Prevention of Recurrent Preterm Birth

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Preterm Birth in the U.S.

- In 2013, one in every nine U.S. births occurred preterm (11.4%)
  - Nearly twice the rate compared to European nations
- Despite advancements in neonatal care, preterm birth accounts for 35% of deaths in the first year of life
- Estimated annual costs exceeding $26 billion (2005)
- Approximately 75% of preterm births are ‘spontaneous’ (as opposed to iatrogenic)- due to labor or PPROM

Preterm Birth in the U.S.

- Efforts to reduce the incidence of **multifetal pregnancies** and to prevent **elective delivery before 39 weeks** have been associated with a slight reduction in the preterm birth rate.

- Strategies to **identify and treat medical risk factors** in early pregnancy (e.g., genitourinary infection and poor nutrition) have not been effective.

Preterm Birth in the U.S.: 2003-2013

Source: National Center for Health Statistics.
Retrieved October 2, 2015, from www.marchofdimes.org/peristats.

Preterm Birth in Utah: 2003-2013

Source: National Center for Health Statistics.
Retrieved October 2, 2015, from www.marchofdimes.org/peristats.

Preterm Birth Major Risk Factors

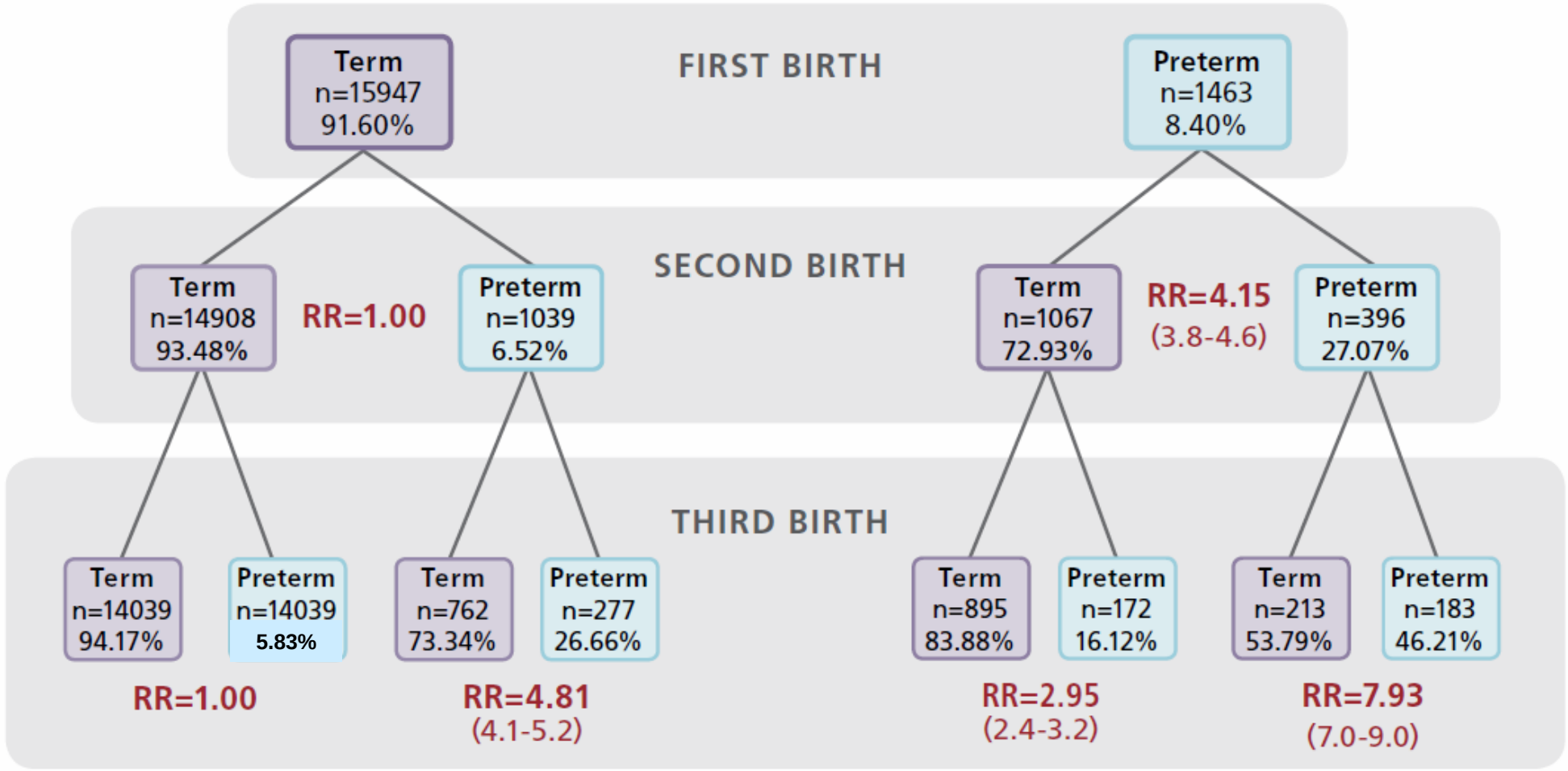
- Ability to predict the **first preterm birth** is very limited
  - Most mothers with preterm birth have no evident risk factors
  - Even in those with risk factors, the relative risk is low
  - **Short cervix at 16-24 weeks** (≤25 mm, as measured by transvaginal ultrasonography) is the strongest predictor
    - <25 mm (10th %), 25% risk of preterm birth
    - <15 mm (3rd %), 50% risk of preterm birth

