

## MammoRisk is a fast, simple and innovative solution for assessing the risk of developing breast cancer



As part of the U.S. launch of MammoRisk, the French start-up Statlife interviewed Suzette Delalogue, MD, oncologist, and head of the Breast Cancer Department at the Gustave Roussy Institute. She also is president of the French National Breast Cancer Intergroup-Unicancer, and founder of the "One-Stop

Clinic" at the Gustave Roussy Institute for fast breast cancer diagnosis.

### **Can you tell us about your business and your services?**

The breast disease committee at the Gustave Roussy Institute provides a very longitudinal medical care to women patients, from screening to treatment, including prevention and expert advice. We make every effort to adapt our organization to the demands of our patients and healthcare providers with the best possible quality and outcomes, as humanly possible, all at an optimal cost.

I divide my time between my clinical work and my research activities. Since 2000, I have been working on the medical care of women at high risk of breast cancer, identifying and stratifying these risks. I have invested a lot of time and resources in the fight against breast cancer where prevention and early diagnosis are crucial. Organized screening in France is high quality, but women's participation is low (52% for organized screening) with a strong impact of psychological dimension and apprehension on the women's participation rate. Indeed, we observe that women have often a negative emotional response when it comes to prevention. For example, a woman can have an extremely negative reaction to a false-positive diagnosis. It can be a traumatic experience for her that she does not want to live again. This is why I developed the "one-stop clinic" for fast breast cancer diagnosis. This special program, which involves a large multidisciplinary team, makes it possible, in most cases, for a diagnosis, after one

day of exams at Gustave Roussy, after a breast abnormality was detected in primary care.

### **What attracted you to MammoRisk?**

We can only heal what can be predicted and prevented. It is, therefore, essential to offer breast cancer risk assessment to patients to help develop more effective targeted screening programs.

Society is changing rapidly, so are patient attitudes toward healthcare. More and more, the best medicine uses 4P model: Predictive, Preventive, Personalized and Participatory. Today we begin to have the means to assess risk, but we still do not have good, relevant tools to share information and communicate with our patients.

The innovative approach developed by Statlife has used statistics and "data mining"<sup>1</sup> to develop a risk calculation method called the "k Nearest Neighbors (k-NN)." It was this original approach and its strong potential for breast cancer risk assessment that led me to work with Statlife. Their k-NN model, included in MammoRisk, offers proper discrimination and excellent calibration that is effective in clinical practice.

This risk assessment approach has been developed and validated from U.S. cohort data of 1 million American women and 400,000 French women.



We conducted focus groups with women and physicians, and the results confirm that risk information must go through the doctors. Another

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<sup>1</sup>The term "data mining" uses a set of algorithms from various scientific disciplines such as statistics, artificial intelligence and computer science, to construct models from data to finding interesting structures or patterns according to pre-established criteria, and extract maximum knowledge.

study, carried out on 150 women at Gustave Roussy, validated the acceptance by women of the risk calculation process without any negative psychological impact. We will start routine use of MammoRisk in July 2016 at Gustave Roussy.

### What, according to you, are the key clinical benefits of MammoRisk?

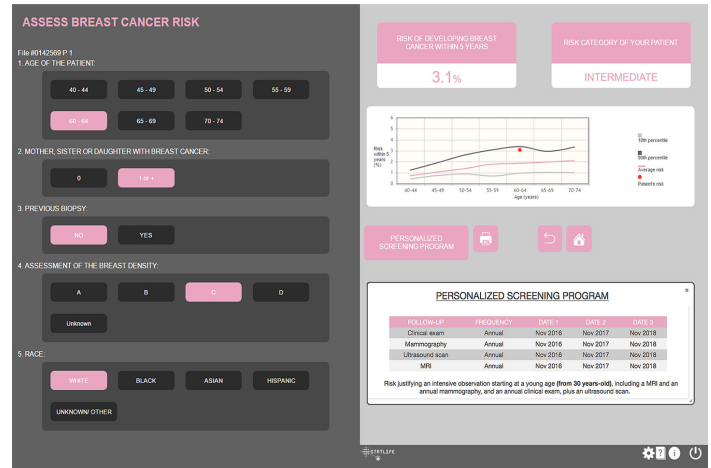
MammoRisk is original, powerful, fast and easy to use. It is dedicated to physicians allowing them to evaluate the risk of breast cancer among their patients from age 40 years old and beyond, where there is a real need. The physician can print out the report and present it to the patient in a detailed and graphical format. The results are clear and allow easy communication. The software automatically proposes a personalized screening program regarding imaging modalities and frequency of the exams, according to official recommendations. The results can be printed and shared with the patient. This is really innovative! There is no equivalent to date on the market.

To assess the risk of breast cancer, the MammoRisk risk score calculation only uses four parameters (five in the U.S., including race):

- The age of the patient
- The number of first degree family members who have had breast cancer (0, 1 or more)
- If the woman has had a breast biopsy (yes or no)
- The assessed Breast Density category

It is important to remember that breast density is the second major risk factor for breast cancer after age, and that MammoRisk software includes a tool which automatically provides its assessment by analyzing mammography images.<sup>2</sup>

MammoRisk is exportable and adaptable from one country to another. It has been shown that it can be used in the U.S. and Europe. The software could be easily updated to integrate new risk factors if identified or to use new cohorts data if available.



### How do you envision the future of breast cancer prevention?

New approaches are now being discovered and developed as circulating tumor DNA detection from blood, or as new imaging markers from different modalities. Screening and early detection is and will remain critical in the fight against breast cancer.

Medicine is becoming increasingly personalized and the notion of risk is critical in order to be able to deliver personalized screening and care, adapted to each one. Therefore MammoRisk represents a step towards the future of medicine.

<sup>2</sup>Breast density is automatically assessed using an algorithm developed by Statlife (DenSeeMammo) that compares mammography images of the patient to reference images whose density had been evaluated by MQSA radiologists. The results are given according to ACR-BIRADS classification, 5th edition.

*Statlife is an emerging business specializing in statistics and data mining applied to predictive and preventive medicine. MammoRisk was developed under a project funded by the ARC Foundation, in collaboration with the Gustave Roussy Institute and is the subject of a patent application for the "k-Nearest Neighbors" methodology for the prediction of disease.*

### Statlife, Math for Medicine

©2016 MammoRisk is a trademark of Statlife. In Europe, this product is a Class I medical device manufactured by Statlife. It is intended to estimate the risk of breast cancer. It produces adjunctive information. It is not an interpretive or diagnostic aid.

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