Referral Algorithm: Precocious Puberty (Breast Development/Testicular Enlargement)

**Premature thelarche**

**Girls:** Under 8 yr of age AND breast development Tanner stage ≥2

**Boys:** Under 9 yr of age AND testicular enlargement ≥4 cc or >2 cm length (Tanner stage ≥2)

- **Yes**
  - < 3 years of age?
    - **No**
      - Headaches and/or visual changes OR Multiple café au-lait spots
        - **No**
          - Bone age X-ray result
            - Bone age advanced (Bone age > Chronological age by 2 years)
              - Refer to Endocrine
            - Bone age = Chronological age (within 2 years of chronological age)
              - Growth velocity is >8 cm/yr* or abnormal labs**?
                - **No**
                  - Follow up with PCP in 4 months for height recheck or check labs**
                - **Yes**
                  - Refer to Endocrine
        - **Yes**
          - Refer to Endocrine
    - **Yes**
      - Not precocious puberty. No referral to Endocrine needed
  - **Yes**
    - Refer to Endocrine - Urgent appointment (PCP to complete bone age X-ray prior to the appointment in Endocrine)

- **No**

**AM Labs (8 to 9 a.m.):**
- Ultrasensitive pediatric LH
- FSH (pediatric)
- Estradiol (pediatric) or Total testosterone by LC/MS
- TSH, free T4

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* Growth velocity can be calculated based on 4 or 6 months of linear growth:
  - Centimeters growth in 4 months x 3 = expected growth velocity in a year
  - Centimeters growth in 6 months x 2 = expected growth velocity in a year

** Follow up with PCP in 4 months for height recheck or check labs**

Updated 11-2021
Referral Algorithm: Precocious Puberty (Hair Development)

Premature pubarche/adrenarche

Girls: Under 8 yr of age or Boys: Under 9 yr of age with pubic hair (Tanner stage ≥2)

- No
- Yes
  - < 3 years of age?
    - No
    - Bone age X-ray result
      - Bone age advanced (Bone age > Chronological age by 2 years)
        - Refer to Endocrine
      - Bone Age = Chronological age (within 2 years of chronological age)
        - Axillary hair
          - Yes
            - Clitoral or penile enlargement
              - Yes
                - Accelerated height velocity (>8 cm/yr)*
                  - OR
                    - Abnormal labs**
                      - No
                        - Follow up with PCP in 4 months for height recheck or check labs**
        - No
          - AM Labs (8 to 9 a.m.):
            - 17-hydroxyprogesterone (17 OHP)
            - Total testosterone by LC/MS
            - DHEA-S

* Growth velocity can be calculated based on 4 or 6 months of linear growth.
  - Centimeters growth in 4 months x 3 = expected growth velocity in a year
  - Centimeters growth in 6 months x 2 = expected growth velocity in a year

**AM Labs (8 to 9 a.m.):
Referral Algorithm: Precocious Puberty (Vaginal Bleeding/Spotting)

*Premature menarche*

- **<10 years of age**
  - No
    - Not precocious puberty - Consider referring to Gynecology
  - Refer to Endocrinology
    - *(PCP to complete bone age prior to appointment)*