Meeting the Needs of Rural Populations and Geographic Access to Care Issues

Christie Befort, PhD
University of Kansas Medical Center
NCPF Workshop Feb. 13th 2017

Rural population estimates

- ~20% of U.S. population and 21% of cancer survivors
  - 2.8 million survivors

TABLE 1. Distribution of Cancer Survivors by Category of County Rural-Urban Designation: National Health Interview Survey, 2006-2010

RUCA Codes and Description[a]	Weighted Percentage of Survivor Sample	Population Estimate	SD
1. Metro areas of ≥1 million	45.1	6,024,000	167,000
2. Metro areas of 250,000-1,000,000	22.4	2,984,000	189,000
3. Metro areas of 50,000-250,000	11.7	1,562,000	156,000
Total urban (1-3)	**79.2**	**10,570,000**	**256,000**
4. Urban population of 20,000-49,999, adjacent to a metro area	7.1	951,000	124,000
5. Urban population of 20,000-49,999, not adjacent to a metro area	1.6	208,000	65,000
6. Urban population of 2500-19,999, adjacent to a metro area	5.8	769,000	126,000
7. Urban population of 2500-19,999, not adjacent to a metro area	4.1	548,000	101,000
8. Completely rural or <2500 urban population, adjacent to a metro area	1.1	153,000	42,000
9. Completely rural or <2500 urban population, not adjacent to a metro area	1.1	151,000	47,000
Total rural (4-9)	**20.8**	**2,779,000**	**161,000**

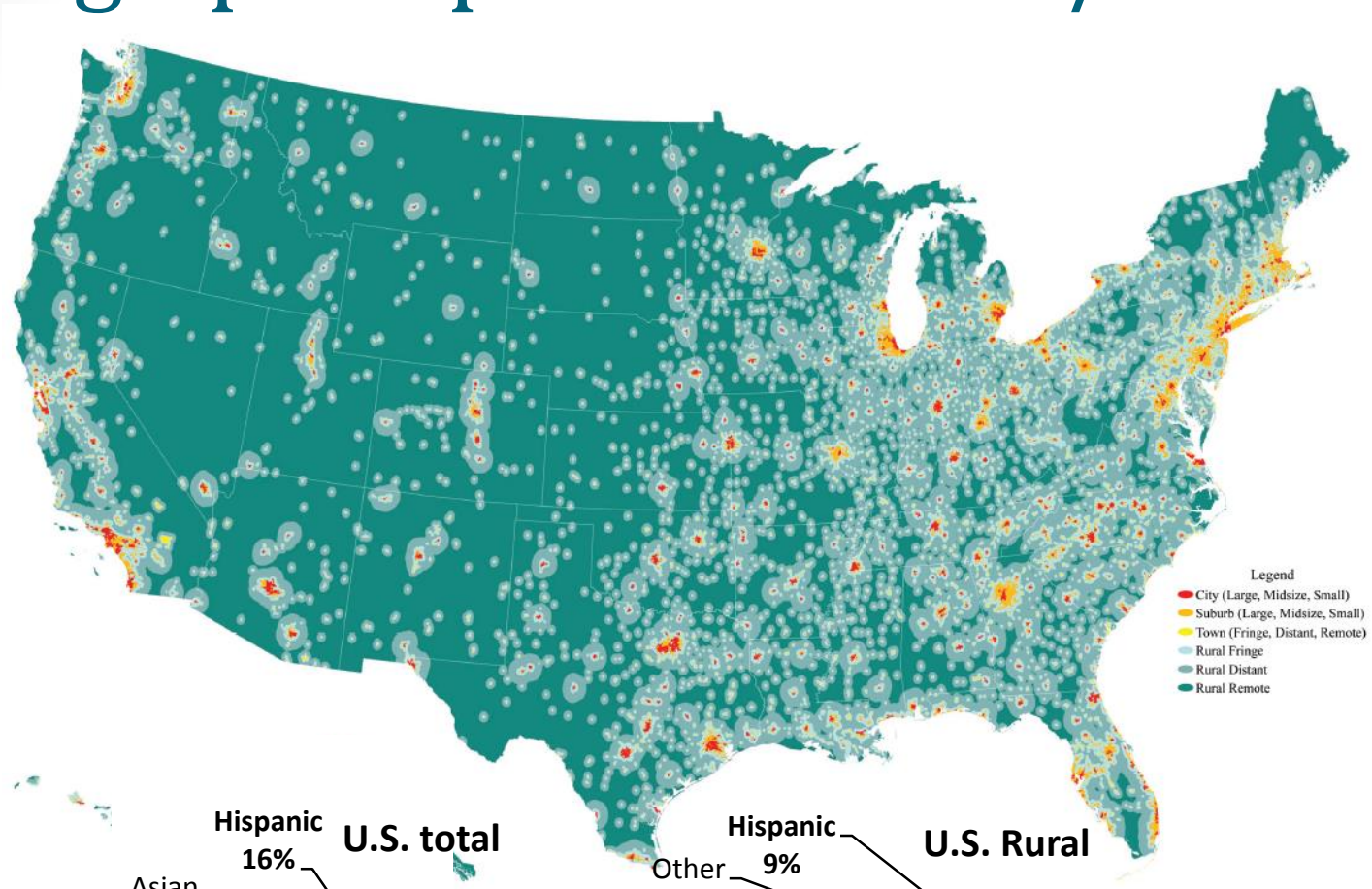
Abbreviations: Metro, metropolitan; RUCA, Rural/Urban Commuting Area; SD, standard deviation.

