

Dear Members of the Working Group,

We would like you again for participating in the meeting and contributing your time and experience to this first step towards what we hope would be standardization of fetal growth assessment in our obstetrical network.

A total of 22 individuals participated in the meeting: 17 in person and 5 via teleconference. The list of participants appears below (**Table 1**).

## **A. MEETING MINUTES**

### **1. General Introduction / Jon Barrett**

### **2. Purpose of meeting / Nir Melamed** (See attached presentation [**Melamed - Introduction**])

- Rationale and importance of standardization of fetal growth assessment
- Variation in growth assessment in SOON (**Table 2** below)
- Overarching plan
- Strategy for achieving consensus
- Strategies for knowledge translation – discussion in broad SOON meeting, online calculators and growth charts via SOON website

### **3. The choice of sEFW model / Nimrah Abbasi** (See attached presentation [**Abbasi – EFW Model**])

- Reviewed current evidence regarding the relative accuracy of various sonographic models for fetal weight estimation
  - Hadlock models that are based on 3 or 4 parameters have consistently been shown to performed best
  - Importance of linking equation with the curve that is adopted
  - Specific models are likely to perform better in certain subgroups (e.g., early gestational age, severe asymmetric)
  - **A consensus decision was made to adapt the Hadlock model based on AC, FL, HC (see summary below)**
- Key concepts and strategies with regard to QI in fetal growth assessment

### **4. The choice of growth charts I / Clare Whitehead** (See attached presentation [**Whitehead – Growth Charts**])

- Key terms related to growth charts and references, birthweight- vs. ultrasound-based charts
- Reviewed methodology, findings, and characteristics of recently published growth charts

5. **The choice of growth charts II / Nir Melamed** (See attached presentation [*Melamed – Growth Charts*])

- Discussion of possible reasons for differences between recent growth charts
- Pros and cons of universal growth charts
- Strategies for choosing the best chart:
  - Statistical approach, outcomes-based approach
  - Statistical correlation of the different growth charts in the population of Ontario
  - Predictive value of the different growth charts for stillbirth
- **A consensus decision was made to adapt the Hadlock growth chart (see summary below)**

**B. CONSENSUS DECISIONS**

Decision #:	Topic	Decision	Rationale
(1)	Sonographic model for fetal weight estimation	Use the Hadlock model based on AC, FL & HC: $\text{Log}_{10} \text{EFW} = 1.326 - 0.00326(\text{AC})(\text{FL}) + 0.0107(\text{HC}) + 0.0438(\text{AC}) + 0.158(\text{FL})$ <i>[see attached reference Hadlock AJOG 1985]</i>	<ul style="list-style-type: none"> <li>• This model appears to perform best</li> <li>• Excluded BPD which may be affected by variation in head shape</li> <li>• Most centers use one of the Hadlock models</li> </ul>
(2)		Alternative models may be used under specific circumstances: <ul style="list-style-type: none"> <li>• When one of the biometric indices cannot be measured well (e.g., head is low in the pelvis)</li> <li>• Specific high-risk groups (e.g., early gestational age or early severe asymmetric) – this mainly applies to specific MFM clinics with focus on fetal growth</li> </ul>	
		Alternative models may be used under specific circumstances (e.g., early gestational age, asymmetric SGA) – however, this mainly applies so specific MFM clinics with focus on fetal growth.	
(3)	Growth charts	Use of the Hadlock growth chart ( <i>see attached reference - Radiology</i> )	<ul style="list-style-type: none"> <li>• Ultrasound-based chart should be preferred over birthweight-based</li> </ul>

