Screening and Treatment of Midtrimester Short Cervix in Asymptomatic Pregnancies

I. Background
   • A short cervix identified in the midtrimester of pregnancy is a strong predictor of preterm birth in all populations studied1
   • Despite the strong association between short cervical length and preterm birth, the majority of women with asymptomatic cervical shortening deliver at >35 weeks2

II. Goals
   A. The purposes of cervical length screening are:
      1. Identify populations of patients in which the following interventions may be beneficial:
         • Vaginal progesterone
         • Cerclage
         • Antenatal corticosteroids
      2. Avoid unnecessary interventions and subsequent screening tests in women at low risk of preterm birth. Only extremely short cervical lengths in asymptomatic patients in the midtrimester are associated with a significant risk of impending preterm birth within 2-4 weeks. Specifically, women with no measurable cervical length in the midtrimester have a median time from diagnosis to delivery of 3 weeks, and only 36% risk of delivery by 32 weeks of gestation.15
   B. Protocols which incorporate universal cervical length screening have demonstrated a reduction in frequency of preterm birth,3,4 and have been found to be cost effective.5,6
   C. Universal CL screening in all pregnant women is currently not universally mandated by ACOG, however, it is a reasonable evidence-based practice pattern.7,8

III. Midtrimester (16-24 weeks) with Short Cervix
   A. Treatments with proven benefit for asymptomatic cervical shortening:9
      1. Vaginal progesterone
         • Several vaginal progesterone preparations have reported efficacy with various definitions of short cervix (Prometrium <15 mm, Prochieve® 10-20 mm). In addition, a subsequent meta-analysis of all trials of vaginal progesterone has demonstrated efficacy in all patients studied with cervical length <25 mm.9
         • Prometrium® 200mg capsule PV qhs3
         • Prochieve® 8% vaginal gel, one applicator daily4
         • Progesterone vaginal suppositories 200 mg qhs, pharmacy compounded8
         • Treatment can be discontinued at 37 wks or earlier if development of PROM.
            o 17-OHPC DOES NOT reduce the risk of PTB in singleton pregnancies with incidentally noted short cervix <30 mm10
2. Cerclage
Cerclage placement in women with a prior spontaneous preterm birth AND a short cervical length ≤ 25 mm at ≤ 23 6/7 weeks reduces the rate of preterm birth.11-14 These women should also be offered 17-OHPC based on their history (see Progesterone for Preterm Birth Prevention protocol)

3. Antenatal corticosteroids
Improve neonatal outcomes when administered in pregnancies at risk of preterm birth. Optimum benefit is when administered in pregnancies likely to deliver within 2 weeks, i.e. in women with extremely short cervical lengths (less than 5 mm), see Glucocorticoid Steroids protocol

B. Treatments with NO proven benefit for asymptomatic cervical shortening
1. Bed rest and pelvic rest
Have not been proven to improve perinatal outcomes in women with midtrimester cervical shortening and may in fact be harmful. Based on available evidence, we DO NOT encourage activity limitations in women with asymptomatic cervical shortening in an effort to decrease preterm birth risk. Recommendations on activity limitations will be individualized after consultation with her primary OB care provider.

2. Prophylactic tocolytic agents in patients with no evidence of preterm contractions (i.e. Indomethacin or calcium channel blockers)

3. Prophylactic antibiotics in patients with no evidence of infection

IV. Cervical length screening in selected populations
A. History suspicious for cervical insufficiency
1. Initiate TV ultrasound cervical lengths at 14 weeks
   If CL ≥30 mm, repeat every 2 weeks until 23 6/7 weeks
   If CL 25-29 mm, repeat every 1 week until 23 6/7 weeks
   If CL <25 mm, offer cerclage placement

2. Women with the most concerning history suggestive of cervical insufficiency: consider history-induced cerclage placement at 12-14 weeks (i.e. women with multiple prior unexplained second-trimester losses16,17 or those with a history of successful cerclage in prior pregnancy)
B. **History of spontaneous preterm birth in prior pregnancy** at 17-34 weeks (see figure)

1. Initiate TV ultrasound cervical lengths at **16 weeks**
   - If CL ≥ 30 mm, repeat every 2 weeks until 23 6/7 weeks
   - If CL 25-29 mm, repeat every 1 week until 23 6/7 weeks
   - If CL < 25 mm, offer cerclage placement
2. No further scheduled CL screening after 23 6/7 weeks
3. Special scenarios:
   - In patients who are candidates for cerclage and decline, vaginal progesterone may be offered as a second line alternative as evidence suggests it may also effectively reduce PTB risk and improve neonatal outcomes
   - Women with history of preterm labor but delivered at term do not fit in this category and should be treated as Low Risk.