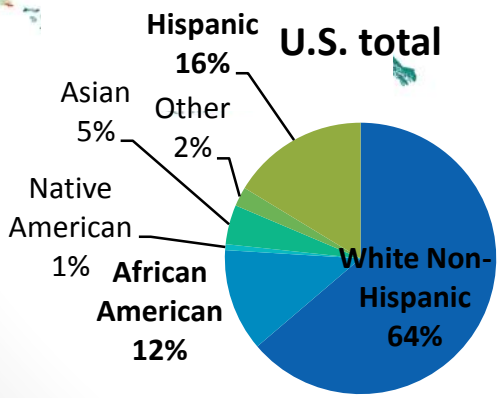
[a] County codes are based 2003 RUCA codes from the Economic Research Service, Department of Agriculture. Metro counties are defined by the population size of their Metropolitan Statistical Area, and nonmetro counties are defined according to the size of their urban population.

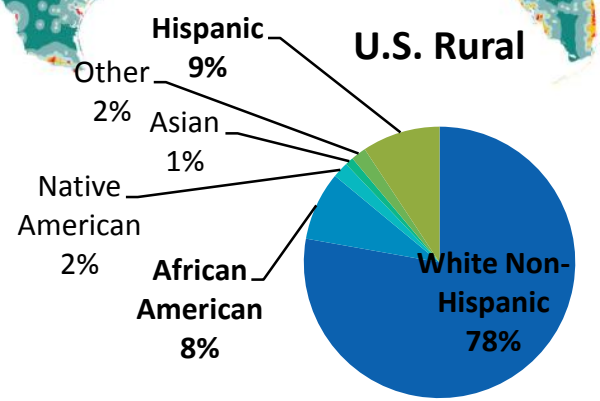
U.S Census Bureau. 2010 Census Urban and Rural Classification and Urban Area Criteria. 2013

Weaver, K. E., et al. (2013). *Cancer* 119(5): 1050-1057.

Geographic spread and race/ethnicity

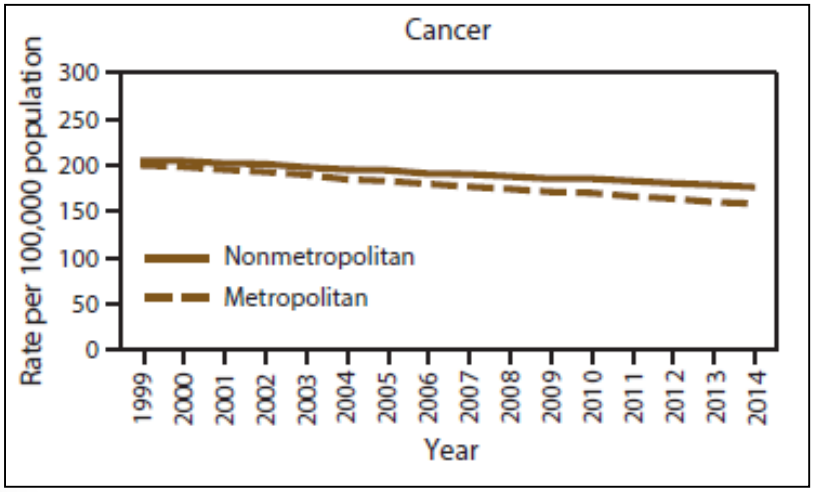




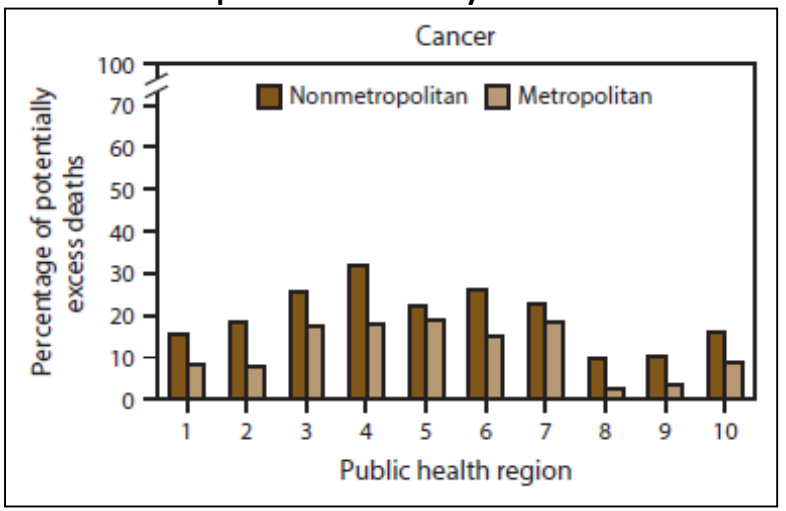


Deaths from cancer across rural and urban counties, National Vital Statistics

Age-adjusted death rates among all ages by year



Percentage of excess deaths among persons <80 years



Garcia, MC, et al. (2017). *MMWR* 119(5): 1050-1057.

