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### OBJECTIVE

Alberta clinicians assign gestational age based on ultrasound biometry

### TARGET POPULATION

All pregnant women

### EXCLUSIONS

None

## KEY MESSAGES

- Ultrasound is consistently more accurate than relying on patient recall for menstrual dating
- Routine ultrasound in the first or second trimester reduces inductions for post term pregnancies
- A woman's self-knowledge and awareness of her internal functions, including ovulation, can be very accurate. However, given the physiologic changes that can occur in any one menstrual cycle, the exact time of ovulation, fertilization and implantation cannot be precisely known.

## RECOMMENDATIONS

- ✓ Offer every pregnant woman a first trimester dating ultrasound
- ✓ Use a second trimester ultrasound to assess gestational age if the availability of obstetrical ultrasound is limited

### PRACTICE POINT

*Use of precise, high quality ultrasound to determine gestational age in the first and second trimesters ( $\leq 23$  weeks) of spontaneous conceptions is the best method for estimating the delivery date. See [Appendix A](#)*

## OTHER CONSIDERATIONS BASED ON SPECIALIST EXPERIENCE AND EXPERTISE

- If first trimester genetic screening is NOT a consideration, a first trimester dating ultrasound anytime between seven and 14 weeks is acceptable
- If first trimester genetic screening is intended, and the clinician is confident in the gestational age (GA) by last menstrual period (LMP) or otherwise, it would be reasonable to defer dating to the time of the nuchal translucency (NT) ultrasound (11 weeks, 0 days to 13 weeks, six days but preferably around 12 weeks)

## DETERMINING GESTATIONAL AGE

### *FIRST TRIMESTER*

- ✓ Use crown-rump length measurement from either transabdominal or transvaginal ultrasound to determine gestation age
  - Although transvaginal ultrasound may better visualize early embryonic structures than a transabdominal approach, it is not more accurate to determine gestational age
- ✓ Use the earliest ultrasound with a crown-rump length equivalent to at least seven weeks (or 10 mm) to determine the gestational age where there is more than one first trimester ultrasound with a mean sac diameter or crown-rump length measurement
- ✓ Use crown-rump length up to 84 mm, and the biparietal diameter for measurements > 84 mm
  - Between the 12<sup>th</sup> and 14<sup>th</sup> weeks, crown-rump length and biparietal diameter are similar in accuracy

### *SECOND AND THIRD TRIMESTER DETERMINATION*

- ✓ Use a combination of multiple biometric parameters (biparietal diameter, head circumference, abdominal circumference and femur length) to determine gestational age, rather than a single parameter
- ✓ Follow-up for interval growth two to three weeks after a third trimester ultrasound used to base gestational age
  - It is difficult to confirm an accurate due date in the third trimester

#### PRACTICE POINT

*Once gestational age is determined by an ultrasound performed at seven weeks or beyond, the estimated delivery date should NOT be adjusted by measurements on any subsequent ultrasound*

## BACKGROUND

In February 2014, the Society of Obstetricians and Gynaecologists of Canada (SOCG) published national guidelines and rationale based on the emerging evidence regarding a more accurate gestational age measurement using ultrasound biometry, and its importance to effectively manage pregnancy from the first trimester to delivery. The users of this guideline are primary care providers/physicians, midwives, obstetricians, gynecologists and radiologists. A detailed description of the rationale, respective evidence and references can be found in the SOCG guideline at: <http://sogc.org/guidelines/determination-gestational-age-ultrasound/>

## REFERENCES

1. Butt K. Lim K, et al., Determination of gestational age by ultrasound. J Obstet Gynaecol Can. 2014;36(2):171-81.

### ***SUGGESTED CITATION***

Toward Optimized Practice (TOP) Ultrasound Working Group. 2014 September. Determination of gestational age by ultrasound clinical practice guideline. Edmonton, AB: Toward Optimized Practice. Available from: <http://www.topalbertadoctors.org>

For more information see [www.topalbertadoctors.org](http://www.topalbertadoctors.org)

### ***GUIDELINE COMMITTEE***

The committee consisted of representatives of radiology, obstetrics and gynaecology, and family medicine.

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## APPENDIX A

### Common Definitions of Ultrasound Biometry Parameters and Estimates of Accuracy for Predicting Gestational Age<sup>1</sup>

Parameter	Description	Notes	Approximate Accuracy of Dates
<b>Mean sac diameter</b>	The mean of 3 orthogonal sac “inner to inner” diameter measurements (mm). Cursors should be placed on the gestational sac and not the surrounding echogenic region.	Should not be averaged with the CRL. Should not be used once CRL can be measured. GA = 30 days plus MSD measured in mm.	4 to 11 days
<b>Crown-rump length</b>	The crown-rump length is the longest straight line length of the embryo from the outer margin of the cephalic end to the rump. The neck position should be neutral.	The best CRL or the average of several satisfactory measurements should be used.	3 to 8 days
<b>Biparietal diameter</b>	Axial plane through a symmetrical calvarium that includes the third ventricle, thalami, falx cerebri, and cavum septipellucidum anteriorly and the tentorial hiatus posteriorly. The calipers should be placed at the maximal diameter from the outer edge of the proximal skull wall to the inner edge of the distal skull.		1 <sup>st</sup> T: 3 to 8 days 2 <sup>nd</sup> T: 7 to 12 days
<b>Head circumference</b>	The head circumference is obtained in the identical plane to the BPD. The trace/ellipse should follow the outer perimeter of the bony skull, not the overlying skin, as that will falsely increase the head circumference.	The cerebellum is not included in this image.	2 <sup>nd</sup> T: 7 to 12 days
<b>Abdominal circumference</b>	True axial plane at the level of the bifurcation of the portal vein (into right and left branches) and the stomach. The measurement should be as tight to skin as possible.		2 <sup>nd</sup> T: 7 to 15 days 3 <sup>rd</sup> T: 18 to 35 days
<b>Femur length</b>	Both the femoral head or greater trochanter and the femoral condyle are simultaneously visualized. The cursor should be placed at the junction of bone and cartilage and only the bone measured.	Ideally, the ultrasound transducer should be aligned perpendicular to the long axis of the femur. Varies with ethnicity	2 <sup>nd</sup> T: 7 to 17 days 3 <sup>rd</sup> T: 21 days

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