Preterm Birth Major Risk Factors

- Prevention efforts have therefore concentrated on **prevention of recurrent preterm birth**
  - **Previous preterm birth** (of any kind) is the strongest risk factor
  - Increases the risk of recurrence by two-fold or more
  - Risk increases with the number of preterm births, earlier gestational age at delivery, and shorter inter-pregnancy interval
  - Most recent delivery outcome most strongly influences risk

FIGURE 1. Spontaneous Preterm Birth: Risk of Recurrence[ESP]

Proportion of preterm births (<37 weeks) in a woman's first, second, and third birth, excluding women with any indicated preterm inductions (n=17410).



Esplin et al. Estimating recurrence of spontaneous preterm delivery. Obstet Gynecol. 2008 Sep;112(3):516-23.

What do we **know**?

- **Progesterone supplementation** in women with a **previous preterm birth, a short cervix, or both** has been shown in randomized trials to reduce the risk of preterm birth

- **Cervical cerclage** reduces the risk of recurrent preterm birth among women with a **short cervix or a history suggestive of cervical insufficiency**

What do we **know**?

- **How much is the risk reduction?**
  - Good rule of thumb is ‘one-third’
    - *17 P is expected to reduce the risk of recurrent preterm birth by approximately one-third*
    - *Cerclage in women with cervical length <25 mm is expected to reduce the risk of recurrent preterm birth by approximately one-third*
    - *Vaginal progesterone is expected to reduce the risk of preterm birth by approximately one-third in women with a cervical length <20 mm*

What do we **know**?