Access challenges in rural cancer care

- Service supply
  - 3% of medical oncologists
  - 16% of radiation oncologists
  - 2% of social workers
- Financial access
  - Lower income
  - Increasing rates of self-employment
  - Higher rates of uninsured
- Travel time

Kirkwood, MK et al. (2014). *J Oncol Pract 10:* 32-38
Lewis, RS (2007). *Int J Radiat Oncol Biol Phys* 69:518-27
Whitaker, T et al. (2006). National Assoc of Social Workers
Charlton, M et al. (2015). *Oncology 29:* 633-640
Goetz, SJ (2008). *Rural Realities 2:* 1-13
Graves, JA et al. (2016). *Med Care 54*: 81-9.

Travel time

Median travel min to academic medical center	
Small town/isolated rural	105 (76-153)
Large rural	97 (69-139)
Suburban	83 (56-125)
Urban	22 (11-46)

Median travel min to any specialized care	
Small town/isolated rural	59 (43-80)
Large rural	51 (38-70)
Suburban	41 (25-59)
Urban	11 (6-18)

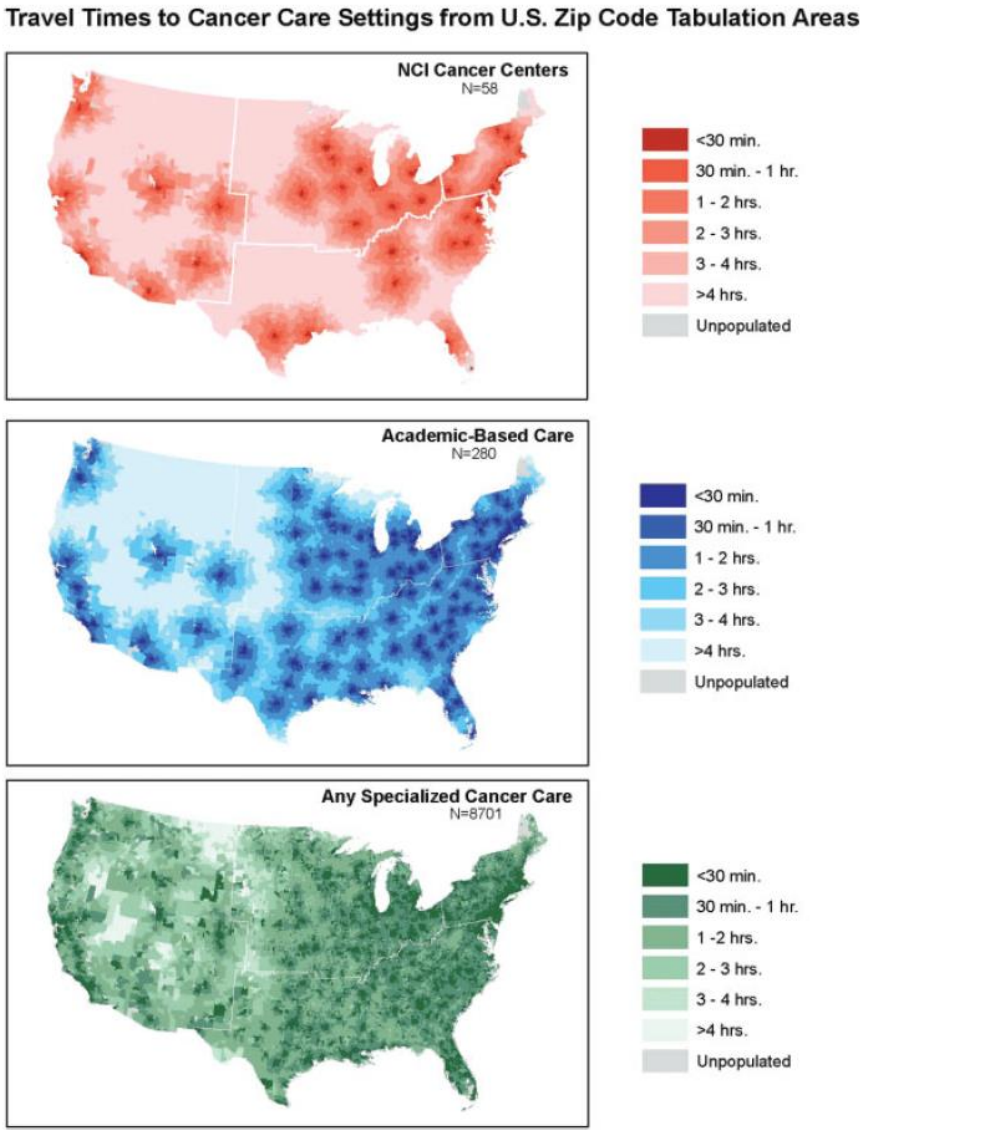
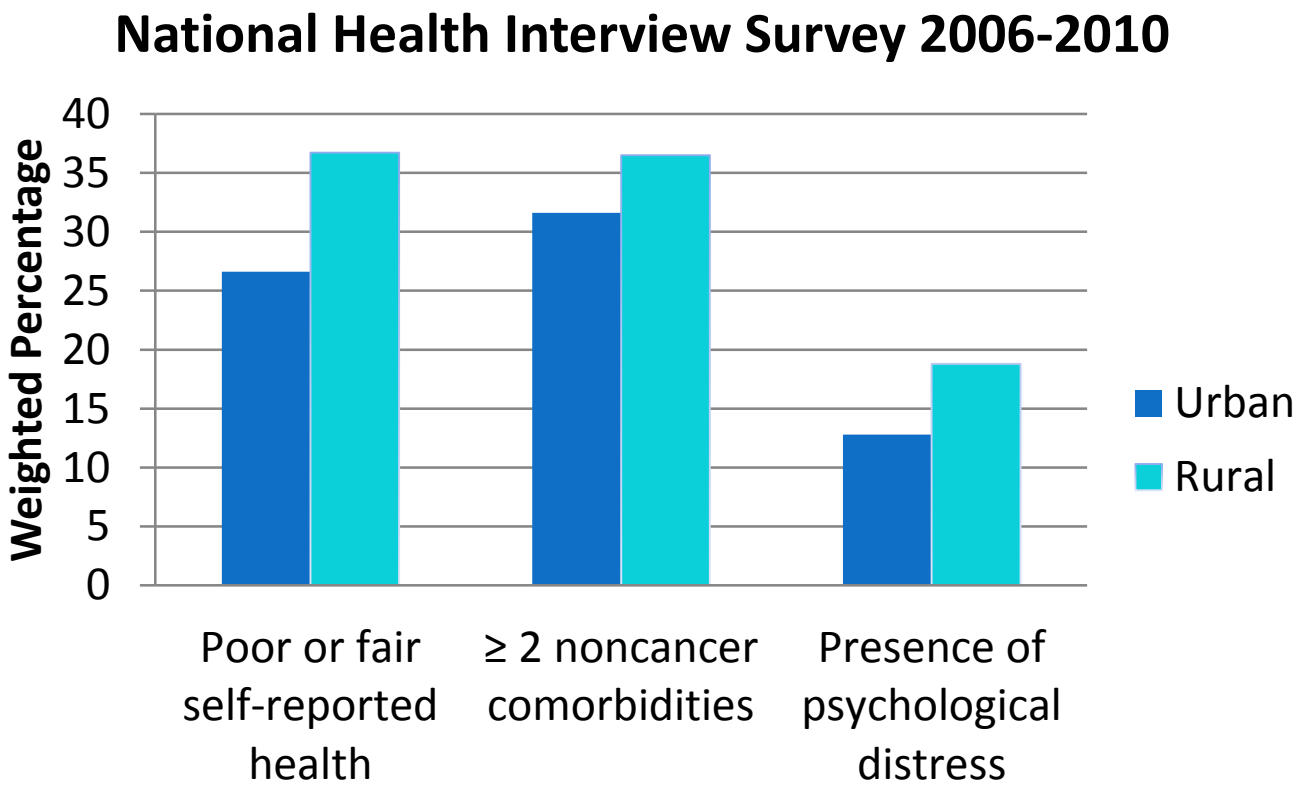


