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# Improving Obstetric Ultrasound Interpreting and Reporting Through a Faculty Mentorship Program for Fellows

Trevor E. Quiner MD and William F. Rayburn MD

## Introduction

Reading obstetric ultrasounds is an important aspect of the Maternal-Fetal Medicine (MFM) specialty and features prominently in the education of fellows. Despite this importance there often little formal education on the writing of ultrasound reports in MFM fellow education.

## Problem Statement

To evaluate whether a regularly scheduled weekly engagement/mentorship by a Maternal-Fetal Medicine senior faculty member and fellow led to improved ultrasound reporting and collection of pertinent scientific literature for learning by other fellows and faculty.

## Methods

The MFM fellow met weekly with the same MFM faculty member. Improvement by the fellow was measured for each report: time to completion, accuracy and adequacy of the impression, clarity of the recommendation, and feedback from the faculty and referring practitioner. Peer-reviewed manuscripts relating to obstetric ultrasound were collected based on topics determined weekly.

## Results

The fellow adhered to the one hour per week commitment during this six-month trial. The fellow was able to learn by direct training and outside self-directed learning with minimal investment of time and preparation.

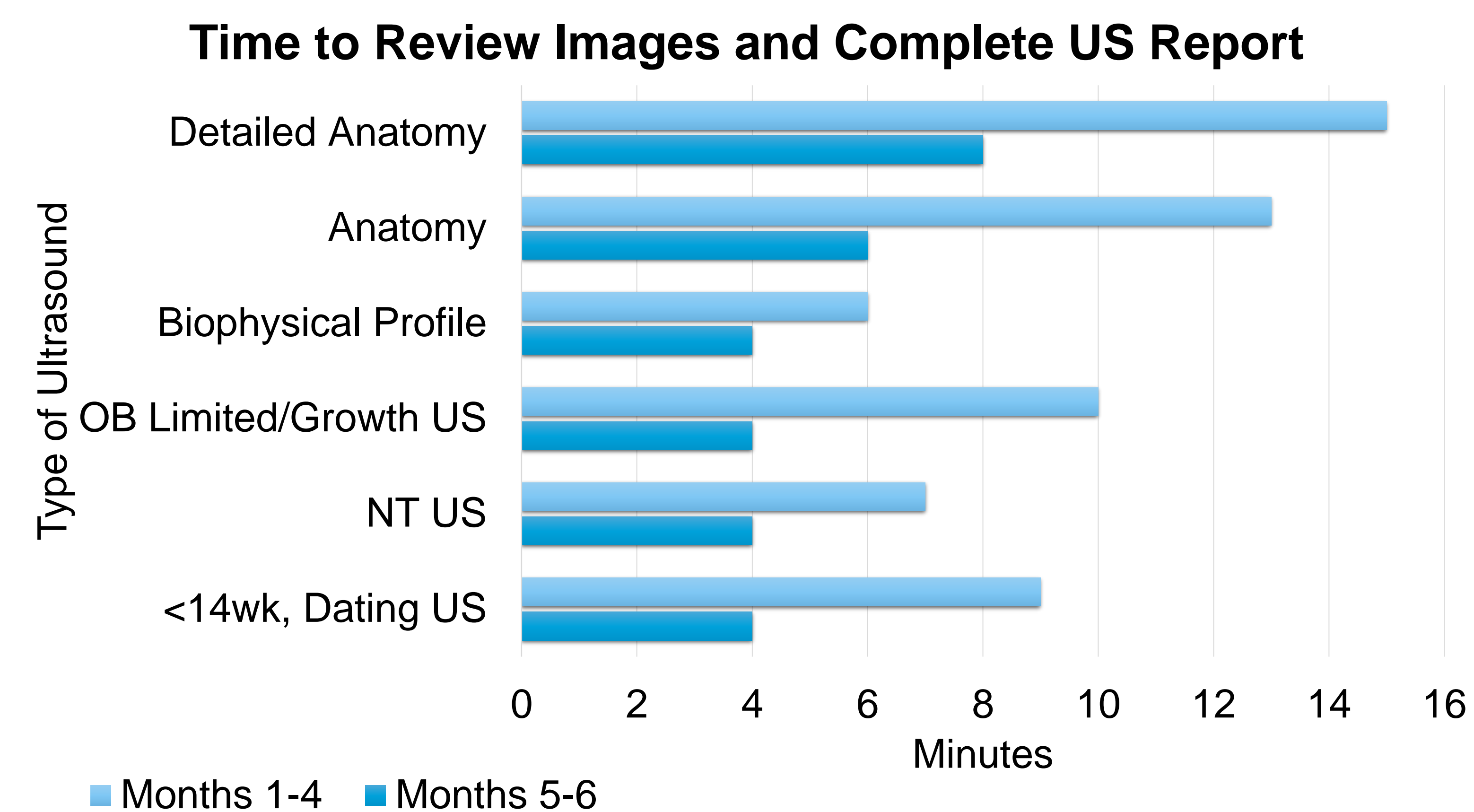


Figure 1: The time required to develop a written report decreased with experience.

