



# Cancer Risk Prediction Models: A Workshop on Development, Evaluation, and Application

**May 20-21, 2004**

*Washington Marriott  
1221 22<sup>nd</sup> Street, NW  
Washington, DC 20037*

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## **Cosponsored by:**

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**Division of Cancer Control and Population Sciences, NCI  
Division of Cancer Epidemiology and Genetics, NCI  
Office of Women's Health, NCI**

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## **Goals and Objectives:**

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- Identify cancer risk prediction model applications and their usefulness in planning intervention trials; estimating the population burden of disease; creating benefit/risk indices and clinical decision making processes; and designing prevention strategies
- Discuss the strengths and limitations of cancer risk prediction models in current use and under development
- Discuss methodological issues relevant to the evaluation, validation, and discrimination of cancer risk prediction models
- Identify ways to improve current and future cancer risk prediction models, incorporating new clinical, environmental, and genetic data
- Identify research needs and population data resources for future cancer risk prediction modeling and validation; disseminate this information to the scientific community

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## Thursday, May 20, 2004

8:00 a.m.      **Registration and Continental Breakfast**

8:30 a.m.      **Introduction and Perspectives: Cancer Control and Population Sciences**  
*Robert Croyle—Director, Division of Cancer Control and Population Sciences, National Cancer Institute*

**Introduction and Perspectives: Cancer Epidemiology and Genetics**  
*Robert Hoover—Director, Epidemiology and Biostatistics Program, Division of Cancer Epidemiology and Genetics, National Cancer Institute*

8:45 a.m.      **Workshop Overview and Objectives**  
*Andrew Freedman*

9:00 a.m.      **Session I: Applications of Cancer Risk Prediction Models**  
*Moderator: Andrew Freedman*

Clinical Use of Risk Prediction Models  
*Speaker: Laura Esserman*

Estimating Population Burden of Disease  
*Speaker: Karen Kuntz*

Application of Cancer Risk Prediction Models: Intervention Trials  
*Speaker: Joe Costantino*

10:00 a.m.      **Session II: Cancer Risk and Susceptibility Gene Prediction Models in Use and Development** (Oral Presentation followed by Poster Session)

A Breast Cancer Prediction Model Incorporating Familial and Personal Risk Factors  
*Speaker: Jack Cuzick*

Poster Session  
*Rooms: Thomas Room and Salon C*

11:00 a.m.      **Session III: Goals and Issues in the Development of Cancer Risk Prediction Models for Various Purposes**

*Moderator: Graham Colditz*  
*Panelists: Mitchell Gail, Bernard Rosner, Beverly Rockhill, Colin Begg*

**Topics to be discussed:**

Developing Risk Models

- to incorporate clinical, epidemiologic, and/or biological/genetic markers (e.g., melanoma vs. Gail Model)
- for rare vs. common cancers (e.g., ovary vs. breast)
- using different design methodologies and data sources (e.g., cohorts vs. case-control vs. expert opinion)
- using specialized vs. generalized populations
- for clinical decision making
- for individual vs. population-wide prevention strategies

12:30 p.m.

**Working Lunch**

Lessons Learned From Cardiovascular Risk Models:  
Experience from the Framingham Study

*Speaker: Lisa Sullivan*

1:15 p.m.

**Session IV: Risk Assessment Models for Predicting Cancer Susceptibility  
Genes and Cancer Risk**

*Moderator: Daniela Seminara*

The BOADICEA model of genetic susceptibility to breast and ovarian cancer: updating, validation and predictions

*Speaker: Antonis Antoniou*

Modifiers of Cancer Risk in BRCA1/2 Mutation Carriers:  
Study Design and Analysis Issues

*Speaker: Tim Rebbeck*

Susceptibility Prediction in Familial Colon Cancer

*Speaker: Giovanni Parmigiani*

Risk Assessment for HNPCC

*Speaker: Chris Amos*

Genetic Susceptibility Risk Models in Clinical Decision Making

*Speaker: Susan Domchek*

3:30 p.m.

**Break**

3:45 p.m.      **Session V: Preliminary Discussion of Key Objectives and Research Gaps**  
(To be finalized on Friday, with report by panel members)  
*Moderator: Patricia Hartge*

Identify research issues, gaps, priorities, and resources needed to advance the field of cancer risk prediction. Make specific recommendations for implementation.

Breakout Discussion Sessions:

- **Session 1: Salons A&B**  
Risk prediction models for clinical decision making, intervention studies, and population-based prevention strategies (focus on breast)  
*Breakout leaders: Joe Costantino, Jack Cuzick, Laura Esserman, and Victor Vogel*
  
- **Session 2: Room 3017**  
Risk prediction models for clinical decision making, intervention studies, and population-based prevention strategies (focus on lung, colorectal, melanoma, and cancers other than breast)  
*Breakout leaders: Peter Bach, Graham Colditz, Ernie Hawk, and Tom Imperiale*
  
- **Session 3: Logan Room**  
Risk prediction models for genetic susceptibility  
*Breakout leaders: David Euhus, Judy Garber, and Tim Rebbeck*
  
- **Session 4: Room 3016**  
Risk prediction model evaluation and validation  
*Breakout leaders: Michael Kattan, Dan McGee, Martin Schumacher, and Ewout Steyerberg*

5:30 p.m.      Poster Session Revisited (*Light Refreshments*)

6:30 p.m.      Dinner on your own at nearby restaurants (*in small groups*)

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## Friday, May 21, 2003

7:30 a.m.      **Continental Breakfast**

8:00 a.m.      **Session VI: Validation and Evaluation Methodology**

*Moderator: Susan Hilsenbeck*

General Talk on Criteria for Model Assessment

*Speaker: Ruth Pfeiffer*

Variability Explained: Calibration, Goodness of Fit, and Unbiased Estimation

*Speaker: Dan McGee*

Comparing the Accuracy of Prediction Models

*Speaker: Michael Kattan*

Assessment of Prediction Error of Risk Prediction Models

*Speaker: Martin Schumacher*

9:30 a.m.      **Break**

9:45 a.m.      Presentation on Current Population Resources for the Development and Validation of Cancer Risk and Susceptibility Prediction Models

*Speaker: Daniela Seminara*

10:00 a.m.      **Session VII: Discussion, Summary and Future Research Directions and Wrap-Up** (This will finalize the discussion on the previous day.)

*Moderator: Rachel Ballard-Barbash*

- **Report from Breakout Session 1:** Risk prediction models for clinical decision making, intervention studies, and population-based prevention strategies (focus on breast)
- **Report from Breakout Session 2:** Risk prediction models for clinical decision making, intervention studies, and population-based prevention strategies (focus on lung, colorectal, melanoma, and cancers other than breast)
- **Report from Breakout Session 3:** Risk prediction models for genetic susceptibility
- **Report from Breakout Session 4:** Risk prediction model evaluation and validation

Noon            **Adjourn**