FIGURE 1. Travel times from population centroids of U.S. zip code tabulation areas to the nearest cancer setting across a range of specialization.

Onega, T et al. (2008). *Cancer 112(4):* 909-918

Health status among urban and rural U.S. cancer survivors



* $p < .05$ adjusting for age, sex, race/ethnicity, marital status, number of cancers, time since diagnosis, education, health insurance

Weaver, K. E., et al. (2013). *Cancer* 119(5): 1050-1057.

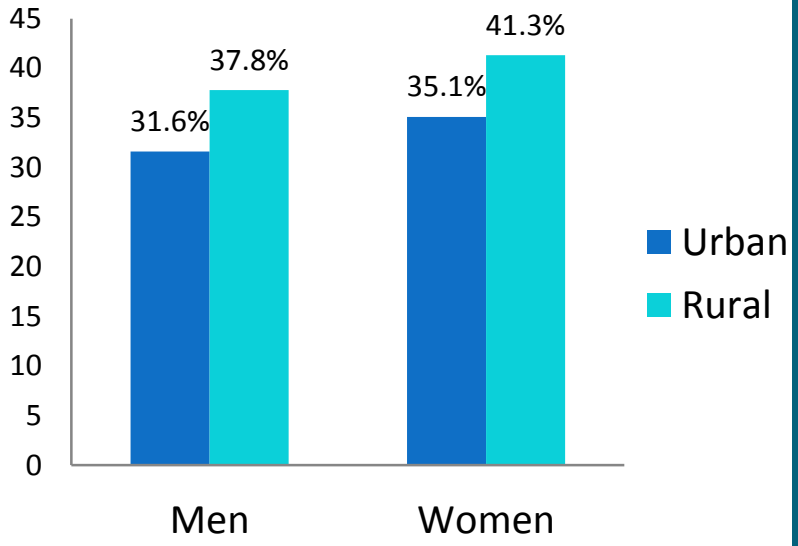
Unmet needs among rural cancer survivors

- Less knowledge about cancer stage and treatment
- Fewer receive survivorship care plans (62% rural vs. 78% urban; MO BRFSS)
- Poorer mental health functioning (KY SEER)
  - Anxiety, depression, distress
- High levels of unmet support needs (qualitative data among breast cancer survivors)

Bettencourt, BA et al. (2007). *Psycho-Oncology 16(10):* 875-887.
Schootman, M et al. (2013). *Prev Chronic Dis 10:* 130042.
Burris, JL & Andrykowski, M. (2010). *Psycho-oncology* 19(6): 637-645.
Wilson, SE et al. (2000). *Womens Health Gend Based Med 9*: 667-677.

