

# **Second Tumors Working Group**

## **Niagara-on-the-Lake, June 2008**

**Committee Co-Chairs:**

**Joseph Neglia  
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**Pathology Center:**

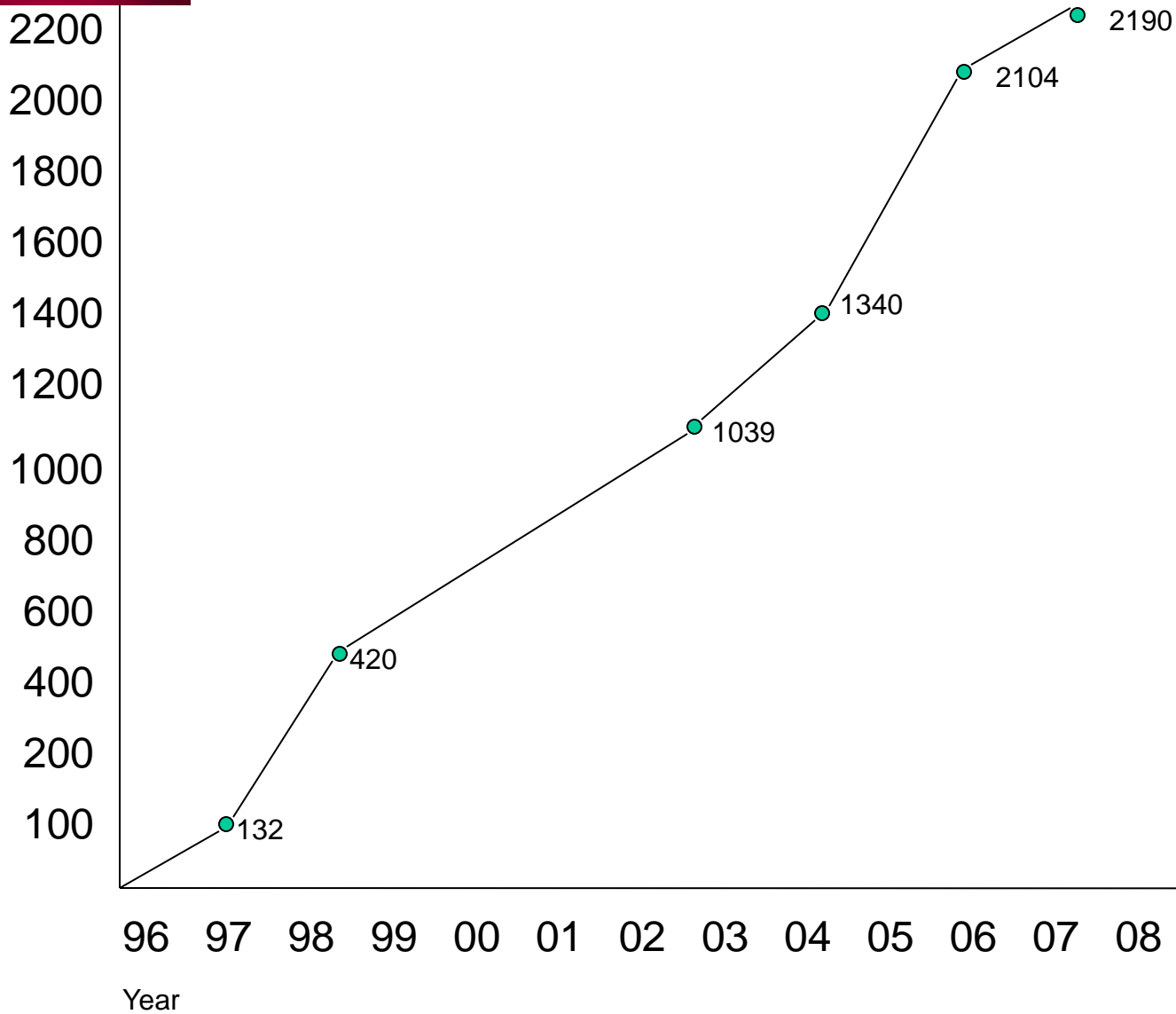
**Sue Hammond**

- **Working Portfolio**
  - Overall reports of second neoplasms
  - Reports of specific second neoplasms
  - Contribution of SNs to overall survivor morbidity and mortality
  - Biology of SNs / risk factors
  - Sample repository