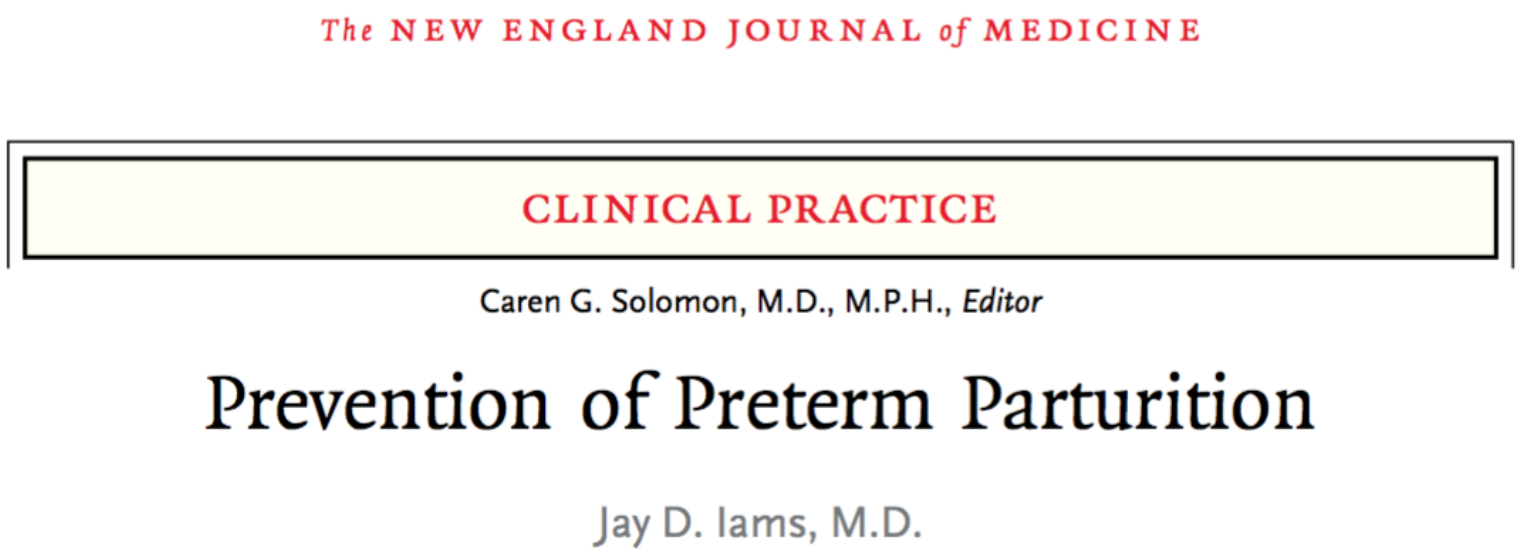
- **Progesterone supplementation** has not been shown to be effective in preventing preterm birth in multiple gestations

What do we **know**?

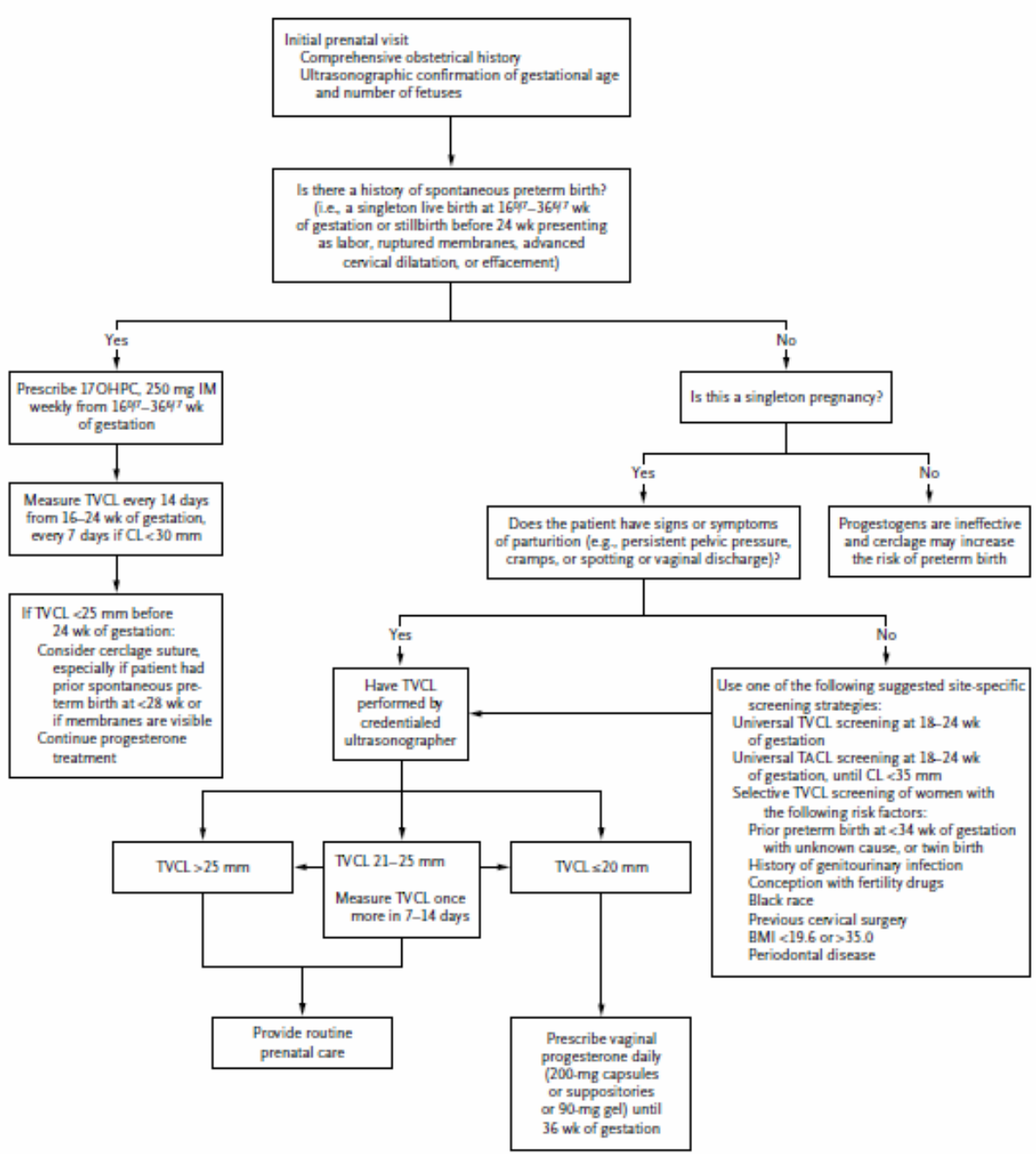
- **Current evidence-based recommendations:**
- For women with a short cervix <20 mm without prior preterm birth, prescribe vaginal progesterone
- For women with a previous spontaneous preterm birth <37 weeks, prescribe intramuscular 17P
  - Cerclage is also advised if the cervical length is less than 25 mm before 24 weeks gestation