Rural-Urban Obesity Prevalence

- Drivers:
  - Cultural eating patterns
  - Low leisure-time activity levels
  - Less socio-environmental supports
  - Less access to weight control programs



Befort et al., 2012 NHANES 2005-2008
Parks, S et al, 2003. *J Epidemiol Community Hlth* 57: 29-35
Miller, PE et al. (2012). *J Acad Nutr Diet, 112:* 824-831.

Rural breast cancer survivor exercise preferences

- 483 survivors from IL state registry (30% response)
  - 63 ± 12 years-old, 3.2 ± 1.8 years since treatment, 96% White
  - 30% unknown cancer stage
  - BMI 28.9 ± 6.1 kg/m^2
  - **54% sedentary, 19% ≥ 150 min/week of PA**

Exercise intervention preferences

- Location
  - At home 38%
  - Outdoors 25%
  - Health club/YMCA 19%
- Counseling Delivery
  - Face-to-face 44%
  - No preference 30%
  - Video 6%

Rogers, LQ et al. (2009). *Psycho-oncology, 18(4):* 412-421.

Rural breast cancer survivor needs

- 918 survivors in KS (83% response from local cancer registries)
  - 66 ± 13 years-old, 3.2 ± 2.6 years since treatment, 96% White
  - 40% reported unknown cancer stage
  - BMI 29.0 kg/m^2; 68% overweight/obese; 37% obese

- Ranking of s
  1. Exercise
  2. Persona
  3. Support
  4. Lymphe
  5. Mental

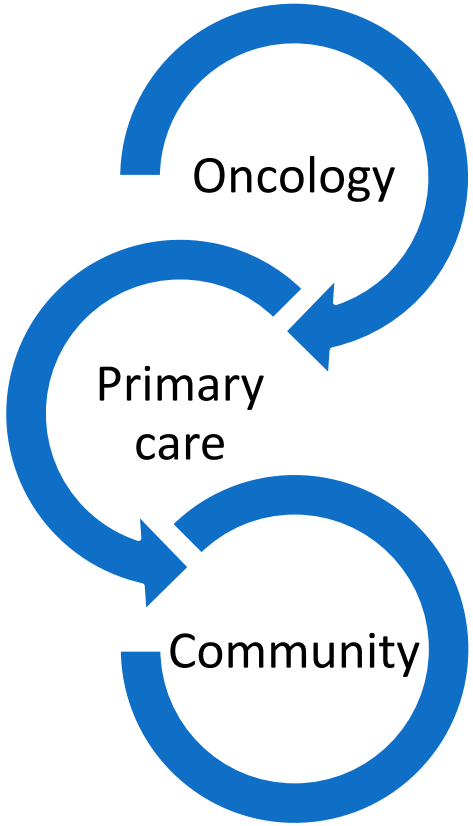
- 47% currently attempting weight loss
- Weight loss methods tried
  - Without assistance 67%
  - Joined gym 24%
  - Commercial program 18%
  - Diet book 6%
  - Internet program 3%

Befort, CA et al. (2011). *Psycho-oncology, 20(10):* 1069-79.