## Second Neoplasms in CCSS

	Leukemia	CNS	Hodgkins	Non-Hodgkins Lymphoma	Kidney	Neuroblastoma	Soft Tissue Sarcoma	Bone	Total
Basal Cell Carcinoma	279	111	436	60	20	8	31	26	971
Bone	6	5	5	4	5	1	13	10	49
Breast - carcinoma	19	5	145	8	8	2	17	36	240
Breast-in situ	0	0	2	0	0	0	0	2	4
CNS - glial	3	2	1	1	0	0	0	1	8
CNS - Meningioma	80	64	1	5	0	0	5	2	157
CNS - PNET	4	1	1	0	1	0	0	0	7
CNS-Other	36	19	10	4	4	6	8	4	91
Leukemia - ALL	1	0	0	0	2	1	0	2	6
Leukemia - AML	1	0	5	0	0	1	0	2	9
Leukemia - other	7	3	11	3	0	3	4	3	34
Lymphoma - Hodgkin	2	1	0	2	0	1	2	0	8
Lymphoma - nonHodgkin	8	2	16	2	0	0	0	1	29
Sarcoma-other	1	1	5	3	3	1	3	1	18
Squamous cell Carcinoma	21	2	27	5	5	2	9	8	79
Thyroid	27	14	49	7	3	8	7	11	126
Other	59	33	80	13	15	15	39	25	279
<b>Total</b>	<b>554</b>	<b>263</b>	<b>794</b>	<b>117</b>	<b>66</b>	<b>49</b>	<b>138</b>	<b>134</b>	<b>2115</b>

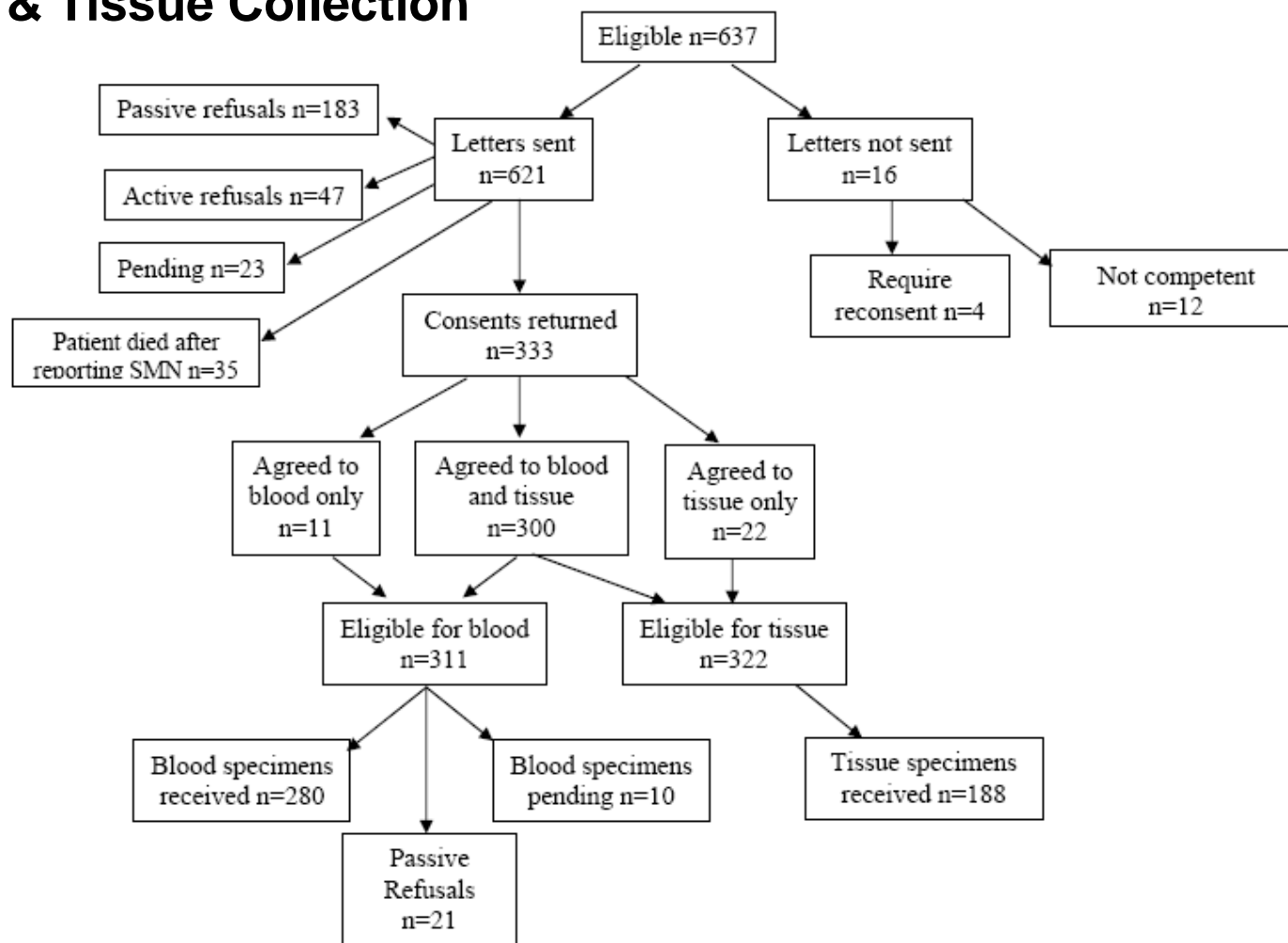
## Second Neoplasms: Accrual of Confirmed Cases



