

National Cancer Institute

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Transdisciplinary Research on Energetics and Cancer

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U.S. DEPARTMENT
OF HEALTH AND
HUMAN SERVICES

National Institutes
of Health



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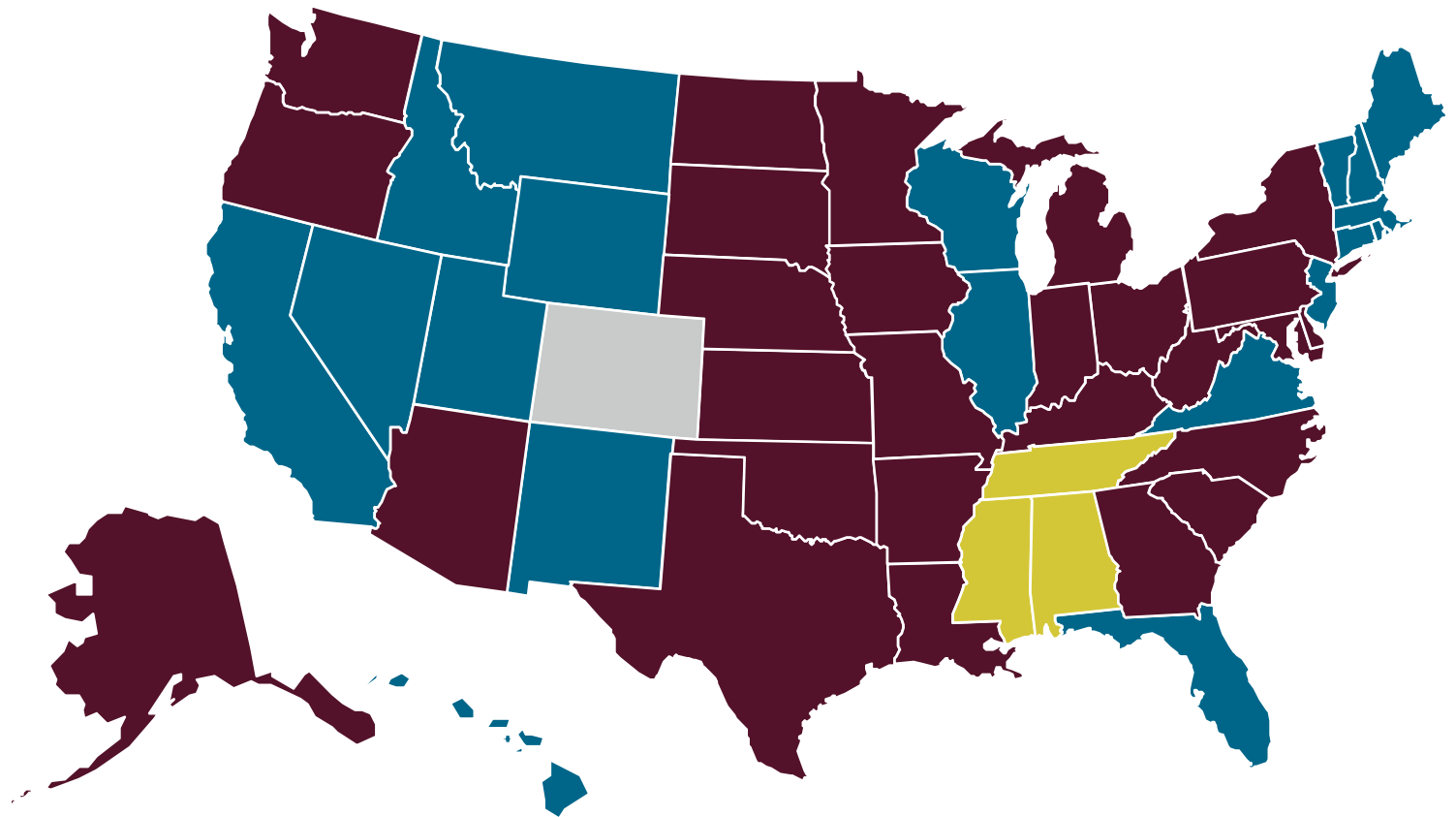
Outline

- Overweight, Obesity and Cancer
- Introduction to Transdisciplinary Research on Energetics and Cancer (TREC)
- Mid-course Accomplishments
- Select Research Highlights
 - Dr. Joseph Nadeau, “Diet, metabolism and cancers in mouse models”
 - Dr. Anne McTiernan, “Energy Balance and Cancer: Carcinogenesis and Cancer Survival”