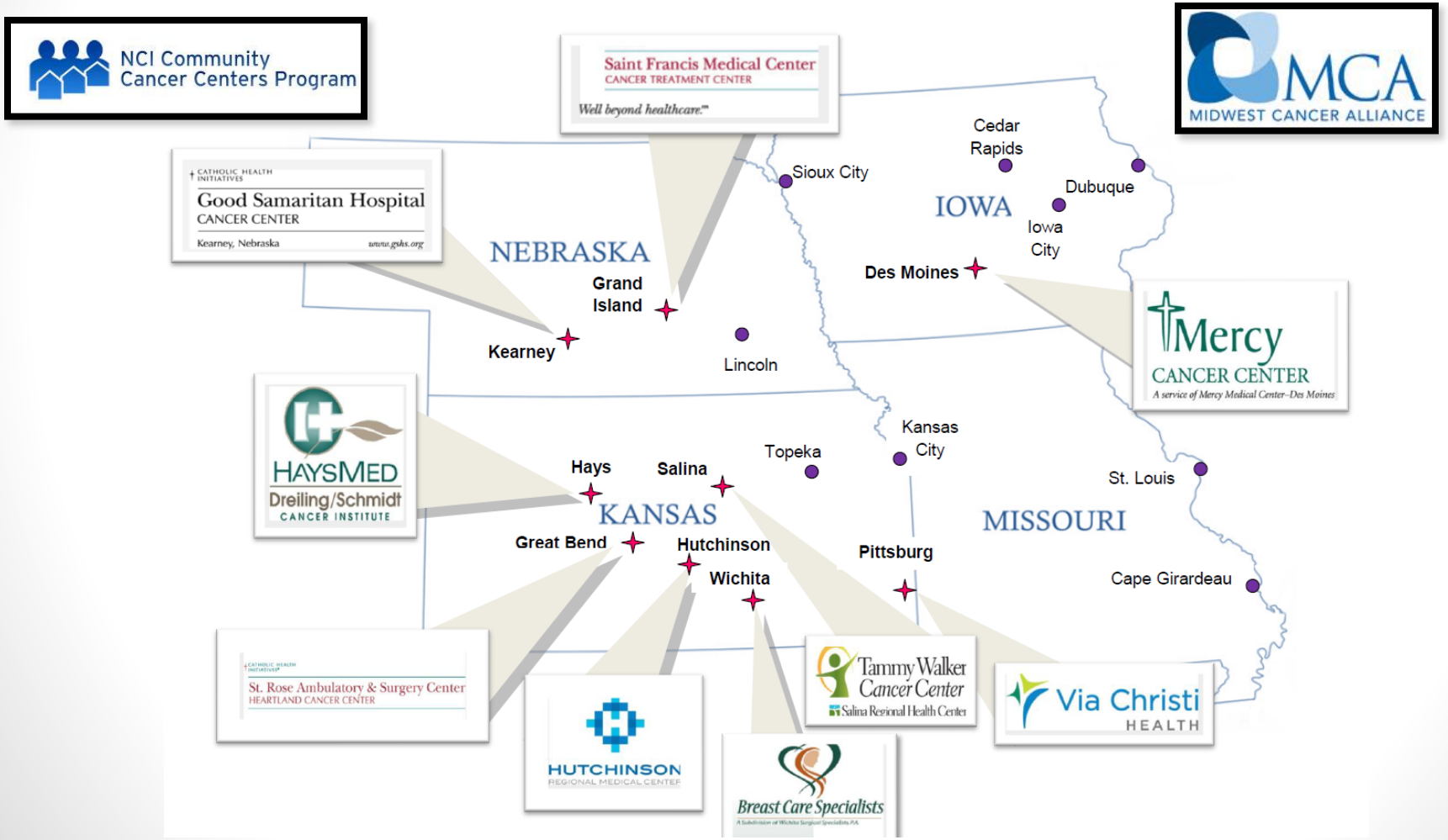
Implementation model

QUESTIONS TO CONSIDER:

- Referral or recruitment source
- Level of clinical integration



Weight loss maintenance RCT among rural breast cancer survivors



Group phone-based intervention

210 rural breast cancer survivors
stage 0-IIIc in past 10 years, BMI 27-45, medical clearance

0-6 months
Weekly group phone sessions

0-6 months
Weekly group phone sessions

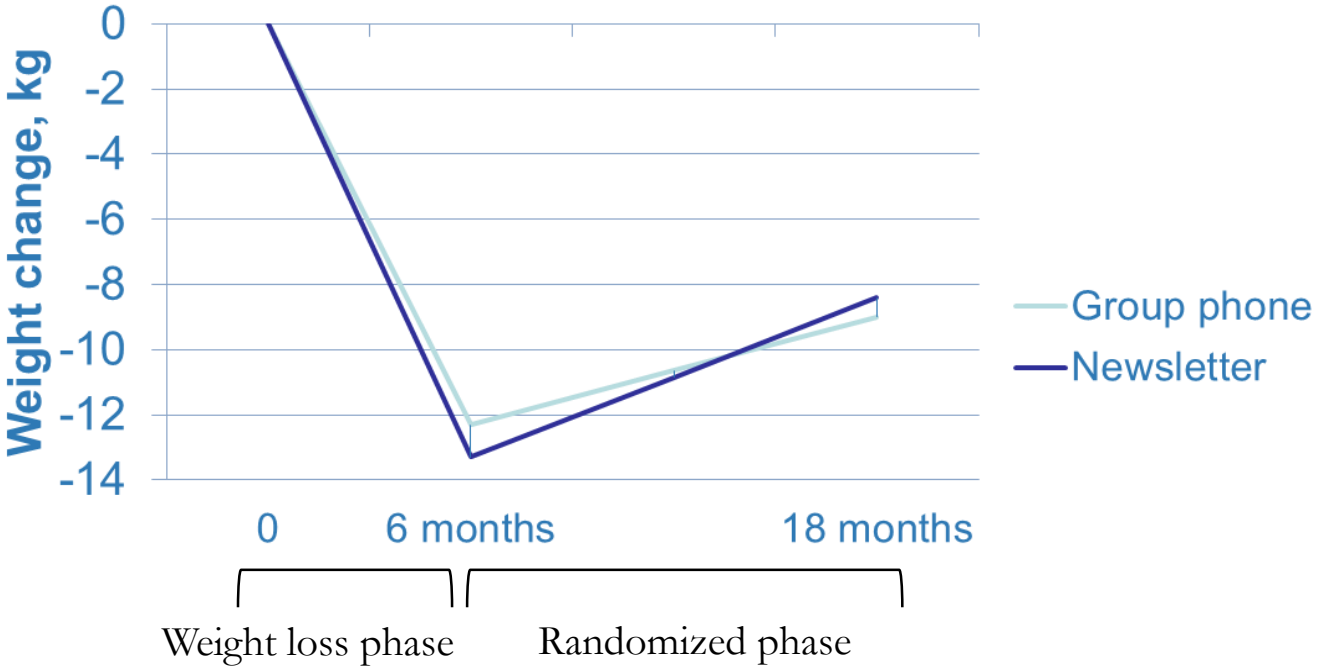
85% lost ≥ 5%, n = 172 randomized to Phase II

