MRS TECHNICAL BULLETIN

<u>Tyrer Cuzick Risk Assessment Model</u>

Although no single risk assessment tool integrates family history, hormonal factors, and benign breast disease in a comprehensive fashion, MRS incorporates several risk assessment tools in the Patient History page, and displays their results in the Risk Assessment Dashboard section of the procedure report. The most complex of these tools is the Tyrer-Cuzick (IBIS) model. The following technical bulletin will clarify the factors used to calculate the patient's risk assessment with instructions for completing the form.

Risk Factors Affecting Assessment Score

The Tyrer-Cuzick (IBIS) model factors into its calculations information collected from several locations on the patient history page, including Age, Weight and Height, Personal Risk Factors, Family History, Family History of Cancer, Family Risk Factors, Hormone Replacement Therapy and patients biopsy history. Each factor will be discussed in the order in which it should be collected for efficient data entry.

Patient's Age

The first factor included in the risk assessment calculations is the patient's current age, entered as **Date of Birth** on the the **MRS Patient History** page. Up to age 70, as the patient's age increases the 10-year risk score increases and the lifetime score decreases. At age 70 both scores equalize. After age 70 as the patient's age increases, both the 10-year and Lifetime risk scores decrease equally.

Weight and Height

Weight *and* Height must both be entered into MRS in order to provide a score for body mass which is factored into the patient's risk assessment percentage.
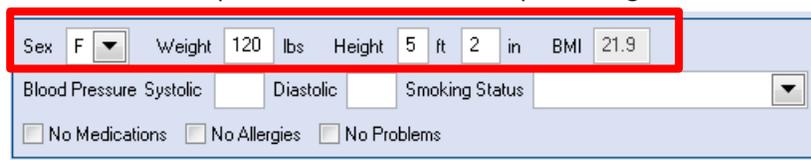
Personal Risk Factors

The following personal risk factors, if checked, will be factored into the patient's risk assessment score.

- Ashkenazi Jewish
- History of Ovarian Cancer
- History of Hyperplasia w/o Atypia
- Genetically tested

Because women with a previous history of breast cancer are already considered "high risk", they are not included in any of the studies used to create the risk assessment models. Therefore, there are no risk assessment calculations in either of the Risk Assessment Tools provided by MRS, including the Tyrer-Cuzick for patients with a history of breast cancer. The remaining risk factors, if selected, do not have an impact on the calculations.

+ Risk Info (Additional Tyrer-Cuzick Questions)

If the patient has a family history of cancer, answering these questions first, will facilitate a more efficient workflow. For each of the patient's relatives listed below enter the number of:

- Sisters
- Daughters
- Maternal Aunts
- Paternal Aunts
- Maternal Half Sisters
- Paternal Half Sisters

MRS requires the entry of an identifier for each relative.   This facilitates entry in the Risk Factor section of MRS which you will see below and streamlines the patient's review process ensuring they are updating information on the correct relative.   NOTE: Any identifier is acceptable such as older sister, younger sister or just initials.   This information is entered only to assist the patient and is not shared in any reports.

If one or more *Paternal/Maternal Aunts* has been entered, enter the number of:

- Daughters from each Aunt
- Daughters from Maternal Uncle(s)
- Daughters from Paternal Uncle(s)

If the Patient has received Hormone Replacement Therapy, complete the form.

Family History of Cancer

Check *No Known Family of Cancer* **only** if the Patient is an adopted child and does not know their biological family history. If the patient has knowledge of a history of cancer in a family member, click Add Relative and complete the form in detail beginning with:

- Blood Relative (required)
- Maternal/Paternal (required, if not checked by default)
- Female/Male (required if the relative is Cousin)
- Child of: Aunt/Uncle (required if relative is Cousin)
- Maternal Aunt 1 or 2 etc. (required only if Cousin is Child of Aunt)
- Type (required)

The remaining fields are optional, however, the information, when entered, is factored into the patient's risk assessment. Click Add Relative to enter multiple relatives to the list.

Family Risk Factors

Check *Genetically Tested* if a family member has been genetically tested for one of the gene types listed in the drop down menu. Complete the form in detail beginning with:

- Blood Relative (required)
- Outcome (required)
- Type (required)
- Maternal/Paternal (required)

Gynecological History

Gynecological Histoy is factored into the Tyrer-Cuzick risk assessment score.

Biopsy History

Certain biopsy history will be used to calculate a patients risk. When a benign biopsy is entered into MRS as a procedure this will map to the Unknown Benign Disease in Tyrer-Cuzick. If the benign biopsy is entered in as a history this will map to No benign disease in Tyrer-Cuzick.   Benign or high risk biopsy pathology results are only used when the class and name are entered todetermine if it's LCIS or Atypical hyperplasia.

- Hyperplasia (not atypia) is selected in TC when History of Hyperplasia w/o Atypia is selected from the patient risk factores or a benign pathology result where Hyperplasia, usual is selected.
- Unknown benign disease is selected when a patient has a benign pathology and hyperplasia is not selected.
- Atypical Hyperplasia is selected when a patiet has a high risk pathology and the pathology is Atypical ductal hyperplasia or Atypical lobular hyperplasia.
- LCIS is selected when the patient has a high risk pathology and the pathology is Lobular carcinoma in-situ.

Notes

The Tyrer-Cuzick model is limited on the number of relatives it allows for processing. Should you enter more relatives than the tool can utilize the MRS sytem will process upto the maximum numberTyrer-Cuzick uses. On the exam page if you expand the history section MRS will list any exceptions to the calculations should this occur.

Tyrer-Cuzick Risk Assessment Model

▽ **Patient History**

Family history of breast cancer in maternal aunt at age 50 and breast cancer in maternal cousin at age 43.
Patient's BMI is 23.4.

☐ Baseline mammo   Time since last mammo   2 yrs   mos   ☐ <1 mo

Last menstrual period   ⬍ ▾

Performs self-breast exams   times per year.

▶ **Reason for Exam**
▶ **Indicated Problems**

Risk Manager	Tyrer-Cuzick 10-year 4.6%	Tyrer-Cuzick Lifetime 11.5%	Myriad Table 2.6%	Myriad Flags	GAIL 5 Year 1.50%	NCI Lifetime 9.70%

Gail-5 Year
Risk for the average woman (age 56) 1.5%.

Gail-NCI Lifetime
Risk for the average woman (to age 90) 10.0%.
Based on personal and/or family history, consideration of hereditary risk assessment may be warranted.

Tyrer-Cuzick Risk Model
Tyrer-Cuzick allows a maximum of 5 sisters. The system only used the maximum value allowable by Tyrer-Cuzick to calculate this patient's risk.

Tyrer-Cuzick allows a maximum of 5 maternal aunts.   The system only used the maximum value allowable by Tyrer-Cuzick to calculate this patient's risk.

Tyrer-Cuzick allows a maximum of 2 maternal cousins from their aunt with breast cancer.   The system only used the maximum value allowable by Tyrer-Cuzick to calculate this patient's risk.