



# WHI Cancer Survivor Cohort (CSC)

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Funded by the NCI

# Life and Longevity After Cancer (LILAC)

## Specific Activities:

- Obtain information on cancer treatment and outcomes from multiple sources for women with selected cancers
  - Self-report (Baseline and annual questionnaires)
  - Medicare
  - Medical record review
- Collect tumor tissue (FFPE blocks/slides)
- Conduct survivorship research among women who complete baseline and annual surveys



# Potential Cancers Under Study

Cancer Site	Projected Incident Cases (2010-2015)	Prevalent Cases (2010)	Total Projected Cases (2015)
Breast	1873	7787	9660
Colorectal	1005	2211	3216
Endometrial	117	1321	1438
Ovarian	209	685	894
Lung	1131	769	3377
Melanoma	293	2246	1062
Lymphoma	377	1133	1510
Leukemia	209	575	784
<b>Total</b>	<b>16,727</b>	<b>16,727</b>	<b>21,943</b>



# LILAC Survey Response



## *Baseline (Form 340)*

Cancer Site	Mailed	Completed	%
Breast	4975	4013	80.7
Colorectal	987	749	75.9
Endometrial	802	627	78.2
Fallopian	25	21	84.0
Leukemia	229	166	72.5
Lung	493	368	74.6
Lymphoma	548	424	77.4
Melanoma	577	456	79.0
Ovarian	181	152	84.0
Peritoneum	24	19	79.2
<b>Total</b>	<b>8841</b>	<b>6995</b>	<b>79.1</b>

## *Annual (Form 370)*

Cancer Site	Mailed	Completed	%
Breast	3626	3357	92.6
Colorectal	655	585	89.3
Mlt Primary	10	9	90.0
Endometrial	565	506	89.6
Fallopian	4	4	100
Leukemia	136	113	83.1
Lung	288	246	85.4
Lymphoma	366	323	88.3
Melanoma	400	358	89.5
Ovarian	125	112	89.6
<b>Total</b>	<b>6175</b>	<b>5613</b>	<b>90.9</b>

# LILAC Tissue Collection

Cancer Site	Tissue Eligible <sup>1</sup>	Requested	Received	Destroyed	Slides Only <sup>2</sup>
<b>Breast</b>	3435	2076	1070	235	1031
<b>Colorectal</b>	941	681	410	62	282
<b>Endometrial</b>	615	298	151	44	185
<b>Lung</b>	828	130	68	20	248
<b>Melanoma (in situ)</b>	278	0	0	0	83
<b>Melanoma (invasive)</b>	443	78	40	14	133
<b>Ovarian</b>	405	138	58	21	122
<b>Total</b>	6945	3401	1797	396	2084

1. Cases for pts living and consented or deceased. Diagnosed 2002 or later, tumor size > 3 mm, excluding sarcomas. New cases to be enrolled Jan. 2016.

2. Estimated. Requests starting in Dec. 2015, beginning with colorectal cases.



# Update on Treatment Information

Cancer Site	Treatment Data Eligible*	Tx Data Now Available	Source: Medical records	Source: Medicare
Breast	5916	4814	1528	3286
Colorectal	1738	1487	521	966
Endometrial	1015	556	0	556
Ovarian	780	1098	46	1098
Lung	2267	380	0	334
Melanoma	693	312	3	312
Lymphoma	968	366	0	363
Leukemia	556	530	0	530
<b>Total</b>	<b>14166</b>	<b>9543</b>	<b>2098</b>	<b>7445</b>

\* Cases consented to LILAC or deceased, who were diagnosed  $\geq 2000$  or in CMS FFS



# Selected Characteristics of Survivorship Cohort

Variable*	Breast (n=3349)	Ovary (n=120)	Endomet (n=502)	Colon (n=580)	Lung (n=245)	Melano (n=352)	NHL (n=321)	Leukemia (n=114)
Yrs from Dx (mean)	8.3	6.8	8.2	7.9	5.6	7.7	6.8	6.6
Chemo**	30%	91%	10%	34%	23%	3%	70%	40%
Recurrence**	9%	31%	5%	8%	20%	17%	18%	6%

\*Women who completed both F340 and F370

\*\*Self-reported data



# LILAC Productivity



- Several supplements have been awarded:
  - Disparities and obesity in breast cancer (*Barrington/Anderson*)
  - Melanoma (*Nghiem/Elmore/Anderson*)
  - Survey of Behavioral and Psychosocial Variables in Survivor Cohorts (*Paskett*)
  - Oncotype DX usage (*Ramsey/Anderson*)
- Pilot study to establish feasibility of collecting colon cancer metastatic tissue (*Peters/Anderson*)
- Tissue for AS 515: Molecular pathological epidemiology of colorectal cancer (*Peters/Anderson*)
- RO1 for studies of methylation to discover ovarian cancer early detection markers (*Genkinger/Anderson*)
- Paper/Breast Cancer Algorithms (JNCI 2015 Nov18;108(3) *Kroenke/Caan*)