6-18 months
Bi-weekly group phone sessions

6-18 months
Bi-weekly mailed newsletter

Befort et al. (2012). *Breast Cancer Res Treat, 132*: 631-9.
Befort et al., (2015). *Psycho-oncology, 24:* 487-490.

Weight changes by treatment group

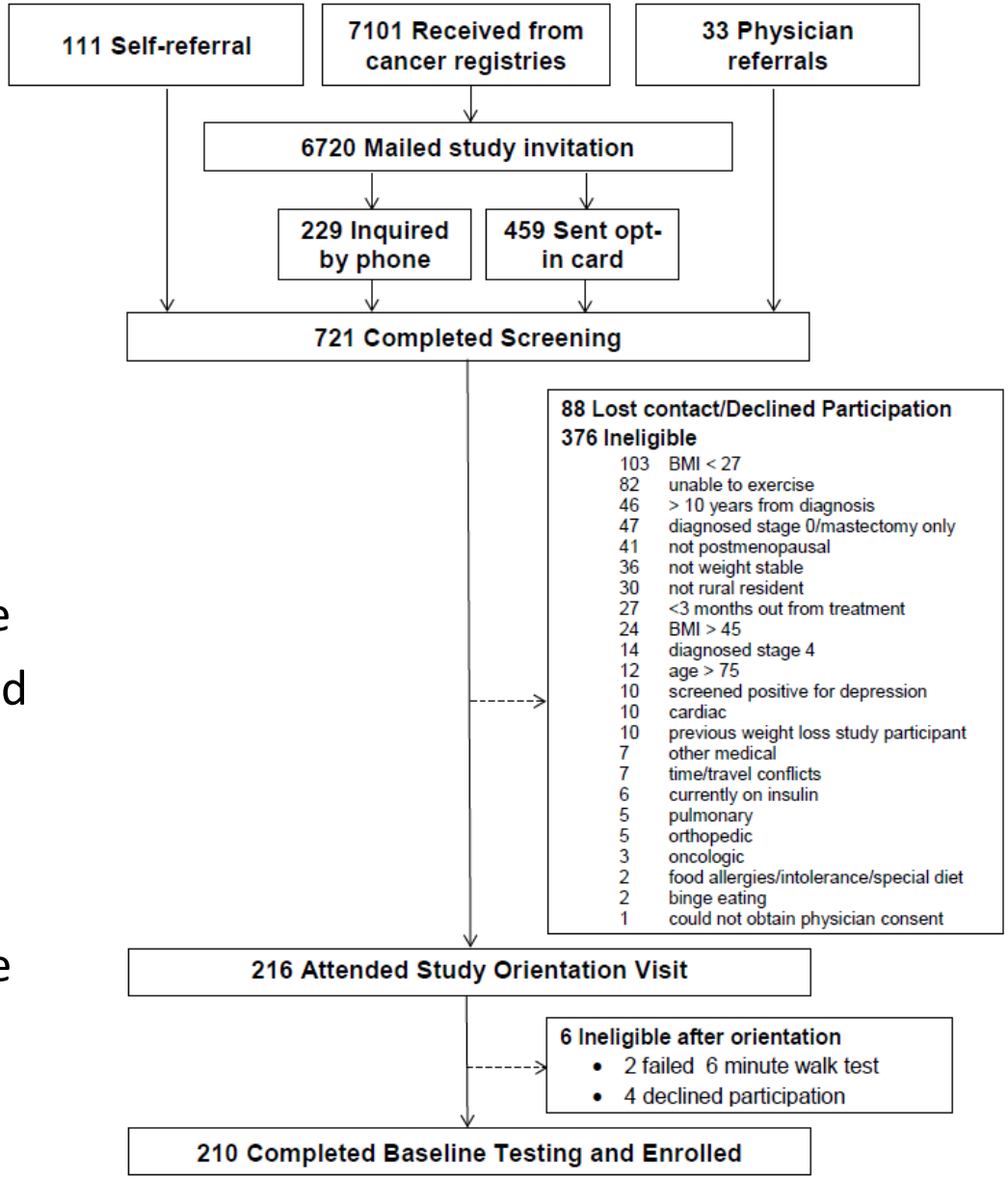


	Group Phone Counseling (n = 85)	Newsletter Comparison (n = 83)	*P*
Weight change 6 to 18 months	3.3 (4.8)	4.9 (4.9)	0.03
Percent weight change BL to 18 months	10.6% (7.8)	9.3% (8.0)	0.03
≥ 5% below baseline weight	75.3%	57.8%	0.02
Program costs per participant	$280.25	$88.47	--

Befort, C. A., et al. (2016). *Obesity* ***24****(10):* 2070-2077.