- **Overall Reports of Second Neoplasms**
  - Original report (Neglia 2001)
  - Update report (Friedman 2008)
  - Very late SNs (Friedman 2008)
- **Reports of Specific Second Neoplasms**
  - Breast (Kenney 2004)
  - NMSC (Perkins 2005)
  - Carcinoma (Bassal 2006)
  - Thyroid (Sigurdson 2006)
  - CNS (Neglia 2006)
  - Sarcoma (Henderson 2008)
  - Breast (Inskip 2008)

- **Contribution of SNs to overall survivor morbidity and mortality**
  - AML (Mulrooney 2007)
  - ALL (Mody 2008)
  - NHL (Bluhm 2008)
- **Biology / Specific Risks**
  - XRCC1 & Breast (Mertens 2004)
  - Growth Hormone (Sklar 2002 / Ergun-Longmire 2006)

## Blood & Tissue Collection



## Specimens in Sample Repository

Diagnosis	Blood SMN n = 280	Blood Non-SMN n = 249
Leukemia	62	70
CNS	31	28
Hodgkins	100	45
Non-Hodgkins Lymphoma	13	17
Kidney	10	20
Neuroblastoma	11	12
Soft Tissue Sarcoma	26	22
Bone	27	35
Gender		
Male	86	90
Female	194	159
Race		
White, not hispanic	267	232
Black, not hispanic	2	2
Hispanic	8	8
Asian/Pacific Islander	1	2
Other	2	5