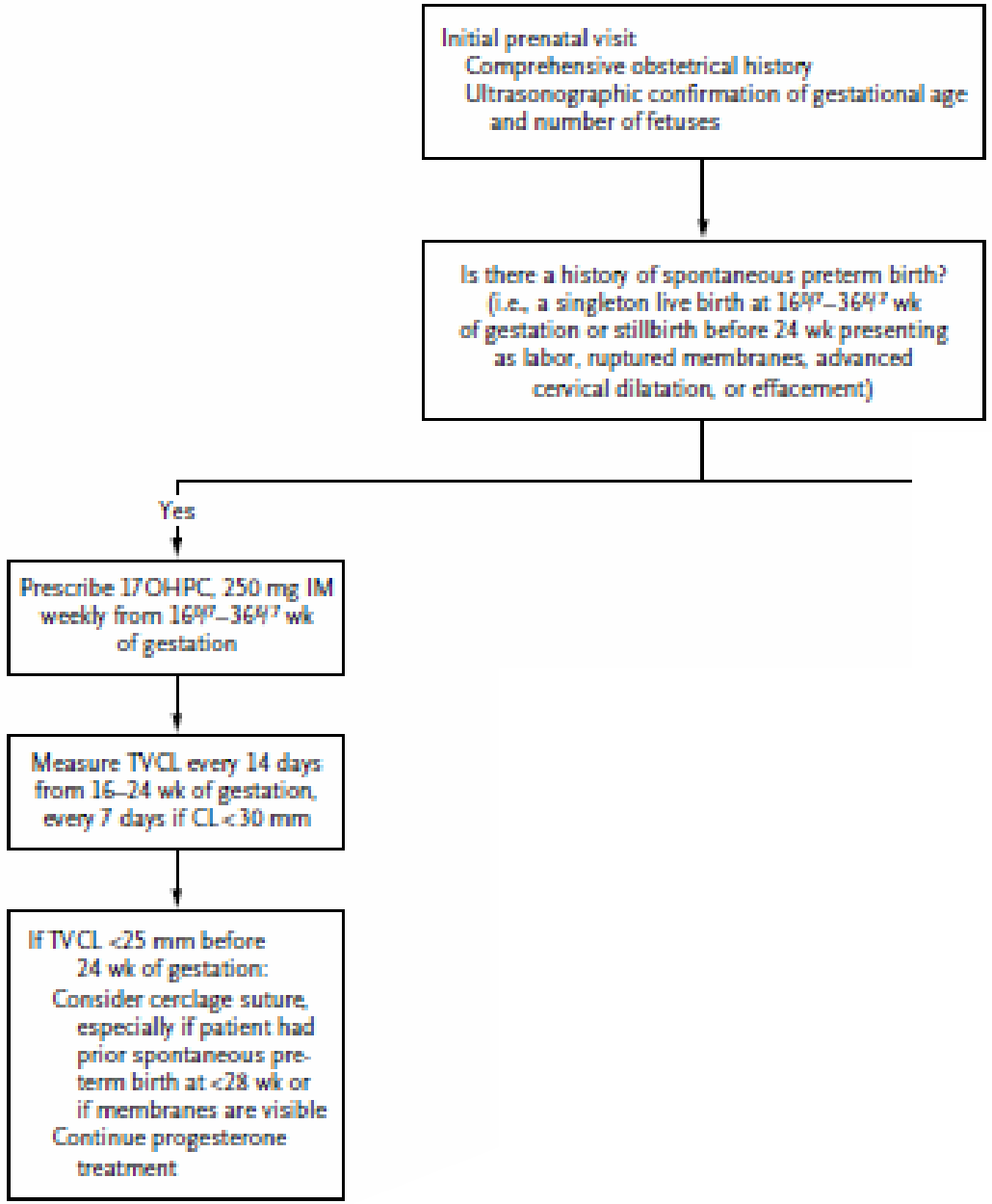
Endorsed by Society for Maternal-Fetal Medicine and the American College of Obstetricians and Gynecologists