Recruitment

- Personalized non-targeted mailed invitation from local oncologists
  - **14% response rate**
  - 9% completed screening
- 721 cases screened
  - 84% from mailed brochure
  - 11% advertisements, friend referrals, outreach
  - **5% physician referral**
- **29% enrollment rate** of those screened



Befort et al., *Contemp Clinical Trials,* 2014

Lessons learned

- Group-based phone interventions can engage rural breast cancer survivors
  - 90% attendance in phase 1; 60% attendance in phase 2
  - 6 month process interviews (n = 186):
    - Accountability to group seen as one of most helpful components
    - Group cohesion varied
  - Desire for some amount of face-to-face contact

Fazzino, T et al. (2016). *Support Care Cancer, 24: 3165-3173.*

Lessons learned

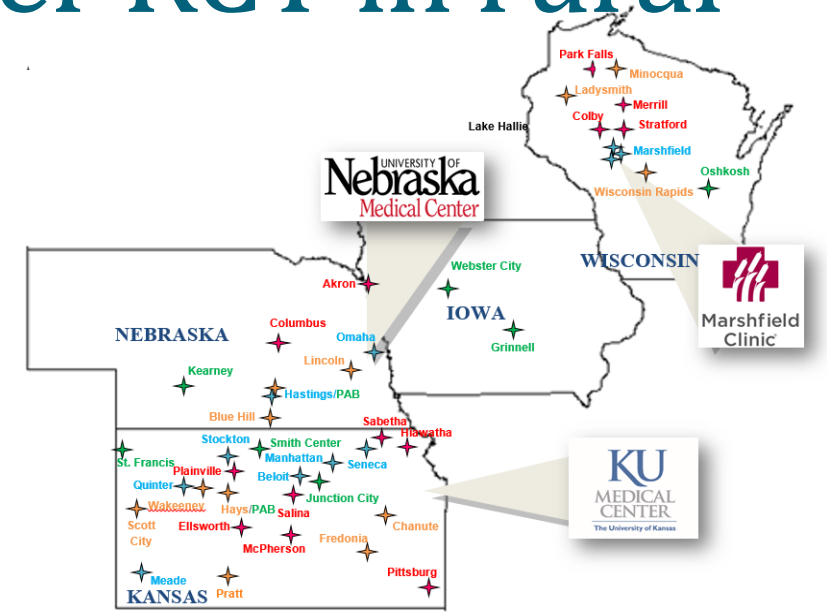
- New medical events and patient navigation needs
  - 290 new or worsening medical conditions reported
    - 145 participants with ≥ 1 AE
  - 81 events (28%) possibly, probably, or definitely related
  - 35 lymphedema AEs (8 possibly to definitely related)

Pragmatic cluster RCT in rural primary care

36 practices
1440 patients

n = 843 enrolled to date

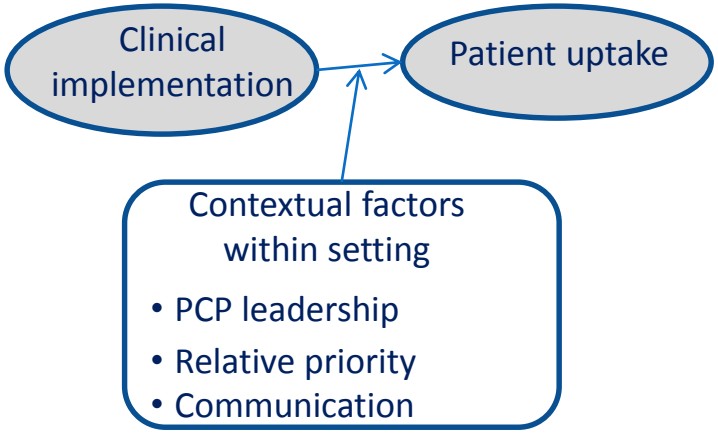
- **Fee-for-Service (In clinic individual)**
- **Patient Centered Medial Home (In clinic groups)**
- **Disease Management (Phone groups)**



Recruitment mailing response rates

Range across clinics: 5% to 31%

Range across arms: 13% to 19%



Questions and challenges

- Interventions for rural survivors of other cancer types
- Importance of tailoring
  - Rural culture
  - Regional variations and rural racial/ethnic minority populations
  - Survivorship needs
- Optimal amount of face-to-face contact
- Capacity in rural clinical settings
- Integration in clinical care versus direct-to-consumer remote interventions

Opportunites

- Rurality as a designated under-represented group
  - Standard definition (e.g. RUCA)
  - Inclusion and Enrollment targets
  - Catchment area needs
- Observational studies on dietary and physical activity patterns and determinants in rural settings
- Planned rural-urban subgroup analyses for large trials
- PAs or RFAs focused on effectiveness-implementation hybrid designs

Questions?