

Reporting Title: Estrogens, E1+E2, fractionated, S
Performing Location: Mayo Clinic Laboratories - Rochester Superior Drive

Specimen Requirements:

- Supplies:** Sarstedt Aliquot Tube 5 mL (T914)
- Collection Container/Tube:** Red top (Serum gel/SST is **not** acceptable)
- Submission Container/Tube:** Plastic vial
- Specimen Volume:** 1.2 mL
- Collection Instructions:** Within 2 hours of collection, centrifuge and aliquot serum in plastic vial.

Specimen Type	Temperature	Time	Special Container
Serum Red	Refrigerated (preferred)	28 days	
	Ambient	28 days	
	Frozen	28 days	

Result Codes:

Result ID	Reporting Name	Type	Unit	LOINC®
81418	Estrone, S	Numeric	pg/mL	2258-2
81816	Estradiol, Mass Spectrometry, S	Numeric	pg/mL	2243-4

LOINC® and CPT codes are provided by the performing laboratory.

Supplemental Report:

No

Components:

Test Id	Reporting Name	CPT Units	CPT Code	Always Performed	Available Separately
E1	Estrone, S	1	82679	Yes	Yes
EEST	Estradiol, Mass Spectrometry, S	1	82670	Yes	Yes

CPT Code Information:

- 82671-Estrogens, fractionated
- 82670-Estradiol (If applicable)
- 82679-Estrone (If applicable)

Reference Values:

ESTRONE (E1)

CHILDREN*

1 to14 days: Estrone levels in newborns are very elevated at birth but will fall to prepubertal levels within a few days.

Males

Tanner stages#	Mean age	Reference range
Stage I (>14 days and prepubertal)	7.1 years	Undetectable-16 pg/mL
Stage II	11.5 years	Undetectable-22 pg/mL
Stage III	13.6 years	10-25 pg/mL
Stage IV	15.1 years	10-46 pg/mL
Stage V	18 years	10-60 pg/mL

#Puberty onset (transition from Tanner stage I to Tanner stage II) occurs for boys at a median age of 11.5 (+/- 2) years. For boys there is no proven relationship between puberty onset and body weight or ethnic origin. Progression through Tanner stages is variable. Tanner stage V (adult) should be reached by age 18.

Females

Tanner stages#	Mean age	Reference range
Stage I (>14 days and prepubertal)	7.1 years	Undetectable-29 pg/mL
Stage II	10.5 years	10-33 pg/mL
Stage III	11.6 years	15-43 pg/mL
Stage IV	12.3 years	16-77 pg/mL
Stage V	14.5 years	17-200 pg/mL

#Puberty onset (transition from Tanner stage I to Tanner stage II) occurs for girls at a median age of 10.5 (+/- 2) years. There is evidence that it may occur up to 1 year earlier in obese girls and in African American girls. Progression through Tanner stages is variable. Tanner stage V (adult) should be reached by age 18.

*The reference ranges for children are based on the published literature,(1,2) cross-correlation of our assay with assays used to generate the literature data and on our data for young adults.

ADULTS

Males: 10-60 pg/mL

Females

Premenopausal: 17-200 pg/mL

Postmenopausal: 7-40 pg/mL

Conversion factor

E1: pg/mL x 3.704=pmol/L (molecular weight=270)

ESTRADIOL (E2)

CHILDREN*

1 to14 days: Estradiol levels in newborns are very elevated at birth but will fall to prepubertal levels within a few days.

Males

Tanner stages#	Mean age	Reference range
Stage I (>14 days and prepubertal)	7.1 years	Undetectable-13 pg/mL
Stage II	12.1 years	Undetectable-16 pg/mL
Stage III	13.6 years	Undetectable-26

		pg/mL
Stage IV	15.1 years	Undetectable-38 pg/mL
Stage V	18 years	10-40 pg/mL

#Puberty onset (transition from Tanner stage I to Tanner stage II) occurs for boys at a median age of 11.5 (+/- 2) years. For boys there is no proven relationship between puberty onset and body weight or ethnic origin. Progression through Tanner stages is variable. Tanner stage V (adult) should be reached by age 18.

Females

Tanner stages#	Mean age	Reference range
Stage I (>14 days and prepubertal)	7.1 years	Undetectable-20 pg/mL
Stage II	10.5 years	Undetectable-24 pg/mL
Stage III	11.6 years	Undetectable-60 pg/mL
Stage IV	12.3 years	15-85 pg/mL
Stage V	14.5 years	15-350 pg/mL**

#Puberty onset (transition from Tanner stage I to Tanner stage II) occurs for girls at a median age of 10.5 (+/- 2) years. There is evidence that it may occur up to 1 year earlier in obese girls and in African American girls. Progression through Tanner stages is variable. Tanner stage V (adult) should be reached by age 18.

*The reference ranges for children are based on the published literature,(1,2) cross-correlation of our assay with assays used to generate the literature data and on our data for young adults.

ADULTS

Males: 10-40 pg/mL

Females

Premenopausal: 15-350 pg/mL**

Postmenopausal: <10 pg/mL

**E2 levels vary widely through the menstrual cycle.

Conversion factor

E2: pg/mL x 3.676=pmol/L (molecular weight=272)

For International System of Units (SI) conversion for Reference Values, see

<https://www.mayocliniclabs.com/order-tests/si-unit-conversion.html>