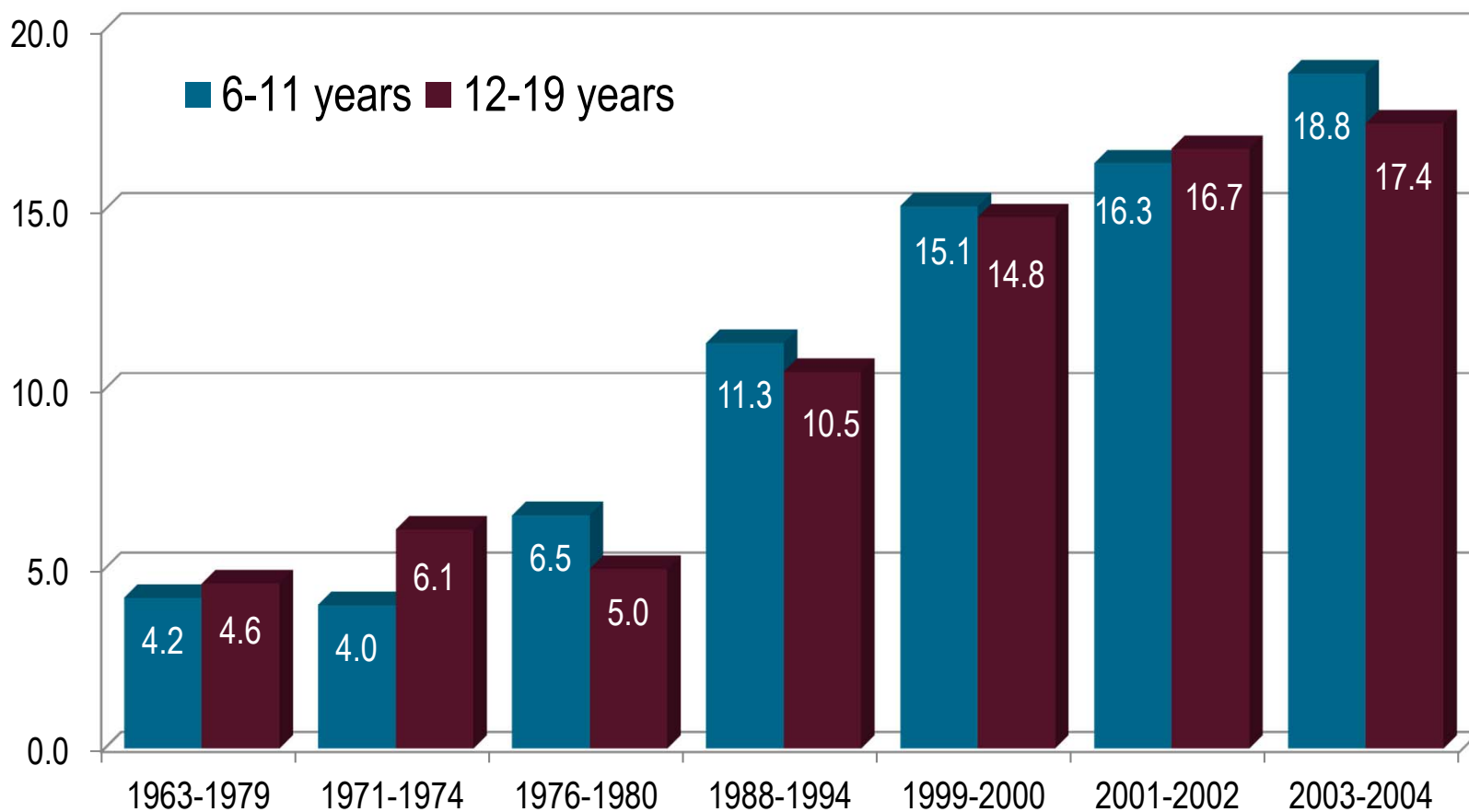
Obesity Trends Among U.S. Adults, BRFSS 2007

(BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4" person)