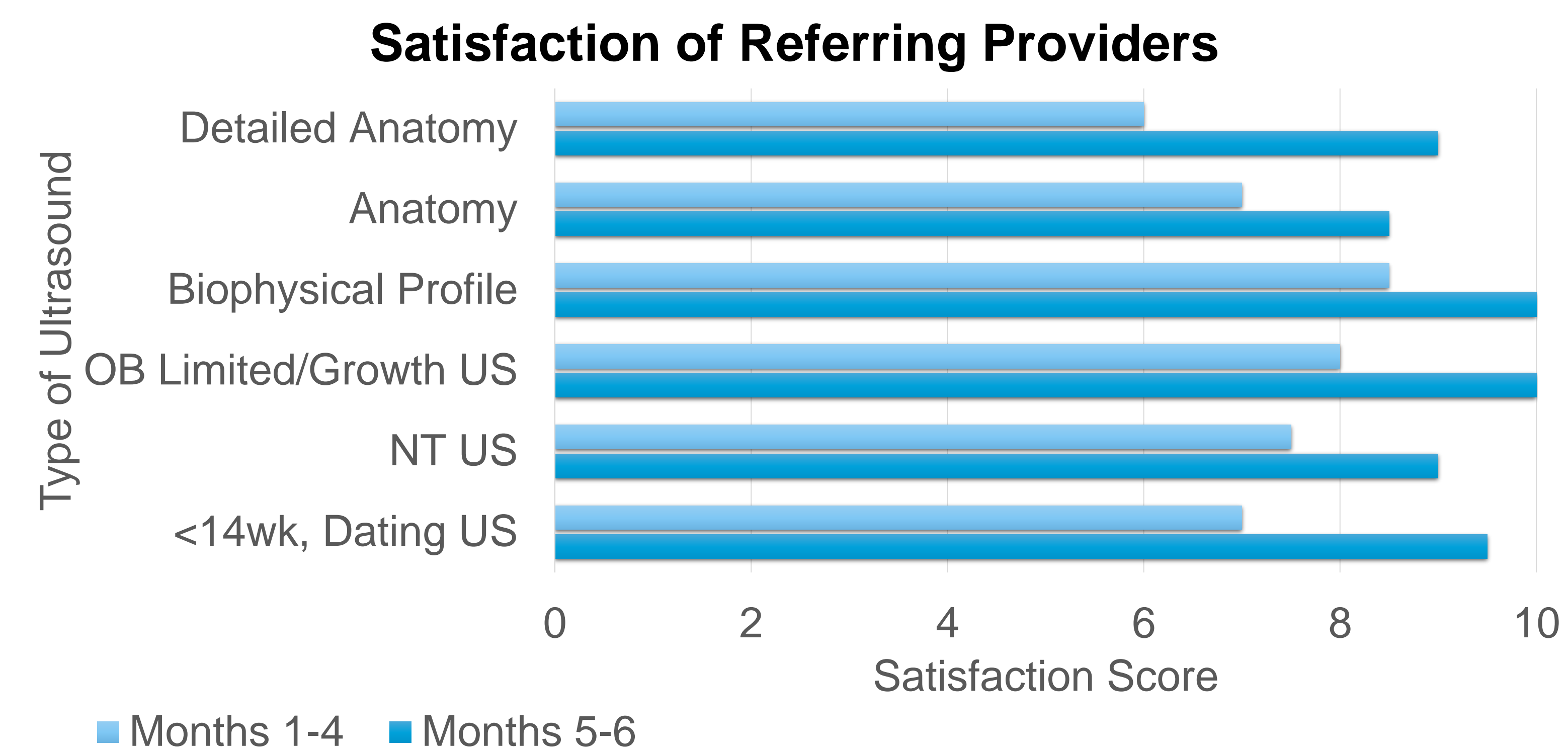


Figure 2: A poll of referring providers reported their satisfaction with the clarity of the impressions and completeness of recommendations.

## Discussion

This “hands-on,” case-based experience engaged the first-year fellow in front-line ultrasound interpretation and recommendations with immediate feedback from the faculty member. Steady improvement in efficiently communicating impressions was increasingly well accepted by requesting obstetric providers. An additional benefit was the development of a library of peer-reviewed ultrasound literature for fellow and faculty education.