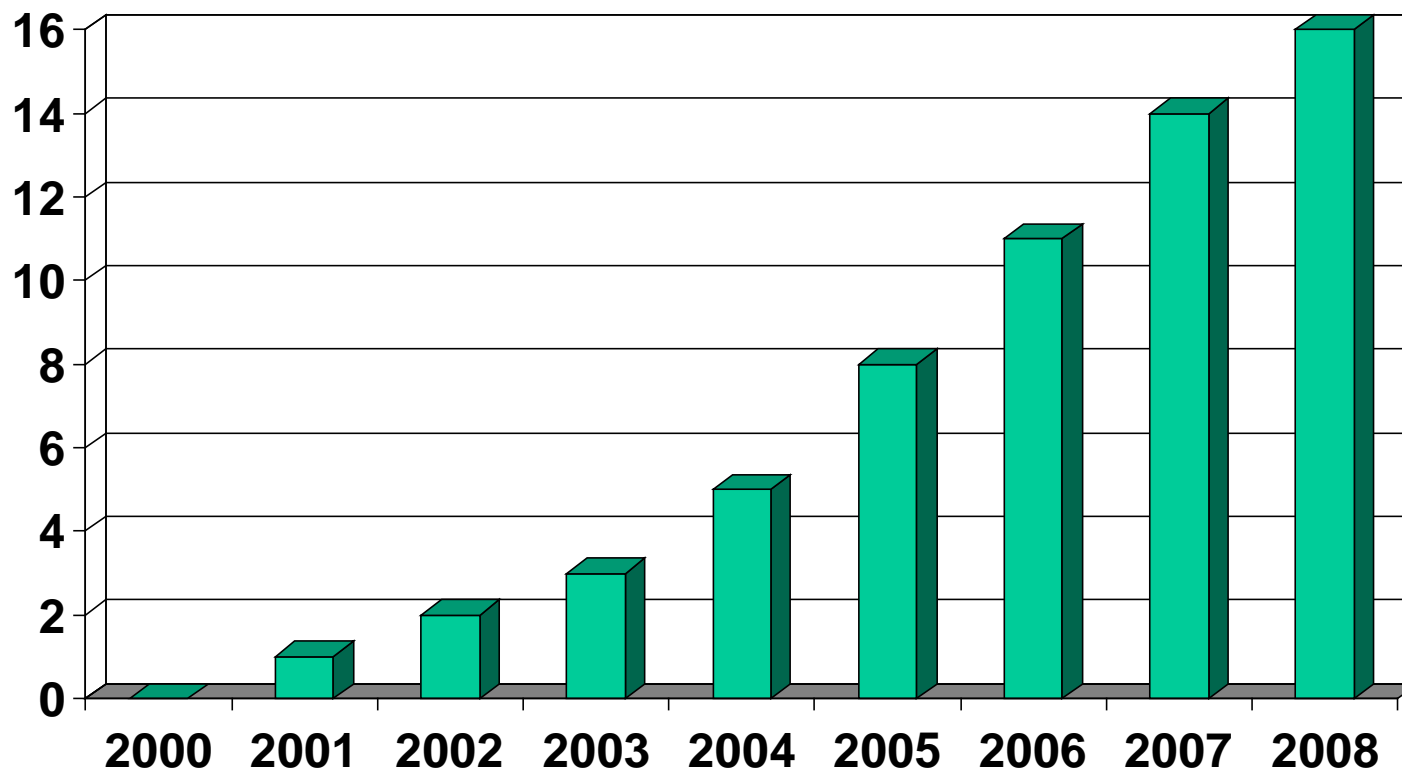


## Second Neoplasm Paraffin Tissue in Repository

### Total of 191 Tumors

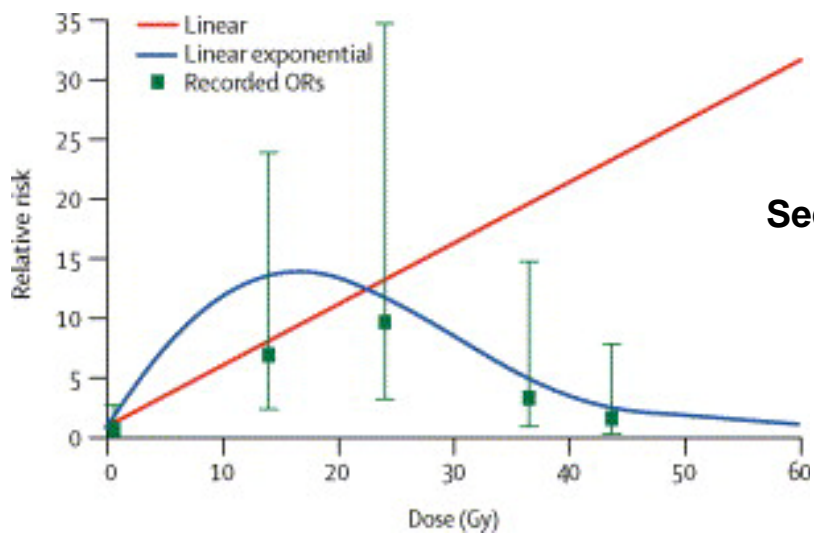
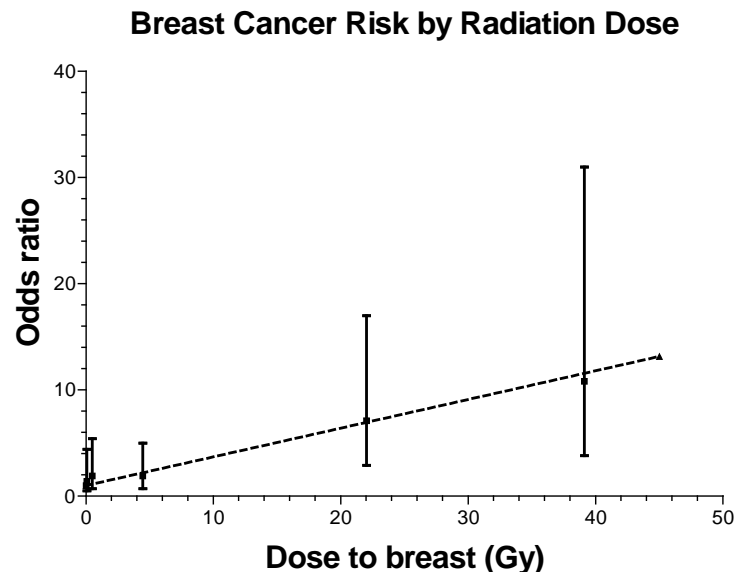
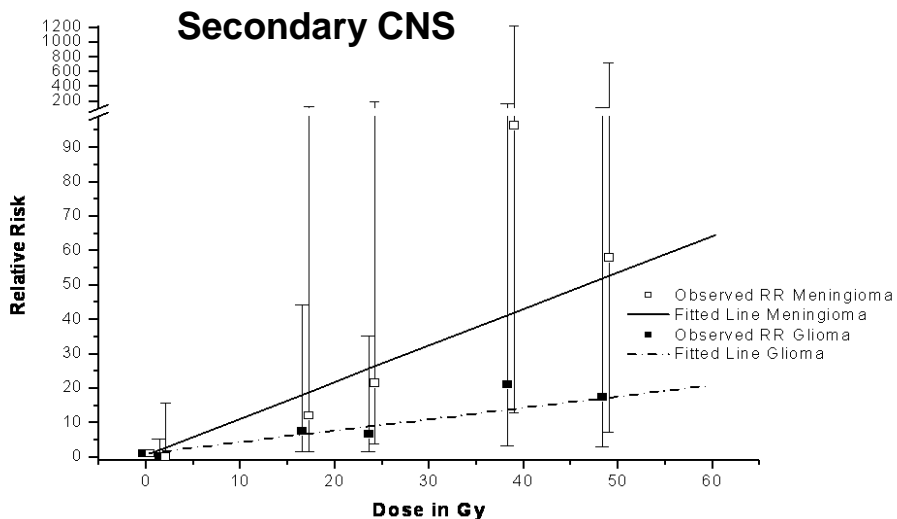
- **47 Breast Cancers (10 in-situ)**
- **27 Thyroid Cancers**
- **18 Meningiomas**
- **17 Malignant Brain Tumors (variety)**
- **31 other Carcinomas (5 or less of any one kind)**
- **22 Sarcomas (3 or less of any one kind)**
- **13 Skin Cancers**
- **11 Leukemias and Lymphomas**
- **2 other malignant**
- **3 other benign**

