



## CHR Special UPDATE

### Information for the Ob/Gyn Community

#### Ovarian Reserve Testing

Investigators at CHR established and published a few years ago **age-specific FSH levels**. In contrast to traditional levels, age-specific tests take into account decreases of ovarian reserve with advancing age. Normal FSH, therefore, increases as women age and young women with normal ovarian function should have lower FSH than normal older women.

We are now pleased to report that CHR has established the first **age-specific AMH levels**. AMH, in contrast to FSH, declines with advancing female age. Young normal women are, therefore, expected to show higher AMH than their older counterparts.

The table summarizes age-specific FSH and AMH levels in order to allow practitioners to perform more accurate assessment of their patients' ovarian reserve. As we have previously published, even in competent fertility centers, **premature ovarian aging (POA)** is very frequently overlooked (*Barad et al., Obstet Gynecol 2007; 109: 1404-10.*). **Risk for POA should be suspected if FSH levels exceed age-specific cut offs and/or if AMH levels fall below age-specific cut offs. AMH is now considered a more accurate reflection of ovarian reserve than FSH and AMH levels can be drawn independent of a woman's cycle date.** This table is offered to the Ob/Gyn community as a resource tool to facilitate a more timely diagnosis of POA.

#### Age Specific Ovarian Reserve Tests\*

Age (years)	FSH	Age (years)	AMH
< 33	< 7.0 mIU/mL	≤ 30	≥ 2.1 ng/mL
33-37	< 7.9 mIU/mL	31-35	≥ 1.7 ng/mL
38-40	< 8.4 mIU/mL	36-40	≥ 1.1 ng/mL
≥ 41	< 8.5 mIU/mL	≥ 41	≥ 0.5 ng/mL

\*Because of different patient distribution patterns in FSH and AMH studies, different age bins had to be established.

*Please note that all here reported age-specific cut off levels were calculated based on the 95% CI of age bins, using CHR's infertility patients. CHR's patient population is, even for a fertility center, extremely adversely selected and contains a very high percentage of women with severely diminished ovarian reserve. Here published cut off values are, therefore, likely conservative. Average practitioners should, therefore, start considering a diagnosis of POA even with slightly lower age-specific FSH and slightly higher age-specific AMH levels than reported in the table.*

#### Fragile X (FMR1) Gene Testing

The **fragile X (FMR1) gene** represents a small snippet of genetic material on the X chromosome, made up of CGG repetitions. It is routinely investigated, because, especially in males, too many CGG repeats can cause very significant neuro/psychiatric complications.

Since the number of CGG repeats on the *FRM1* gene is fixed from birth, a determination that a woman has over 32 or under 26 repeats should lead to careful, prospective ovarian reserve monitoring.

CHR investigators recently reported that, independently of this neuro/psychiatric function, **this gene also appears to control to some degree ovarian reserve**. They determined that, **in regards to ovarian reserve, 26-32 CGG repeats represent normal** (reflective of most individuals having 29-30 repeats) and that **women with either fewer or more CGG repeats are at increased risk for prematurely diminished ovarian reserve**.

The evaluation of **CGG counts on the FMR1 gene, thus, allows for prospective risk assessment of young women as to their risk towards developing POA.**