15%-19% 20%-24% 25%-29% $\geq 30\%$

Percentage of U.S. Children and Adolescents Who Were Overweight, NCHS 1963-2004*



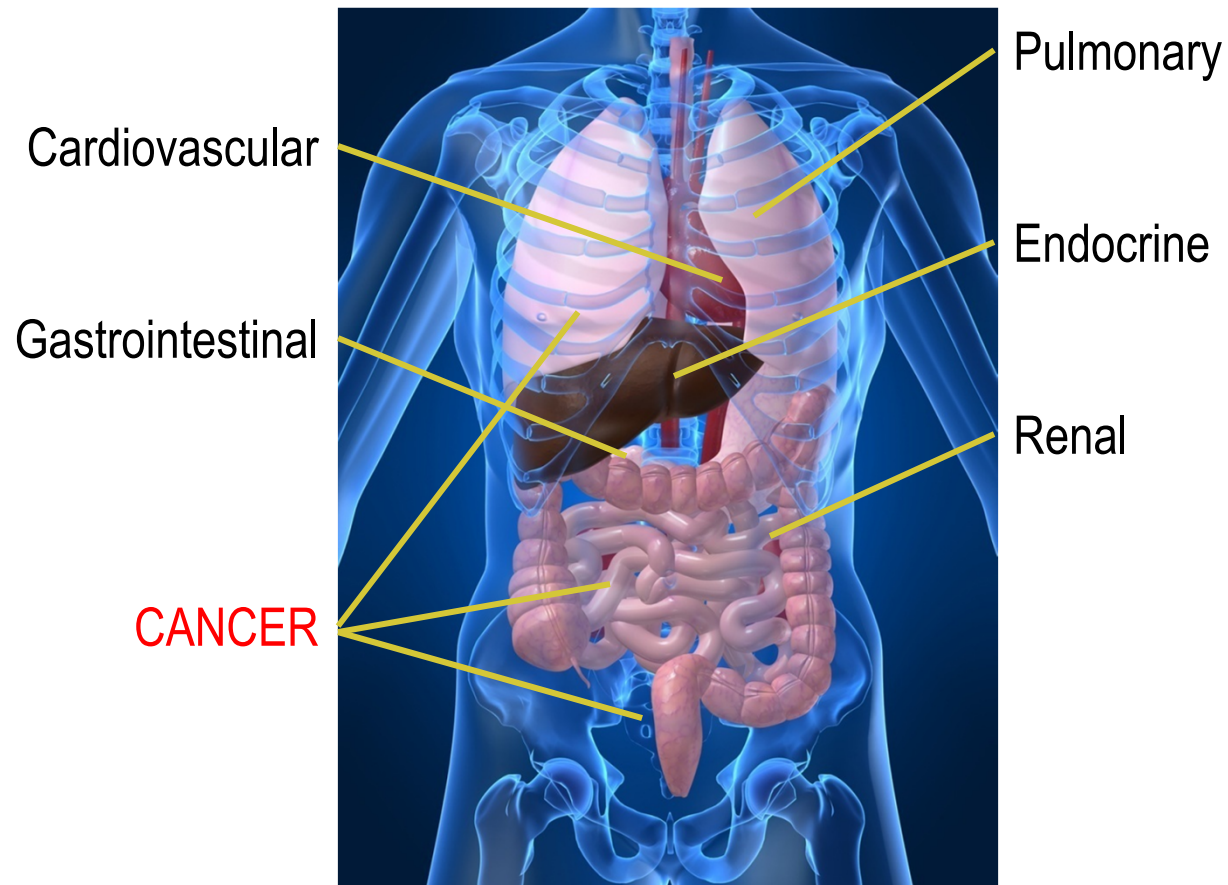
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*Data for 63-70 are from 63-65 only for ages 6-11 and from 66-70 only for 12-17

Overweight and Obesity Causes Many Health Problems



Overweight and Obesity Causes Many Health Problems

- Postmenopausal obese women have 1.5 times the risk of Breast Cancer than women of a healthy weight
- Studies have consistently found a link between Renal Cell Carcinoma and obesity in women
- Obese women have two to four times greater risk of Endometrial Cancer than healthy weight women



- Overweight and obese individuals are two times more likely than healthy weight people to develop Esophageal Adenocarcinoma; a smaller increase in risk has been found for Gastric Cardia Cancer
- An increased risk of Colon Cancer has been consistently reported for men with high BMIs
- An increased risk of Gallbladder Cancer is associated with obesity



Mortality from Select Cancer Sites According to BMI & Gender, Cancer Prevention Study II, 1982–1998

