

# Recognizing Pubertal Onset & Clues on When to Refer for Possible Central Precocious Puberty



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# Recognizing Pubertal Onset: Stating the Obvious (or Not So Obvious) Reasons

- Listen carefully to the parent explain what they have noticed
- Perform a thorough assessment including genital examination, review of growth and weight, and growth rate charts at every visit
  - Determine if height is consistent with genetic potential – ask parent heights and puberty
  - Plot growth rate and look for increased rate of pubertal onset
  - Genital exams are awkward for physician and patient alike, and are often not thorough
    - Palpate for breast tissue
    - Palpate testes size
    - Look for pubic hair between labia or under scrotum – not just across symphysis pubis
      - This should be at each well child visit for assessing rate of progression
- If you suspect CPP, refer to pediatric endocrinologist
  - Send growth records with patient
  - If you order a bone age radiograph, send image with patient to the consult

# CPP is Characterized by Several Consistent Features— Not a Mystery



## Signs/Symptoms

- Early onset<sup>1</sup>
- Rapid pubertal progression<sup>2</sup>
- Breasts or testicular size increase<sup>3</sup>
- With or without pubic hair<sup>3</sup>
- Elevated LH, FSH, estradiol/testosterone<sup>1,3</sup>
- Increased growth rate<sup>1,3</sup>
- Advanced bone age<sup>1,3</sup>

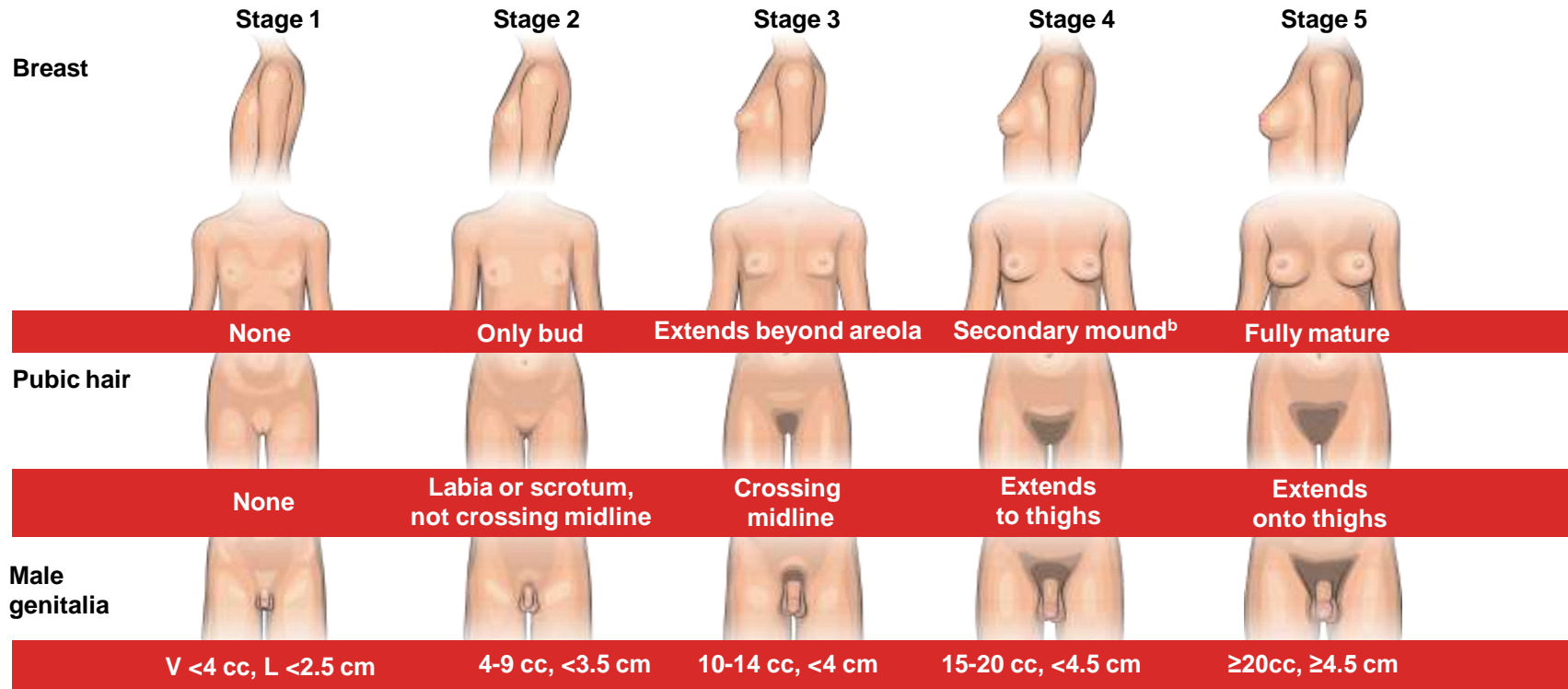
FSH, follicle-stimulating hormone; LH, luteinizing hormone.

References: 1. De Silva N, Tschirhart J. *Curr Treat Options Peds*. 2016;2(3):121-130. 2. Klein KO et al. *J Clin Endocrinol Metab*. 2001;86:4711-4716.

3. Kaplowitz P, Bloch C. *Pediatrics*. 2016;137(1):e2015373.

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# More Clues for Physical Exam: Tanner Stages<sup>a</sup>



V, testicular volume (assessed by orquidometer comparison); L, penis length.

<sup>a</sup>Language and description for breast and pubic hair region (male and female) was provided by Dr. Klein.