Resources



N Engl J Med 370; 3 January 16, 2014


Initial prenatal visit
Comprehensive obstetrical history
Ultrasonographic confirmation of gestational age and number of fetuses
Is there a history of spontaneous preterm birth? (i.e., a singleton live birth at 16⁰/⁷–36⁶/⁷ wk of gestation or stillbirth before 24 wk presenting as labor, ruptured membranes, advanced cervical dilatation, or effacement)
Yes
No
Prescribe 17OHPC, 250 mg IM weekly from 16⁰/⁷–36⁶/⁷ wk of gestation
Measure TVCL every 14 days from 16–24 wk of gestation, every 7 days if CL <30 mm
If TVCL <25 mm before 24 wk of gestation:
Consider cerclage suture, especially if patient had prior spontaneous preterm birth at <28 wk or if membranes are visible
Continue progesterone treatment
Is this a singleton pregnancy?
Yes
No
Does the patient have signs or symptoms of parturition (e.g., persistent pelvic pressure, cramps, or spotting or vaginal discharge)?
Progestogens are ineffective and cerclage may increase the risk of preterm birth
Yes
No
Have TVCL performed by credentialed ultrasonographer
Use one of the following suggested site-specific screening strategies:
Universal TVCL screening at 18–24 wk of gestation
Universal TACL screening at 18–24 wk of gestation, until CL <35 mm
Selective TVCL screening of women with the following risk factors:
Prior preterm birth at <34 wk of gestation with unknown cause, or twin birth
History of genitourinary infection
Conception with fertility drugs
Black race
Previous cervical surgery
BMI <19.6 or >35.0
Periodontal disease
TVCL >25 mm
TVCL 21–25 mm
Measure TVCL once more in 7–14 days
TVCL ≤20 mm
Provide routine prenatal care
Prescribe vaginal progesterone daily (200-mg capsules or suppositories or 90-mg gel) until 36 wk of gestation