## Cumulative Publications



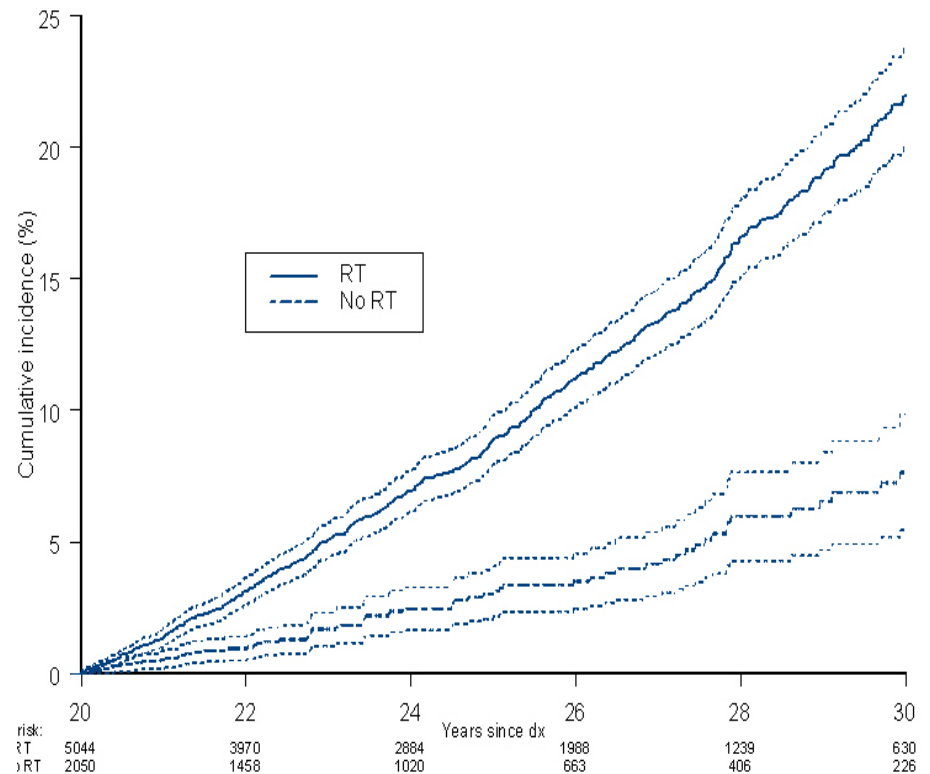
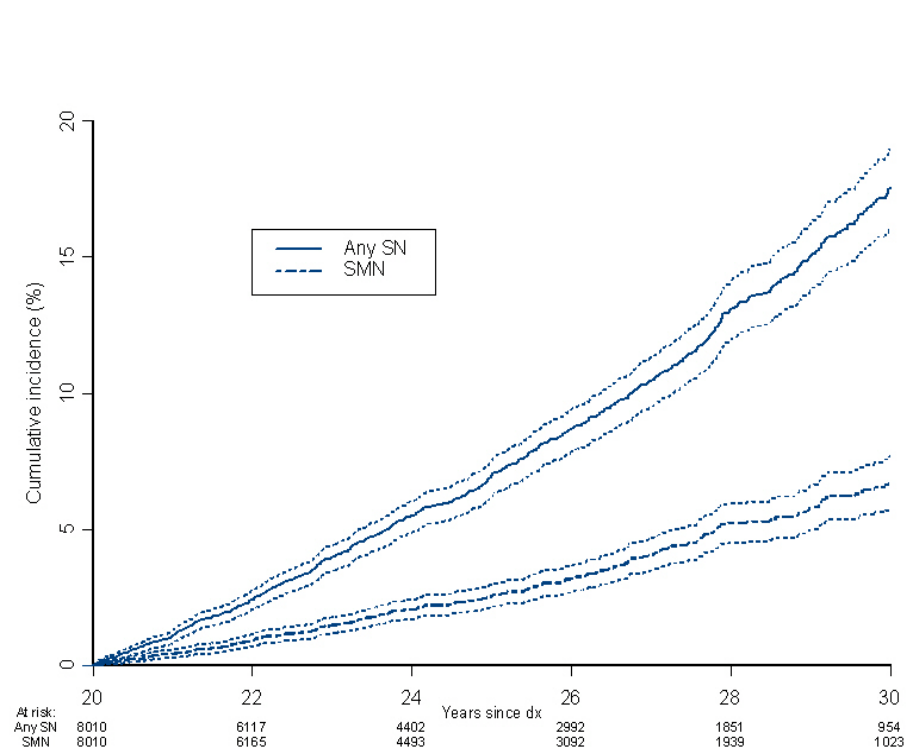
# Second Tumors Working Group