# Priority Papers

- Primary:
  - LILAC Baseline Paper (*Paskett, lead*)
  - Co-Morbidities (*Caan, lead*)
  - History of CVD and Cancer Outcomes (*Anderson, lead*)
  - How treatment data impacts outcomes (*Cespedes, lead*)
- Secondary:
  - Recurrence algorithm (*LILAC Group*)
  - Symptoms and treatment-related toxicities (*Paskett, lead*)
  - Validation of self-report of treatment (*LILAC Group*)
- Paper Groupings:
  - CVD after Cancer - 3 papers to date: *Paskett to oversee*
  - BMI/Obesity: *Caan to oversee*



# Other Papers (To Date)

- Financial Burden - *T. Haslet*
- Sleep - *M. Naughton*
- Fear of Recurrence - *J. Krok*
- Self-rated health - *R. Foraker*
- BMI and disparities - *W. Barrington*
- Guideline treatment - *E. Paskett to oversee*
- Social Networks - *C. Kroenke*
- Medications - *T. Brasky*
- Allostatic Load - *A. Llanos*



# Potential of LILAC Resource: Example

- Breast Cancer Survivors:
  - Main Symptoms:
    - Lymphedema - 19%
    - Aching Joints - 21%
    - Hot Flashes - 22%
    - Sleep Problems - 16%
    - Weight Change within 3 years of diagnosis:
      - Weight Gain (> 5%) - 5%
      - Weight Loss (> 5%) - 23%
- Intentionality of **Weight Loss** ?



# Weight Loss by Cancer Site

Cancer Site	Not intentional (n=86)	Intentional (n=60)
Breast	32 (41.6%)	45 (58.4%)
Ovary	4 (80.0%)	1 (20.0%)
Endometrial	6 (66.7%)	3 (33.3%)
Colorectal	15 (88.2%)	2 (11.8%)
Lung	11 (84.6%)	2 (15.4%)
Melanoma	5 (83.3%)	1 (16.7%)
Non-Hodgkin lymphoma	11 (73.3%)	4 (26.7%)
Leukemia	2 (50.0%)	2 (50.0%)



# Body Mass Index and Weight Change

Variable	Not Intentional (n=86) M (sd)	Intentional (n=60) M (sd)	<i>P-value</i>
<b>BMI at diagnosis</b>	25.7 (5.4)	29.8 (5.8)	<i>&lt;0.001</i>
<b>Percent change in weight from diagnosis to two years after diagnosis</b>	-4.3 (5.2)	-5.8 (6.1)	<i>0.115</i>



# Exercise by Intentionality

Variable	Not Intentional (n=86) M (sd)	Intentional (n=60) M (sd)	<i>P-value</i> <i>Wilcoxon Rank Sum</i>
Minutes walked per week	70.9 (103.4)	85.8 (115.2)	0.31
Minutes of moderate or strenuous exercise per week	51.8 (82.5)	65.6 (76.9)	0.12
Minutes of mild exercise per week	28.3 (70.2)	34.7 (51.6)	0.04



# Differences in Food Patterns by Intentionality

Variable	Not Intentional	Intentional	<i>P-value Fisher's Exact</i>
<b>Cups fruits and vegetables: 4 1/2 cups or more</b>	20 (26.3%)	23 (46.0%)	0.03
<b>Less than 36 oz sweetened beverages &lt;= 1500 mg sodium daily</b>	54 (70.1%)	42 (71.2%)	1.00
<b>2+ servings fish weekly</b>	46 (71.9%)	44 (86.3%)	0.07
<b>3+ servings whole grain daily</b>	26 (32.1%)	26 (44.1%)	0.16
	52 (66.7%)	37 (64.9%)	0.86



# Weight Loss in Cancer Survivors

- Can't make the assumption that all weight loss is non intentional or BAD
  - Weight loss is intentional for some cancer survivors, especially breast vs other cancers
- Self-reported weight loss looks real
  - Behaviors, diet and exercise patterns, validate intentionality
- More work will be done
  - Eg: outcomes



# Conclusions

- LILAC is a valuable resource for WHI and other investigators
- WHI participants are engaged
- Resource is almost ready for widespread use
- Paper groups are being formed
- Ancillary studies are being funded
- Data may help address many issues related to survival and survivorship



# Thank you!

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