Women	Relative Risk	Men	Relative Risk
Uterus (≥ 40)	6.25	Liver (≥ 35)	4.52
Kidney (≥ 40)	4.75	Pancreas (≥ 35)	2.61*
Cervical (≥ 35)	3.20	Stomach (≥ 35)	1.94
Pancreas (≥ 40)	2.76	Esophagus (≥ 30)	1.91*
Esophagus (≥ 30)	2.64*	Colon & Rectum (≥ 35)	1.84
Breast (≥ 40) (postmenopausal)	2.12	Gall Bladder	1.76
All Cancers (≥ 40)	1.88	All Cancers (≥ 40)	1.52

*Never Smokers

Goals of TREC

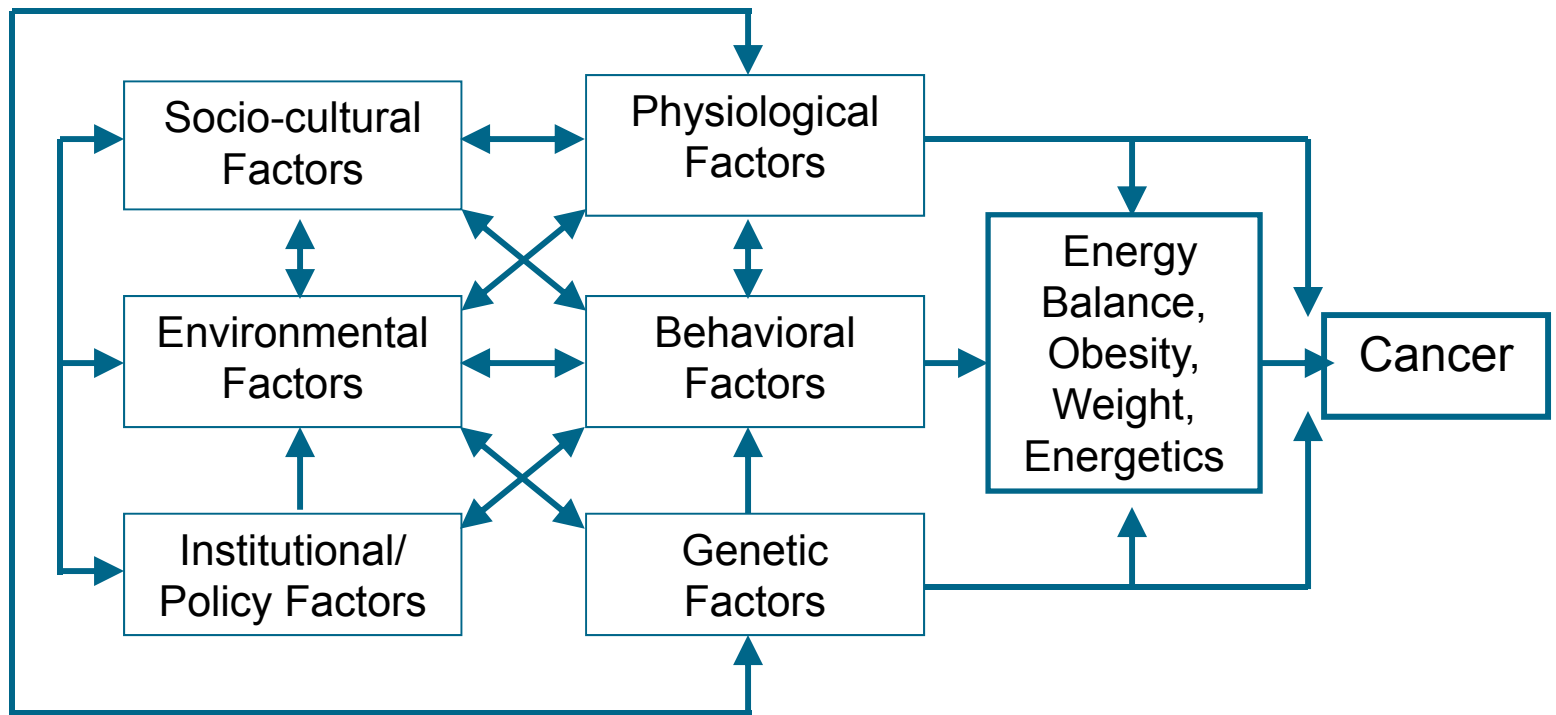
- Enhance understanding of the mechanisms underlying the association between energy balance and carcinogenesis across the life cycle
- Develop effective approaches with broad population impact at the social-environmental and policy level for the prevention and control of obesity
- Bring together diverse disciplines by facilitating new collaborative research endeavors
- Create new opportunities for transdisciplinary training