C. **Multifetal gestation, uterine malformation, or prior LEEP** (screening and treatment similar to Low Risk women)

   - If < 20 mm, consider vaginal progesterone
   - If ≥ 20 mm, routine care
   a. For short cervix, consider vaginal progesterone
      i. Data from meta-analysis of vaginal progesterone for short cervix < 25 mm in twins demonstrated no reduction in PTB < 37 weeks, but > 50% reduction in composite adverse neonatal outcome.\(^9\)
      ii. Limited data to support treatment efficacy in other groups, although vaginal progesterone is reasonable and has no known risk \(^3\)
   b. Cerclage has no role in treatment of short cervix in these populations and may worsen outcomes in otherwise uncomplicated twin pregnancies.\(^12\)

D. **Low Risk singletons** (nulliparous women or multiparous with prior term birth), figure 1

1. Recommended screening is:
   - Single TVUS cervical length at **18-24 weeks**, at anatomic survey
     - If < 20 mm, offer vaginal progesterone
     - If ≥ 20 mm, routine care
2. **Alternative screening for sites without capacity to perform universal TV ultrasound CL screening**
   - Transabdominal sonographic CL measurement: If cervical shortening is suspected with CL < 35 mm on TA imaging, TV CL will be performed with decision for treatment based on TV US CL measurement.
3. Cerclage is not effective in Low Risk singletons with short cervix and no prior history of preterm birth.\(^12\)
V. Counseling
   A. Provide patient information regarding estimated likelihood of PTB based on her specific CL at gestational age when assessed (see appendix, these data derived from high risk singleton pregnancies)^2
   B. Patients with normal cervical length ≥ 25 mm, but otherwise at high risk of preterm birth (twins, prior preterm birth, etc) may be reassured regarding low risk of PTB by providing individualized risk assessment, see appendix

VI. Special Situations
   A. Screening with TV CL after cerclage
      • Role of CL screening after intervention provided is uncertain
      • CL screening after cerclage may assist to identify patients at high risk of impending preterm birth (i.e. funneling to the stitch or residual CL ≤5 mm). Therefore, it is reasonable to consider CL screening every 2 weeks after cerclage placement up to 28 wks for the purpose of identification of those who may benefit from hospital admission and corticosteroid therapy.
   B. Inpatient admission and antenatal corticosteroid administration
      • Extremely short cervical lengths, ≤5 mm, prior to 28 weeks may be associated with a significant enough likelihood of preterm birth within 2 weeks to warrant inpatient management and steroid administration (mean latency with CL = zero is 3 weeks, 36% risk of delivery within 2 weeks^15)
      • Women with other concomitant risk factors may warrant inpatient management at CL >5 mm. Recommend individualized treatment with MFM consultation.
   C. Preterm contractions
      • Women with preterm contractions and short cervix are at especially high risk of preterm birth and should be managed by the Preterm Labor Protocol and not based on recommendations in this protocol, which is focused on the short cervix in asymptomatic women.

*It is reasonable to discontinue CL screening in all asymptomatic patients at 24-28 weeks.
Singletons

No prior preterm birth

Single TVU CL at 18-24 weeks

CL < 20 mm

Vaginal Progesterone

CL ≥ 20 mm

Routine care

Prior preterm birth

17-OHPC

Serial TVU CL at 16-23 weeks

CL < 25 mm

Offer cerclage Continue 17-OHPC

CL ≥ 25 mm

Continue 17-OHPC
### Table 4. Predicted Probability of Preterm Delivery Before Week 28, by Cervical Length (mm) and Time of Measurement (Week of Pregnancy)