## Highlight 1 – Radiation Dosimetry



# Second Tumors Working Group Highlight 2 – Long Term Risk

## Cumulative incidence of very late second neoplasms: Overall (SN/SMN) & SNs by RT exposure

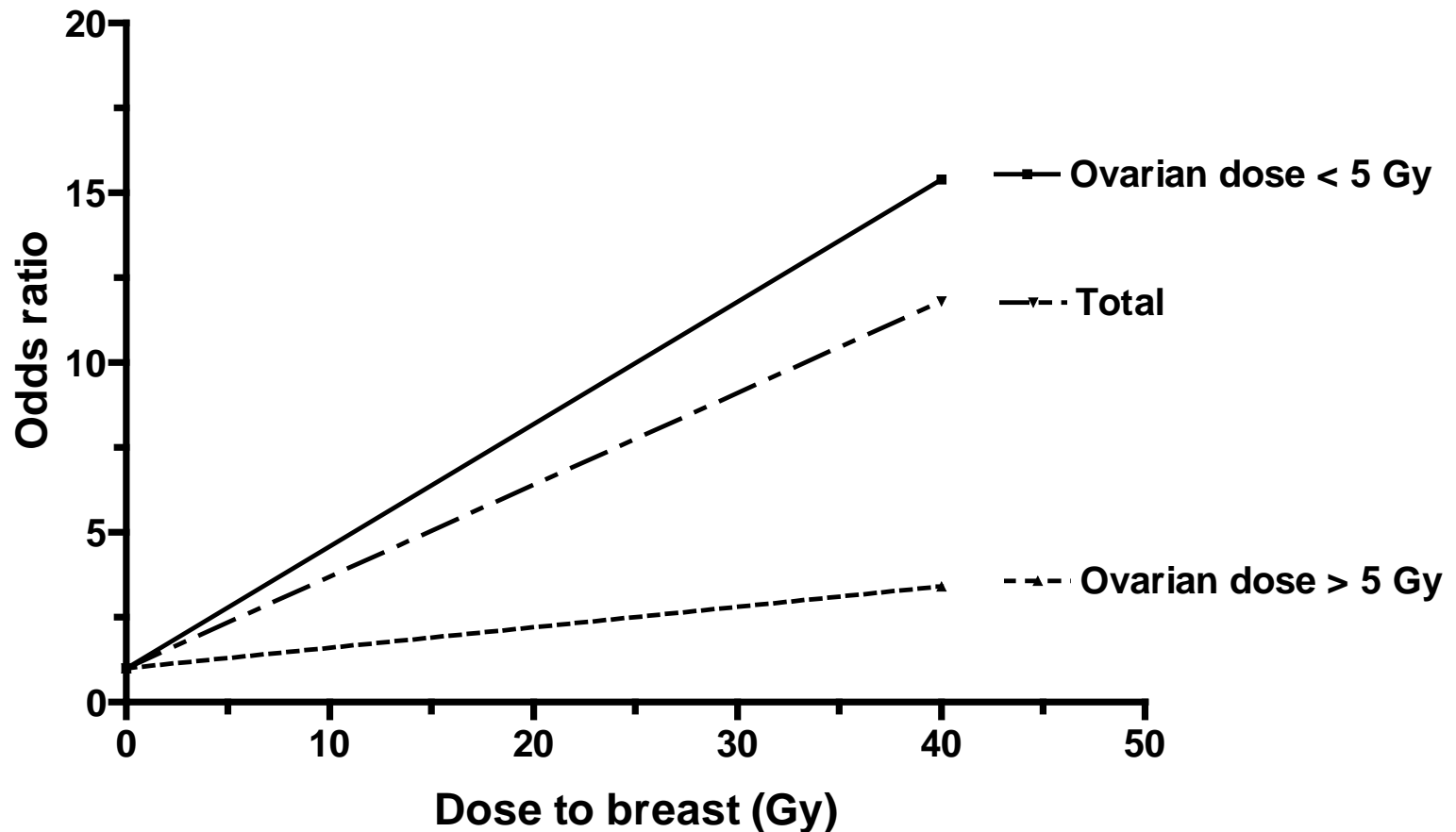


**Curves include NMSC**

# Second Tumors Working Group

## Highlight 3 – Effect Modifiers

### Breast Cancer Risk by Radiation Dose



- **Projects Under Discussion**
  - **Salivary Gland Tumors (international collaboration; Lead: Inskip)**
  - **SNs and Wilms' Tumor (international collaboration; Lead: Breslow)**
  - **Radiation Sensitivity Genes (Lead: Davies / Mertens)**

- **Knowledge Gaps – Why do most patients not get a second neoplasm?**
  - **Host Factors**
    - Behaviors
    - Genetics
  - **Tumor Characteristics**
  - **What we can and cannot modify**
  - **Investigating links between the epidemiology and the underlying biology (i.e. XRT associated SNs)**

## Opportunities

- **Concepts that could be developed**
  - **Secondary breast CA biology**
  - **Other analysis of SNs**
- **Host biology and risk of SNs**
- **Planned comparisons of current and expanded CCSS cohort**



- **Interventional Studies**
  - **Breast**
    - Behavioral
    - Biological
  - **NMSC**
    - Behavioral
    - Biological
  - **Others?**

- **RFA:**
  - **Biologically based**
  - **Specific aims should include**
    - **Genetic predisposition (measure what you think is correct)**
    - **Correlation with therapy received**
  - **End result will increase our understanding of pathobiology of secondary neoplasia**