Weekly Topic	Associated Article(s)
Required views for anatomy US	Wax et al. Consensus report on the detailed fetal anatomic ultrasound examination: indications, components, and qualifications. J Ultrasound Med. 2014 Feb;33(2):189-95
Facial views and completion of anatomy	Annisa Shui Lam Mak, Kwok Yin Leung. Prenatal ultrasonography of craniofacial abnormalities. Ultrasonography 38(1), January 2019.
Fibroids and growth	Lee et al. Contemporary Management of Fibroids in Pregnancy. Rev Obstet Gynecol. 2010 Winter; 3(1): 20-27. *Buyens et al. Difficult prenatal diagnosis: fetal coarctation. Facts Views Vis Obgyn. 2012; 4(4): 230-236. *Evers et al. Diagnostic Approach in Fetal Coarctation of the Aorta: A Cost-Utility Analysis. JASE Volume 30, Issue 6, Pages 589-594. *Familiari et al. Risk Factors for Coarctation of the Aorta on Prenatal Ultrasound A Systematic Review and Meta-Analysis. Circulation. February 21, 2017. Vol 135, Issue 8
Antenatal diagnosis of coarctation of the aorta	Ebbing et al. Prevalence, Risk Factors and Outcomes of Velamentous and Marginal Cord Insertions: A Population-Based Study of 634,741 Pregnancies. PLoS One. 2013; 8(7): e70380.
Velamentous cord insertion and fetal growth	Cash et al. The accuracy of antenatal ultrasound in the detection of facial clefts in a low-risk screening population. Ultrasound Obstet Gynecol. 2001 Nov;18(5):432-6.
Facial clefting timeline	Morales-Roselló et al. Outcome of Fetuses with Diagnosis of Isolated Short Femur in the Second Half of Pregnancy. ISRN Obstet Gynecol. 2012; 2012: 268218.
Isolated small long bones and aneuploidy vs skeletal dysplasia.	Hirsch et al. Fetal growth velocity and body proportion in the assessment of growth. AJOG. February 2018.
Utility of Abdominal Circumference in predicting macrosomia	Dashe et al. SMFM Consult Series #46: Evaluation and management of polyhydramnios. AJOG October 2018 Volume 219, Issue 4, Pages B2-B8
Diagnosis of Polyhydramnios; AFI or MVP?	Chavez et al. Fetal transcerebellar diameter measurement for prediction of gestational age at the extremes of fetal growth. J Ultrasound Med. 2007 Sep;26(9):1167-71.
Transcerebellar diameter and gestational age estimate.	Webb et al. Adnexal mass during pregnancy: a review. Am J Perinatol. 2015 Sep;32(11):1010-6. doi: 10.1055/s-0035-1549216.
Abnormal adnexal measurements in pregnancy	Cho et al. Correlation Between Cervical Lengths Measured by Transabdominal and Transvaginal Sonography for Predicting Preterm Birth. J Ultrasound Med. 2016 Mar;35(3):537-44.
Abdominal cervical length measurement—is there a role?	Picazo-Angelin et al. Anatomy of the normal fetal heart: The basis for understanding fetal echocardiography. Ann Pediatr Cardiol. 2018 May-Aug; 11(2): 164-173.
What heart views are the most important	Nyberg et al. Isolated sonographic markers for detection of fetal Down syndrome in the second trimester of pregnancy. J Ultrasound Med. 2001 Oct;20(10):1053-63.
Isolated soft markers	Carvalho JS et al. ISUOG practice guidelines (updated): sonographic screening examination of the fetal heart. Ultrasonography 2013; 41: 348-359.
Guidelines for fetal heart evaluation	Fox et al. Mild fetal ventriculomegaly: diagnosis, evaluation, and management. Am J Obstet Gynecol. 2018 Jul;219(1):B2-B9. doi: 10.1016/j.ajog.2018.04.039. Epub 2018 Apr 26.
Fetal ventriculomegaly	Nguyen et al. Multidisciplinary consensus on the classification of prenatal and postnatal urinary tract dilation (UTD classification system). J Pediatr Urol. 2014 Dec;10(6):982-98.
What level of renal pyelectasis needs follow-up	Sovio et al. Universal vs selective ultrasonography to screen for large-for-gestational-age infants and associated morbidity. Ultrasonography 2018 Jun;51(6):783-791.
Should all women have growth ultrasound, when?	Maruotti GM. Absent ductus venosus: case series from two tertiary centres. J Matern Fetal Neonatal Med. 2018 Sep;31(18):2478-2483
Absent ductus venosus	Tuuli et al. Perinatal outcomes in women with subchorionic hematoma: a systematic review and meta-analysis. Obstet Gynecol. 2011 May;117(5):1205-12
Sub-chorionic hemorrhage--risk of miscarriage, need for additional ultrasound?	

Table 1: Relevant scientific literature aided in continuing education and provided tools for future education.

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