive.

# THIRD TRIMESTER: 40 WEEKS


- The fetus is about 14 to 15 inches long and may weigh about 7½ pounds.
- At the time of birth, a baby has more than 70 reflex behaviors, which are automatic behaviors necessary for survival.
- The baby is full-term and ready to be born.