cSCCscore122017

**Creating the *cSCCscore* Web Site**

**1. User Interface**

* 1. **Input data.**

Please indicate the most appropriate response:

My gender is:

female ☐ male ☐

My current age is:

☐ years

My tendency to sunburn is:

Low ☐ Moderate ☐ High ☐

I have been diagnosed in the past with an actinic keratosis:

true ☐ false ☐

I have been diagnosed in the past with an invasive squamous cell skin cancer:

true ☐ false ☐

***If false***: I have been diagnosed in the past with a non-invasive (also called in-situ) squamous cell skin cancer:

true ☐ false ☐

I have been typed for the 16 genetic variants associated with increased risk of squamous cell skin cancer (*option to see a list of risk alleles for these sixteen variants*):

true ☐ false ☐

***If true***: The number of risk alleles that I carry is:

< 8 ☐ 8 or 9 ☐ 10 or more ☐

***If false***: Based on the squamous cell skin cancer histories of my parents, siblings and children, my genetic risk for this cancer is:

Low ☐ Moderate ☐ High ☐ .

This input is transformed into the eight covariates shown in Table 1.

**2. Using the input data to produce the output.**

The output is the probability P of developing a squamous cell cancer in the next three years. P is given by

 (1)

Equation (1) involves eight covariates *z1,…,z8* whose values are created using the patient’s input, and 11 parameters, whose definitions & sex-specific values are given in Table 2.

**2.1 Using the Input to create the covariates.** Table 1 shows how to create the covariates from the input data.

**Table 1.**

|  |  |
| --- | --- |
| **Symbol** | **Covariate** |
| *z1* | Age (yrs) ÷10 |
| *z2a* | Moderate sun sensitivity |
| z3 *a* | High sun sensitivity |
| z4 *a* | Moderate genetic risk |
| z5 *a* | High genetic risk |
| z6 *a* | Hx of actinic keratosis |
| z7 | Hx of Noninvasive SCSC |
| z8 *a* | Hx of Invasive SCSC |

1. z = 1 if box is checked; z = 0 otherwise
2. SCSC = squamous cell skin cancer

**2.2 Using the covariates to create the assigned probability P of developing a new cancer in the next three years.**

**Table 2. Sex-specific Parameter Values**

|  |  |  |  |
| --- | --- | --- | --- |
| **Description** | **Symbol** | **Value** | |
|  |  | **FEMALES** | **MALES** |
|  | **Covariate Regression Coefficients** | | |
| **Age/10** | **β1** | 0.67 | 0.62 |
| **Mod Sun** | **β2** | 0.08 | 0.09 |
| **High Sun** | **β3** | 0.27 | 0.13 |
| **Mod Risk** | **β4** | 0.16 | 0.30 |
| **High risk** | **β5** | 0.54 | 0.66 |
| **AK hx** | **β6** | 1.74 | 1.80 |
| **Noninvasive hx** | **β7** | 0.98 | 1.02 |
| **Invasive hx** | **β8** | 1.51 | 1.37 |
|  | **Other Parameters** | | |
| **intercept** | **α0** | -10.50 | -9.89 |
| **Time trend** | **α1** | 0.17 | 0.17 |
| **Variance** | **ϕ** | 3.42 | 2.60 |

**2.2 Final Output to user**:

Your probability of developing a new squamous cell skin cancer in the next three years is \_\_\_\_\_ % (INSERT 100xP).