Initial prenatal visit
Comprehensive obstetrical history
Ultrasonographic confirmation of gestational age and number of fetuses
Is there a history of spontaneous preterm birth? (i.e., a singleton live birth at 16$^{0/7}$–36$^{6/7}$ wk of gestation or stillbirth before 24 wk presenting as labor, ruptured membranes, advanced cervical dilatation, or effacement)
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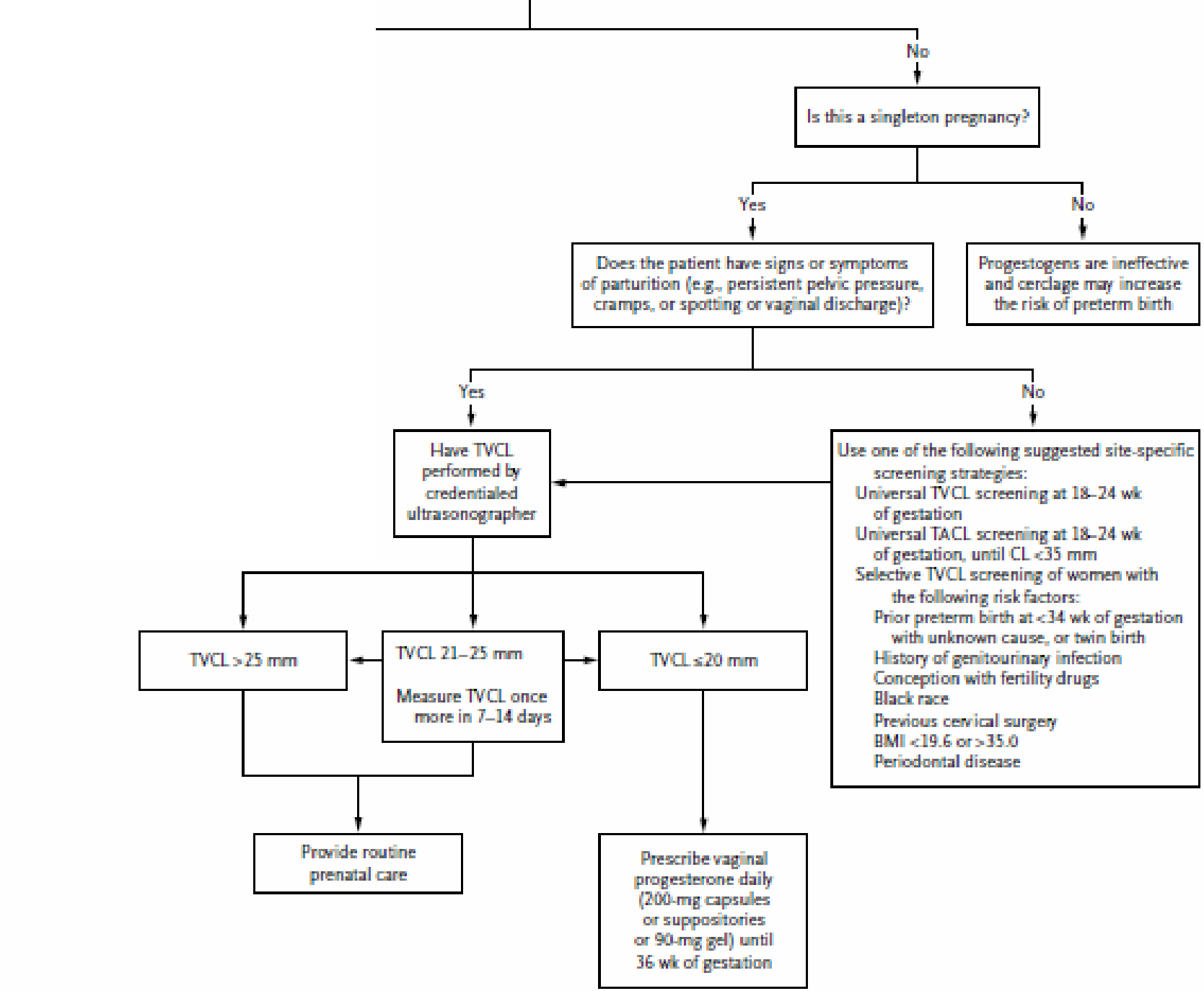
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Resources

UWNQC

Utah Women & Newborns Quality Collaborative

http://health.utah.gov/uwnqc/

17P FOR PREVENTING PRETERM BIRTH

Fact Sheet for Patients & Families

WHAT IS 17P?

The abbreviation "17P" stands for 17-alphahydroxyprogesterone caproate. It's a type of progesterone, a hormone naturally produced by the placenta during pregnancy. The medication 17P is prescribed by a doctor to help prevent preterm birth.

What to do after a PRETERM BIRTH

A Guide for Families