<sup>b</sup>Nipple diameter increases and matures.

4 Reference: Tanner Scale. <http://www.scientificspine.com/spine-scores/tanner-scale.html>. Accessed September 20, 2019.

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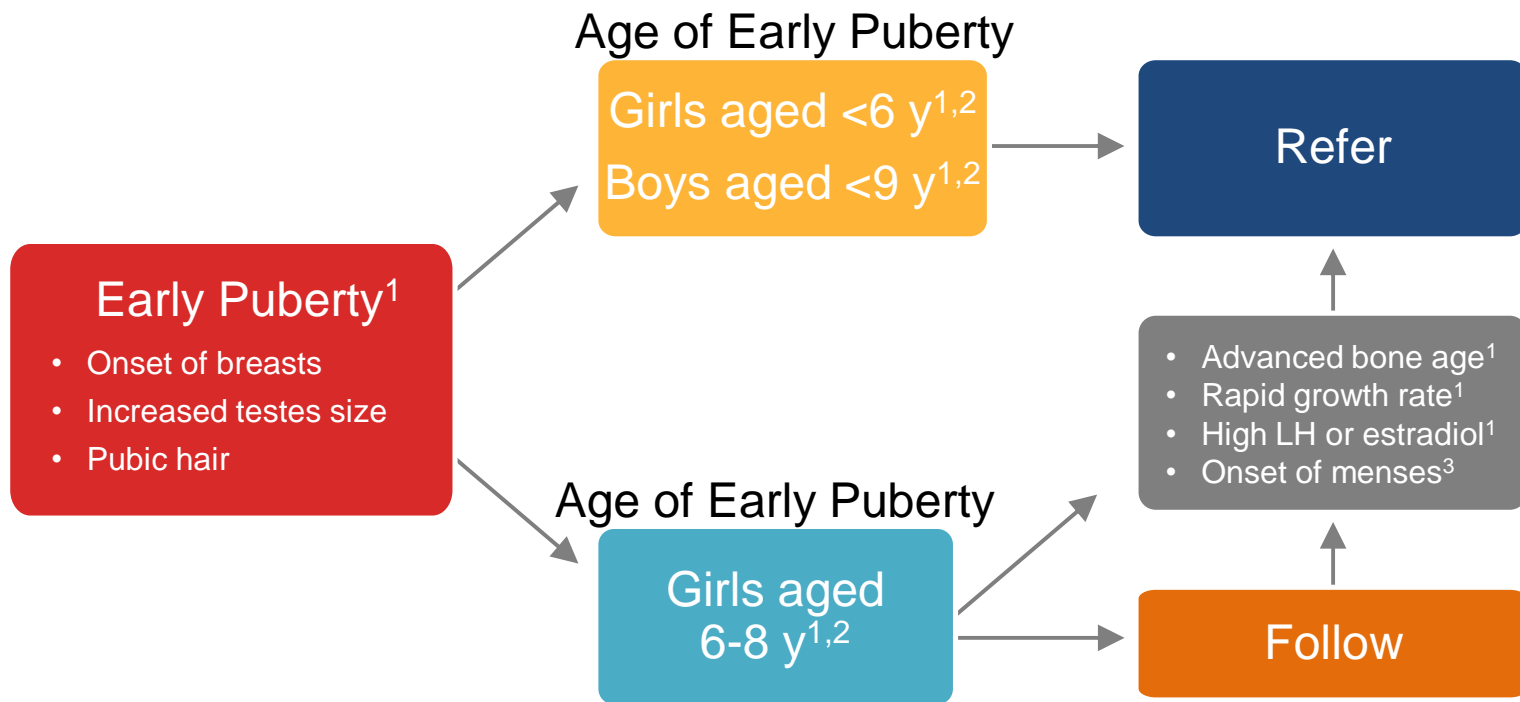
# CPP: Timing and Pace of Puberty

- Precocious puberty considered when:
  - Puberty begins in girls <8 years old<sup>1</sup>
  - Puberty begins in boys <9 years old<sup>1</sup>
  - Pubertal progression is rapid<sup>2</sup>
- Ethnicity affects pubertal timing<sup>3,4</sup>
  - African-American and Hispanic children have earlier normal puberty<sup>3,4</sup>
- Earlier onset of breast development may not progress to CPP\*<sup>4</sup>
  - Premature thelarche is not necessarily caused by hypothalamic pituitary gonadal activation
  - Breast exam may be difficult secondary to obesity
- Some CPP is slowly progressive<sup>4</sup> – bone age not advanced, but important to repeat in 3 – 6 months

\*Referral to pediatric endocrinologist for diagnosis CPP with physical examination, hormonal assays and imaging

References: 1. Kaplowitz P, Bloch C. *Pediatrics*. 2016;137(1):e20153732. 2. Klein KO et al. *J Clin Endocrinol Metab*. 2001;86:4711-4716. 3. Kaplowitz PB et al. *Horm Res Paediatr*. 2018;90(1):1-7. 4. Krishna KB et al. *Horm Res Paediatr*. 2019:1-16.

# Clues on When to Refer



LH, luteinizing hormone.

References: 1. Kaplowitz P, Bloch C. *Pediatrics*. 2016;137(1):e2015373. 2. De Silva N, Tschirhart J. *Curr Treat Options Peds*. 2016;2(3):121-130.

3. Chen M, Eugster EA. *PaediatrDrugs*. 2015;17(4):273-281.