<table>
<thead>
<tr>
<th>Cervical Length (mm)</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
<th>21</th>
<th>22</th>
<th>23</th>
<th>24</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>75.5</td>
<td>75.8</td>
<td>71.6</td>
<td>67.0</td>
<td>62.1</td>
<td>57.0</td>
<td>51.6</td>
<td>46.3</td>
<td>41.6</td>
<td>35.9</td>
<td>31.1</td>
</tr>
<tr>
<td>5</td>
<td>70.1</td>
<td>65.5</td>
<td>60.5</td>
<td>55.2</td>
<td>50.7</td>
<td>46.0</td>
<td>41.5</td>
<td>38.3</td>
<td>34.3</td>
<td>29.6</td>
<td>25.4</td>
</tr>
<tr>
<td>10</td>
<td>58.8</td>
<td>53.5</td>
<td>48.1</td>
<td>42.8</td>
<td>37.6</td>
<td>32.7</td>
<td>28.2</td>
<td>24.1</td>
<td>20.4</td>
<td>17.1</td>
<td>14.3</td>
</tr>
<tr>
<td>15</td>
<td>46.4</td>
<td>41.1</td>
<td>36.0</td>
<td>31.2</td>
<td>26.8</td>
<td>22.8</td>
<td>19.2</td>
<td>16.1</td>
<td>13.4</td>
<td>11.1</td>
<td>9.2</td>
</tr>
<tr>
<td>20</td>
<td>34.4</td>
<td>29.7</td>
<td>25.4</td>
<td>21.6</td>
<td>18.2</td>
<td>15.2</td>
<td>12.6</td>
<td>10.4</td>
<td>8.6</td>
<td>7.1</td>
<td>5.8</td>
</tr>
<tr>
<td>25</td>
<td>24.1</td>
<td>20.4</td>
<td>17.2</td>
<td>14.3</td>
<td>11.9</td>
<td>9.8</td>
<td>8.1</td>
<td>6.6</td>
<td>5.4</td>
<td>4.4</td>
<td>3.6</td>
</tr>
<tr>
<td>30</td>
<td>16.2</td>
<td>13.5</td>
<td>11.2</td>
<td>9.2</td>
<td>7.6</td>
<td>6.2</td>
<td>5.1</td>
<td>4.1</td>
<td>3.3</td>
<td>2.7</td>
<td>2.2</td>
</tr>
<tr>
<td>35</td>
<td>10.5</td>
<td>8.6</td>
<td>7.1</td>
<td>5.8</td>
<td>4.7</td>
<td>3.8</td>
<td>3.1</td>
<td>2.5</td>
<td>2.1</td>
<td>1.7</td>
<td>1.3</td>
</tr>
<tr>
<td>40</td>
<td>6.6</td>
<td>5.4</td>
<td>4.4</td>
<td>3.6</td>
<td>2.9</td>
<td>2.4</td>
<td>1.9</td>
<td>1.6</td>
<td>1.3</td>
<td>1.0</td>
<td>0.8</td>
</tr>
<tr>
<td>45</td>
<td>4.1</td>
<td>3.3</td>
<td>2.7</td>
<td>2.2</td>
<td>1.8</td>
<td>1.4</td>
<td>1.2</td>
<td>0.9</td>
<td>0.8</td>
<td>0.6</td>
<td>0.5</td>
</tr>
<tr>
<td>50</td>
<td>2.5</td>
<td>2.1</td>
<td>1.7</td>
<td>1.4</td>
<td>1.1</td>
<td>0.9</td>
<td>0.7</td>
<td>0.6</td>
<td>0.5</td>
<td>0.4</td>
<td>0.3</td>
</tr>
<tr>
<td>55</td>
<td>1.6</td>
<td>1.3</td>
<td>1.0</td>
<td>0.8</td>
<td>0.7</td>
<td>0.5</td>
<td>0.4</td>
<td>0.4</td>
<td>0.3</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>60</td>
<td>1.0</td>
<td>0.8</td>
<td>0.6</td>
<td>0.5</td>
<td>0.4</td>
<td>0.3</td>
<td>0.2</td>
<td>0.2</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
</tbody>
</table>

### Table 2. Predicted Probability of Preterm Delivery Before Week 35, by Cervical Length (mm) and Time of Measurement (Week of Pregnancy)