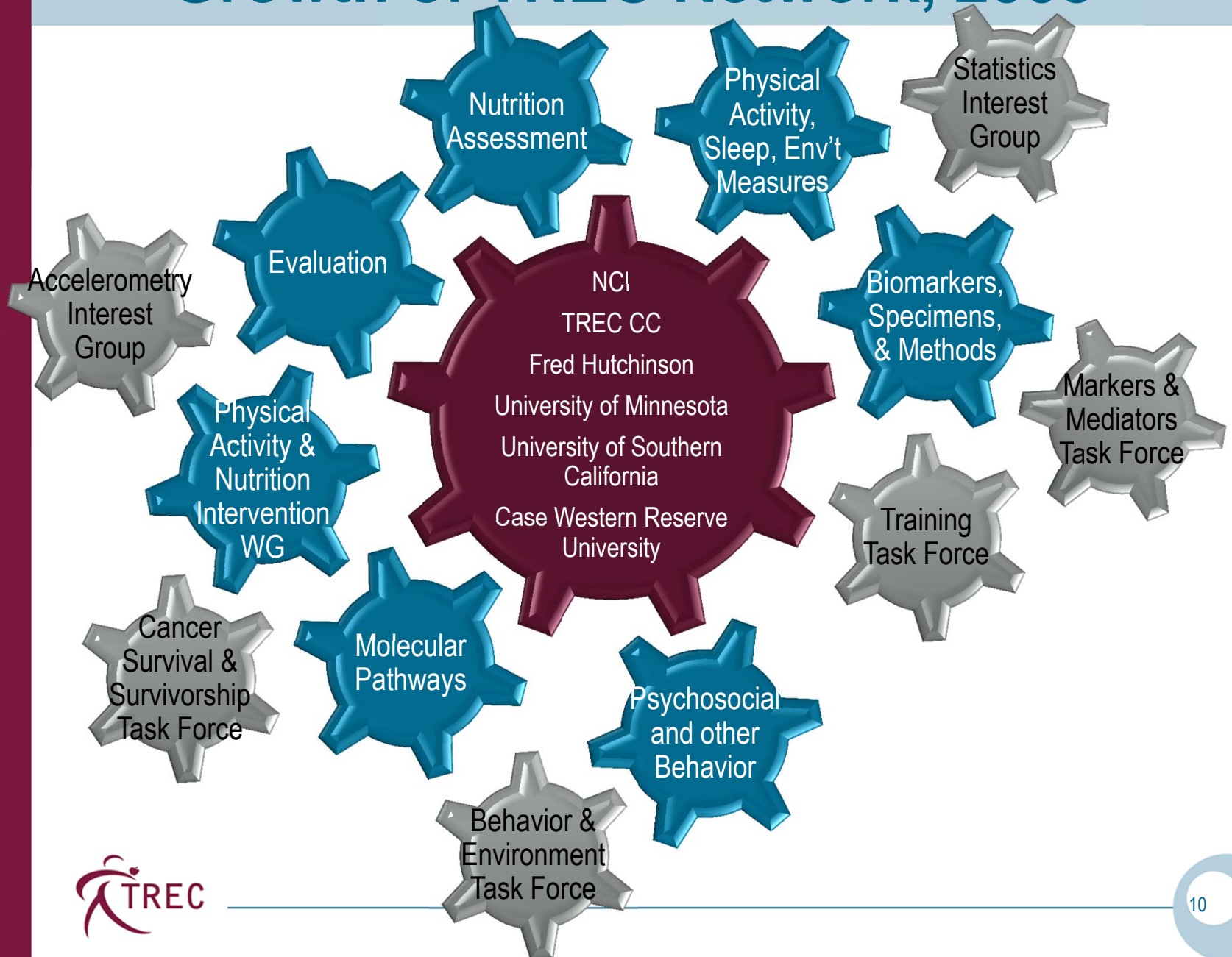
TREC Conceptual Model

**Macro-Level Factors
(Contextual)**

**Micro-Level Factors
(Individual)**



Growth of TREC Network, 2008



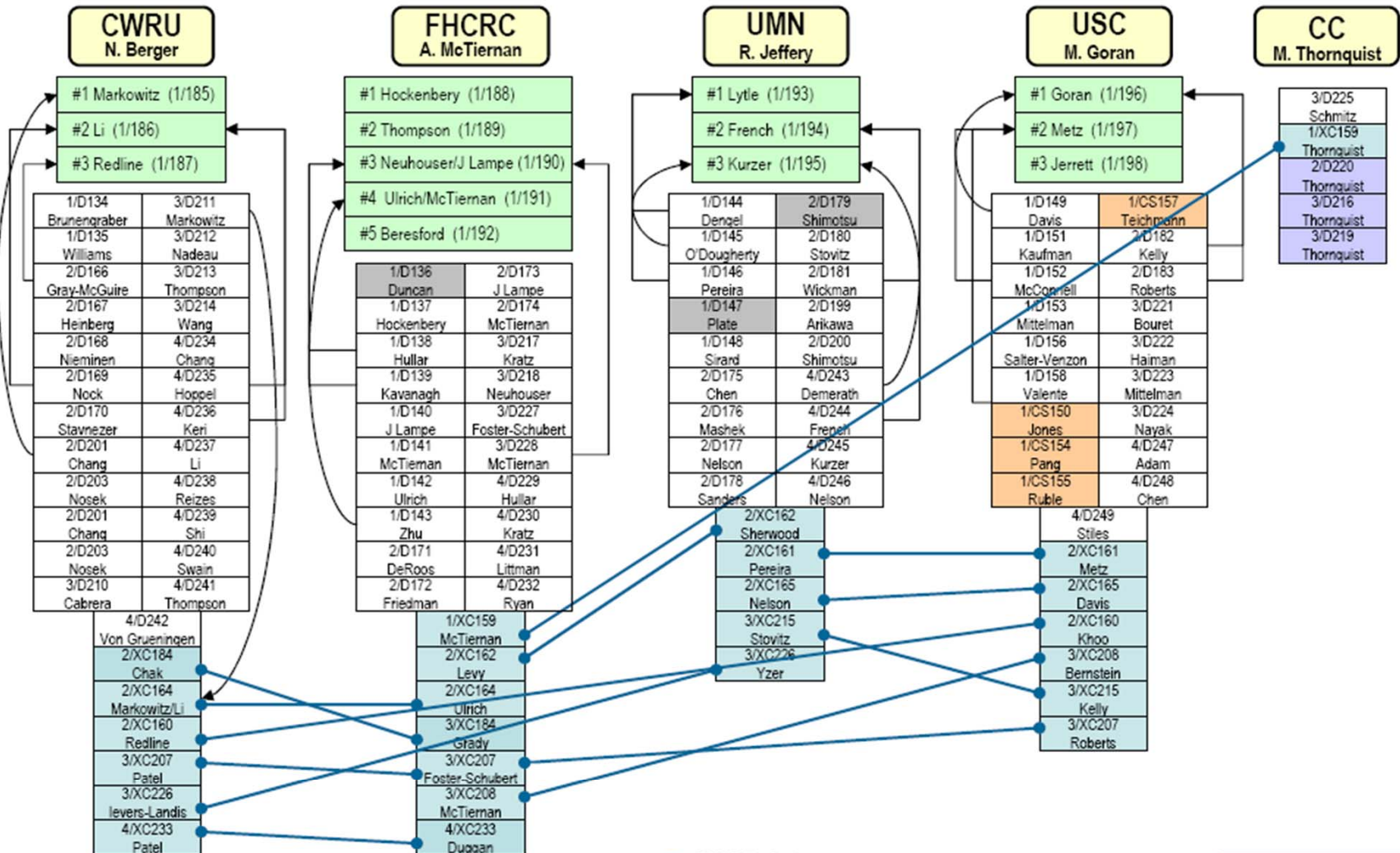
Mid Course Accomplishments

- Career Development (73 New Investigators)
- Developmental Projects (n=96)
- New NIH Grants (n=11)
- Publications & Presentations
- Special Workshops & Symposia
- Evaluation

Acknowledgements

TREC Investigators & Collaborators
NCI Evaluation of Large Initiatives Team
NCI Energy Balance Work Group
Dr. Bob Croyle
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Dr. Frank Perna
Dr. April Oh
Dr. Audie Atienza
Dr. Sharon Ross
Dr. John Milner
Yvonne Grant
Carolyn Ehret





●—●	Connects Cross-Ctr Dev Proj
←	Dev Proj relates to Center Proj
Numbers – Year/ Database #	
	Center Projects
	Within-Center Dev Proj (D)
	Small Community Dev Proj (CS)
	Cross-Center Dev Proj (XC)
	Scientific Support
	Closed - Not Feasible

TREC Projects