		<b>1991 – attached)</b>	<p>charts such as Kramer</p> <ul style="list-style-type: none"><li>• This ultrasound-based chart is currently being used in most centers - appears to perform best</li><li>• Overall it appears to have good correlation with the distribution of birthweight in low risk term birth in Ontario, although it may be associated with over estimation of SGA in Asian and Black women</li><li>• The use of race-specific charts such as NICHD was determined to be time consuming and not practical given the increasing pregnancies involving mixed-race groups</li><li>• Intergrowth-21<sup>st</sup> charts seems to be associated with considerable underestimation of SGA and overestimation of LGA in the population of Ontario</li></ul>
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## **C. NEXT STEPS**

The panel agreed to arrange additional meetings to achieve consensus on other aspects related to fetal growth assessment:

1. Measuring and reporting individual biometric indices:
  - a. Which charts should be used
  - b. Which cutoffs should be used to suggest abnormality
  - c. How individual biometric indices should be reported: weeks? Percentiles? Both?
2. Standardization of reports & templates
3. Use of Doppler – when and how?
4. Diagnosis of fetal growth restriction
5. Which growth charts should be used for twin gestations

The next meeting will likely be scheduled during the between Sep-Nov - a Doodle Poll will sent soon.

**If anyone is interested in leading the next meeting please contact:**

Nir ([nir.melamed@sunnybrook.ca](mailto:nir.melamed@sunnybrook.ca)) or Jon ([Jon.barrett@sunnybrook.ca](mailto:Jon.barrett@sunnybrook.ca))

SOON Consensus Working Group on Fetal Growth  
 Summary of meeting #1, May-1<sup>st</sup>, 2019

**D. TABLES**

**Table 1: Participants in the first consensus meeting, May-1<sup>st</sup>, 2019**

#	Name	Speciality	Centre	In person	Teleconference
1	Jon Barrett	MFM	Sunnybrook	X	
2	Nir Melamed	MFM	Sunnybrook	X	
3	Ori Nevo	MFM	Sunnybrook	X	
4	Phyllis Glanc	Rad	Sunnybrook	X	
5	Elizabeth Asztalos	Neo	Sunnybrook		X
6	Sasilica Stratulat	U/S	Sunnybrook	X	
7	Howard Berger	MFM	SMH	X	
8	Joel Ray	OBMed	SMH	X	
9	John Kingdom	MFM	MSH	X	
10	Han Keunen	MFM	MSH	X	
11	Nan Okun	MFM	MSH	X	
12	Nimrah abassi	MFM	MSH	X	
13	Clare Whitehead	MFM	MSH	X	
14	Ants Toi	Rad	MSH	X	
15	Ida Khalili	Rad	MSH		
16	Prakesh Shah	Neo	MSH		
17	Sarah McDonalds	MFM	McMaster		
18	Patrick Mohide	MFM	McMaster		X
19	Bryon DeFrance	MFM	McMaster		X
20	Elad Mei-Dan	MFM	NYGH	X	
21	Hani Akoury	MFM	St Joseph's	X	
22	Rebecca Menzies	MFM	Credit Valley		X
23	Rose Rahmani	Rad	RR Imaging		X
24	Alex Hartman	Rad	True North		
25	Rose Lee	Rad	True North	X	
26	Sharon Shin	Rad	True North	X	

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**Table 2: Variation in growth assessment in SOON**

Site	Growth chart				Sonographic equation for Fetal weight estimation
	Hadlock	Kramer	IG21	Doubilet	
Sunnybrook	X				Hadlock: AC-FL-BPD-HC
SMH	X		?		Hadlock: type?
MSH		X			Hadlock: ?AC-FL-BPD
McMaster		McMaster Medical Centre (switch to IG21?)	St Joseph's Healthcare Hamilton		
NYGH	X				Hadlock: AC-FL-BPD-HC
RVH	X				Hadlock: AC-FL-HC
Credit Valley	X				Hadlock: type?
Mckenzie				X	
St. Joseph's	X				
Michael Garron	X				
Scarborough (all sites)	X				Hadlock: type?
RR Imaging	X				Hadlock: type?
True North Imaging		X			Hadlock: AC-FL-BPD-HC