<table>
<thead>
<tr>
<th>Cervical Length (mm)</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
<th>21</th>
<th>22</th>
<th>23</th>
<th>24</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>69.8</td>
<td>68.7</td>
<td>67.5</td>
<td>66.3</td>
<td>65.2</td>
<td>64.0</td>
<td>62.7</td>
<td>61.5</td>
<td>60.2</td>
<td>59.0</td>
<td>57.7</td>
</tr>
<tr>
<td>5</td>
<td>62.5</td>
<td>61.3</td>
<td>60.0</td>
<td>58.7</td>
<td>57.5</td>
<td>56.2</td>
<td>54.9</td>
<td>53.6</td>
<td>52.2</td>
<td>50.9</td>
<td>49.6</td>
</tr>
<tr>
<td>10</td>
<td>54.6</td>
<td>53.3</td>
<td>52.0</td>
<td>50.7</td>
<td>49.4</td>
<td>48.1</td>
<td>46.7</td>
<td>45.4</td>
<td>44.1</td>
<td>42.8</td>
<td>41.5</td>
</tr>
<tr>
<td>15</td>
<td>46.5</td>
<td>45.2</td>
<td>43.9</td>
<td>42.6</td>
<td>41.3</td>
<td>40.1</td>
<td>38.8</td>
<td>37.6</td>
<td>36.3</td>
<td>35.1</td>
<td>33.9</td>
</tr>
<tr>
<td>20</td>
<td>38.6</td>
<td>37.3</td>
<td>36.1</td>
<td>34.8</td>
<td>33.7</td>
<td>32.5</td>
<td>31.4</td>
<td>30.3</td>
<td>29.2</td>
<td>28.1</td>
<td>27.0</td>
</tr>
<tr>
<td>25</td>
<td>31.2</td>
<td>30.1</td>
<td>29.0</td>
<td>27.9</td>
<td>26.9</td>
<td>25.8</td>
<td>24.8</td>
<td>23.9</td>
<td>22.9</td>
<td>22.0</td>
<td>21.1</td>
</tr>
<tr>
<td>30</td>
<td>24.7</td>
<td>23.7</td>
<td>22.8</td>
<td>21.8</td>
<td>20.9</td>
<td>20.1</td>
<td>19.3</td>
<td>18.5</td>
<td>17.7</td>
<td>16.9</td>
<td>16.2</td>
</tr>
<tr>
<td>35</td>
<td>19.1</td>
<td>18.3</td>
<td>17.5</td>
<td>16.8</td>
<td>16.1</td>
<td>15.4</td>
<td>14.7</td>
<td>14.1</td>
<td>13.4</td>
<td>12.8</td>
<td>12.2</td>
</tr>
<tr>
<td>40</td>
<td>14.6</td>
<td>13.9</td>
<td>13.3</td>
<td>12.7</td>
<td>12.1</td>
<td>11.6</td>
<td>11.1</td>
<td>10.6</td>
<td>10.1</td>
<td>9.6</td>
<td>9.2</td>
</tr>
<tr>
<td>45</td>
<td>11.0</td>
<td>10.3</td>
<td>10.0</td>
<td>9.6</td>
<td>9.1</td>
<td>8.7</td>
<td>8.3</td>
<td>7.9</td>
<td>7.5</td>
<td>7.2</td>
<td>6.8</td>
</tr>
<tr>
<td>50</td>
<td>8.2</td>
<td>7.8</td>
<td>7.4</td>
<td>7.1</td>
<td>6.7</td>
<td>6.4</td>
<td>6.1</td>
<td>5.8</td>
<td>5.5</td>
<td>5.2</td>
<td>4.9</td>
</tr>
<tr>
<td>55</td>
<td>6.0</td>
<td>5.7</td>
<td>5.5</td>
<td>5.2</td>
<td>4.9</td>
<td>4.7</td>
<td>4.5</td>
<td>4.3</td>
<td>4.0</td>
<td>3.8</td>
<td>3.7</td>
</tr>
<tr>
<td>60</td>
<td>4.4</td>
<td>4.2</td>
<td>4.0</td>
<td>3.8</td>
<td>3.6</td>
<td>3.4</td>
<td>3.3</td>
<td>3.1</td>
<td>3.0</td>
<td>2.8</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Short Cervix Protocol
Revised June 2013

References: