

# Using A Symptom Heuristics iPad App to Improve Symptom Self-management in Adolescents and Young Adults (AYAs) with Cancer

**Suzanne Ameringer, PhD, RN**  
Virginia Commonwealth University  
Richmond VA

**Lauri Linder, PhD, APRN, CPON®**  
University of Utah College of Nursing  
Primary Children's Hospital  
Salt Lake City, UT

**Jeanne Erickson, PhD, RN**  
University Wisconsin-Milwaukee  
Milwaukee, WI

**Catherine Fiona Macpherson, PhD, RN,  
CPON®**  
Seattle Children's Hospital  
Seattle, WA

**R. K. Elswick Jr., PhD**  
Virginia Commonwealth University  
Richmond VA

**Kristin Stegenga, PhD, RN, CPON®**  
Children's Mercy Hospital  
Kansas City, MO

**2018**  
28-30 JUNE  
VIENNA

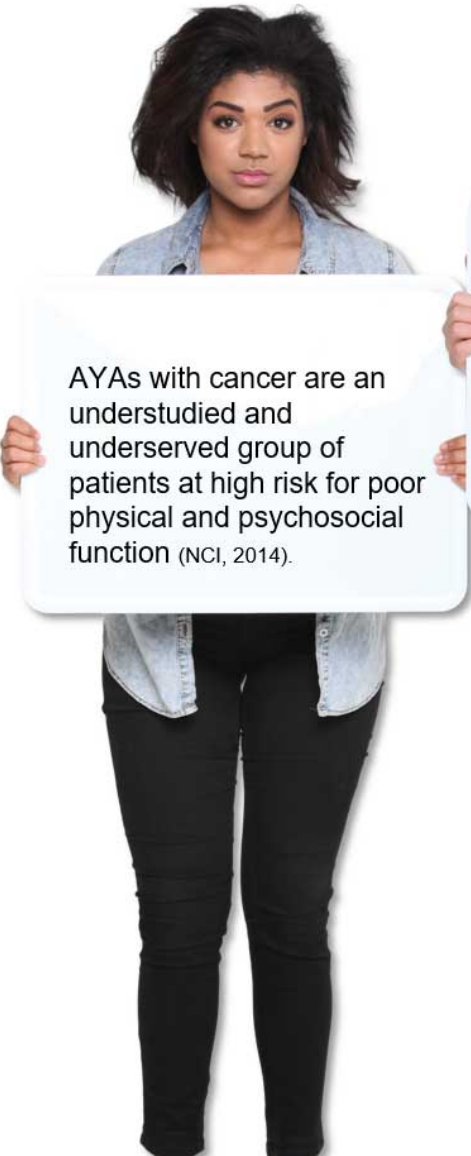
**MASCC/ISOO**  
ANNUAL MEETING  
SUPPORTIVE CARE IN CANCER



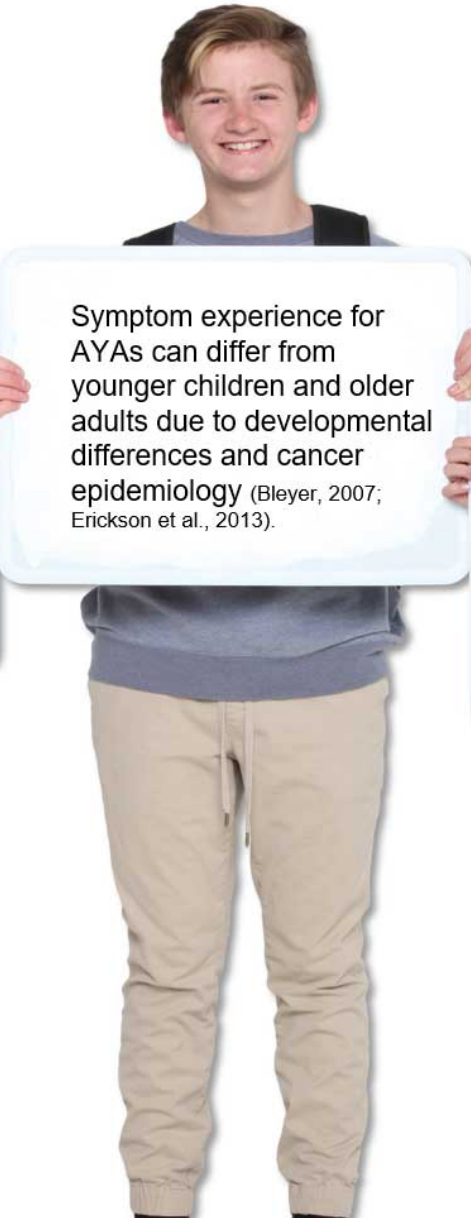
## Faculty Disclosure

<input checked="" type="checkbox"/>	No, nothing to disclose
<input type="checkbox"/>	Yes, please specify:

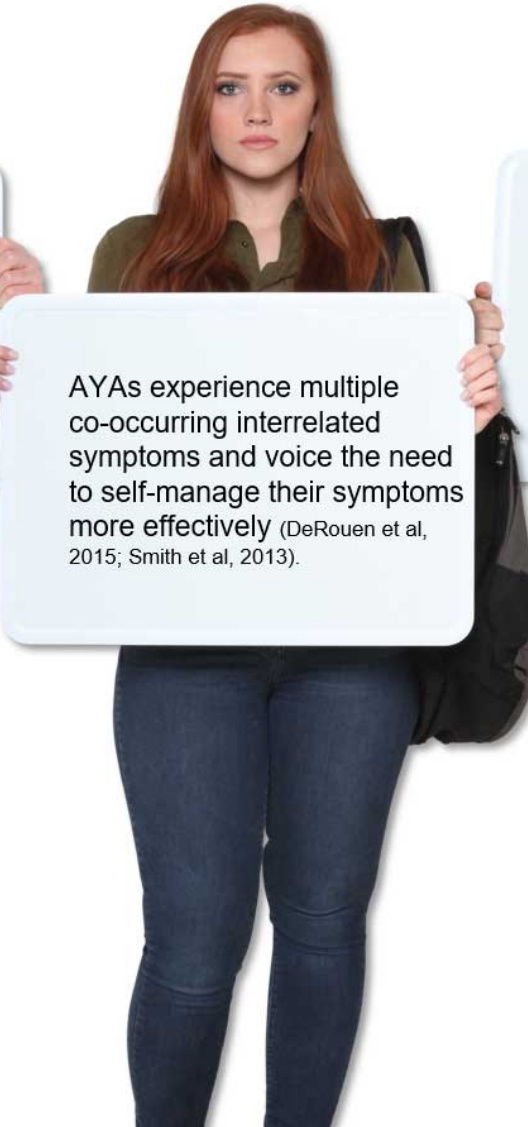
# Background



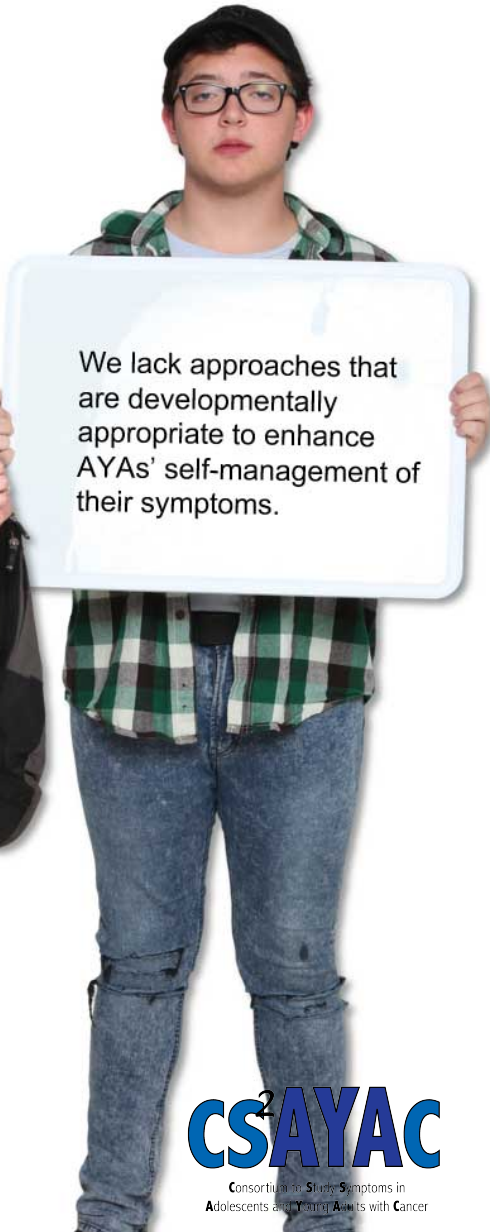
AYAs with cancer are an understudied and underserved group of patients at high risk for poor physical and psychosocial function (NCI, 2014).



Symptom experience for AYAs can differ from younger children and older adults due to developmental differences and cancer epidemiology (Bleyer, 2007; Erickson et al., 2013).



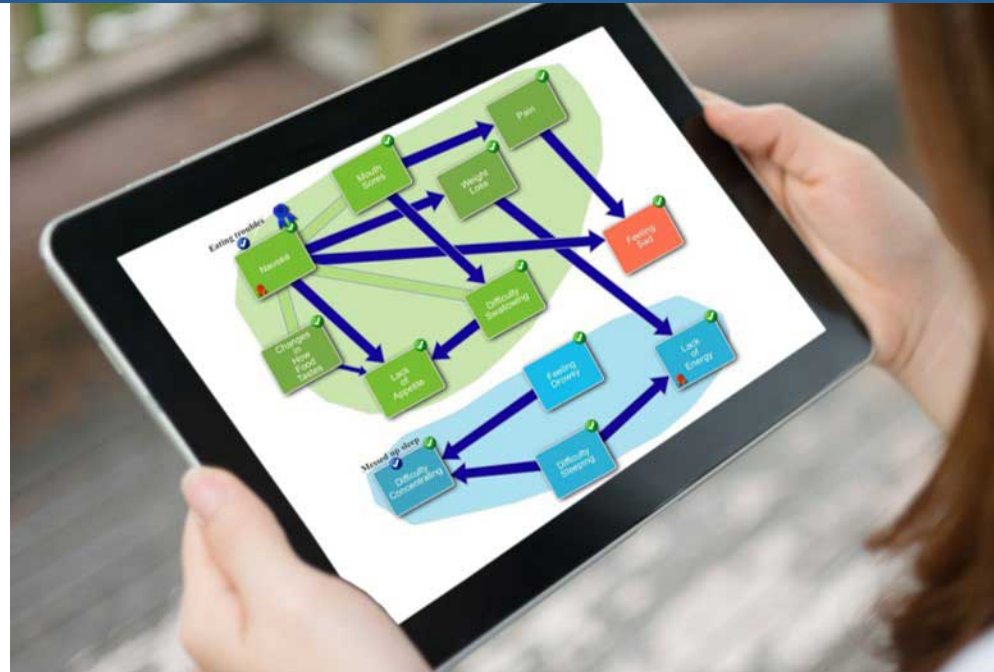
AYAs experience multiple co-occurring interrelated symptoms and voice the need to self-manage their symptoms more effectively (DeRouen et al, 2015; Smith et al, 2013).



We lack approaches that are developmentally appropriate to enhance AYAs' self-management of their symptoms.

# Computerized Symptom Capture Tool (C-SCAT)

- An inductive, heuristic-based resource, was developed for AYAs to self-monitor and communicate their symptom experience from their unique personal perspectives (Macpherson et al, 2014, Ameringer et al, 2015; Linder et al, 2017).
- Choose from a menu of 32 symptoms from the Memorial Symptom Assessment Scale (MSAS) (Collins et al, 2001)
- Identify symptoms
- Indicate relationships among symptoms
- Identify clusters
- Identify priority symptoms



## Purpose

- To examine the effects of using the C-SCAT on perceived self-efficacy and patient-provider communication of AYAs with cancer receiving chemotherapy.

# Methods

## Design



Pilot study:  
Multi-site single-group  
pretest-posttest

## Sample



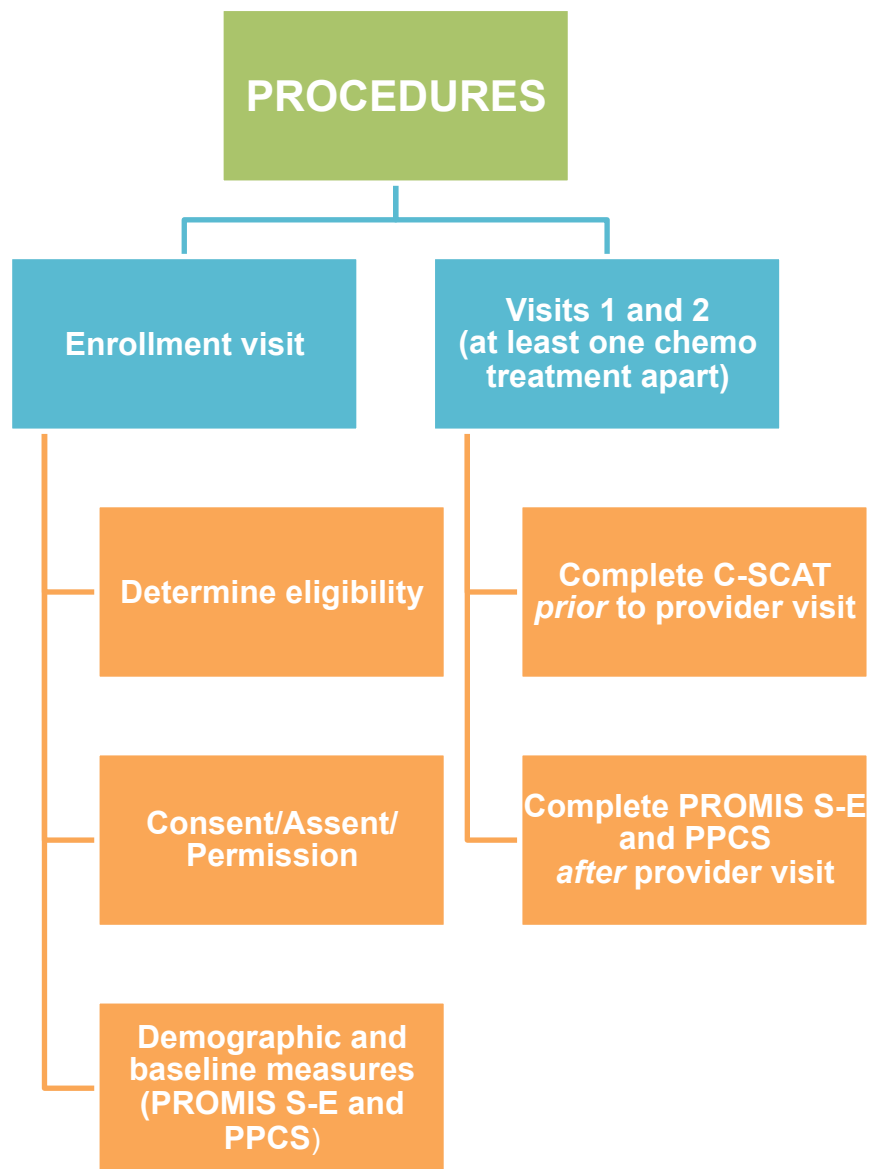
- Inclusion:
  - 15 – 29 years of age with any cancer
  - Speak and read English
  - Completed 1 cycle of chemo and expected to receive at least 2 more cycles
- Exclusion:
  - Cognitive and/or physical inabilities to complete study measures

## Measures



- Demographic and disease characteristics
- Patient-Reported Outcomes Measurement Information System Self-efficacy for symptom management (PROMIS S-E) – 28 items
- Patient-Provider Communication Scale (PPCS) – 4 items
- C-SCAT

# Procedures and Data Analysis



## DATA ANALYSIS

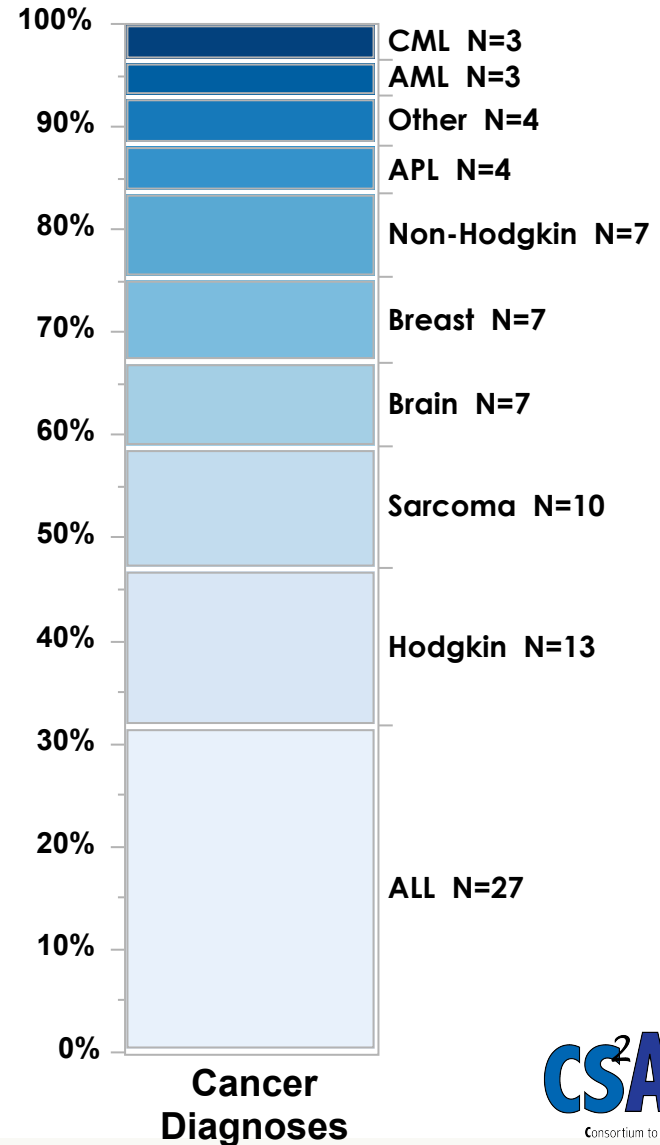


Linear mixed effects model containing fixed effects of site, visit, and site x visit interaction, and a random effect for subject for:

- Perceived self-efficacy (PROMIS S-E)
- Patient Provider communication (PPCS)

# Sample Characteristics (N = 85)

	n (%)
<b>Age: mean (SD)</b>	<b>20.9 (4.92)</b>
<b>Months diagnosed: mean (SD)</b>	<b>11.8 (13.15)</b>
<b>Gender</b>	
Female	39 (46)
Male	46 (54)
<b>Race</b>	
African American	10 (12)
Asian	1 (1)
Native American/Alaska Native	2 (2)
White	61 (72)
Other or more than one race	11 (13)
<b>Ethnicity</b>	
Hispanic/Latino	18 (21)
Non-Hispanic/Latino	67 (79)
<b>Marital Status</b>	
Never married	65 (76)
Married/ Partner	18 (21)



# Results

## LEAST SQUARE MEANS AND STANDARD ERRORS FOR OUTCOMES

Variable	Baseline		Visit 1		Visit 2	
	Mean	SE	Mean	SE	Mean	SE
PROMIS S-E (range: 28 – 140)	102.2	2.12	103.5	2.15	107.0	2.18
PPCS (range: 0 – 4)	3.62	0.056	3.63	0.056	3.70	0.058

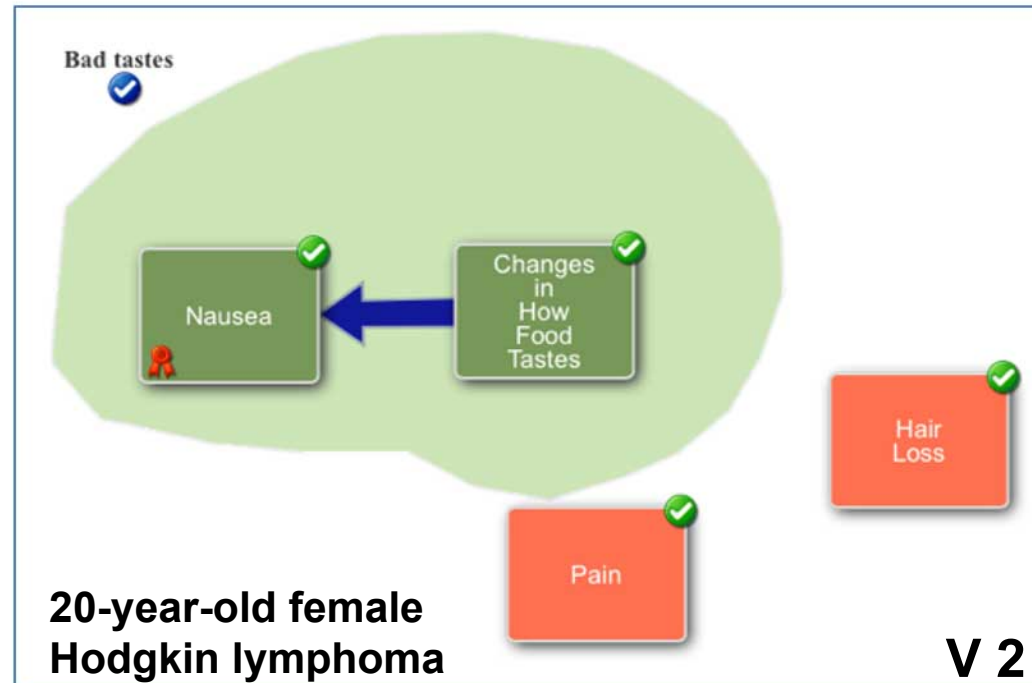
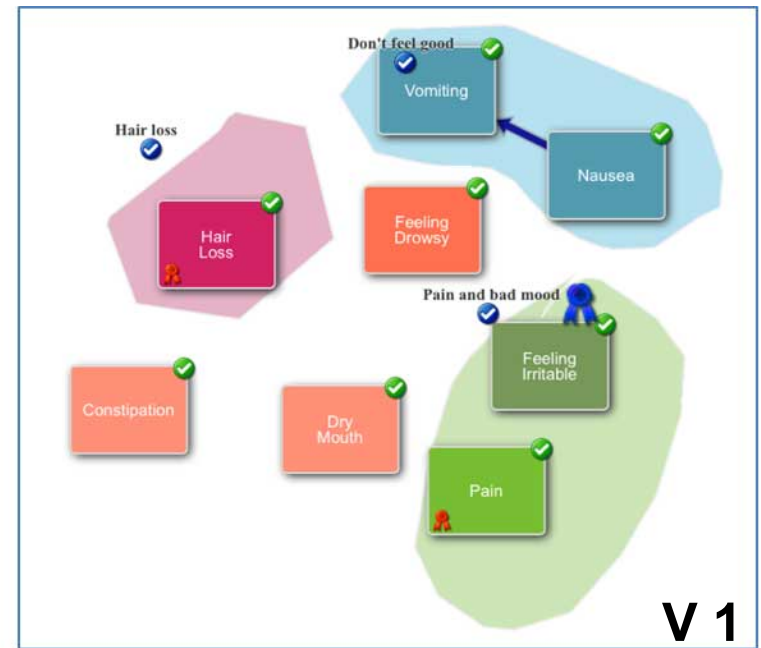
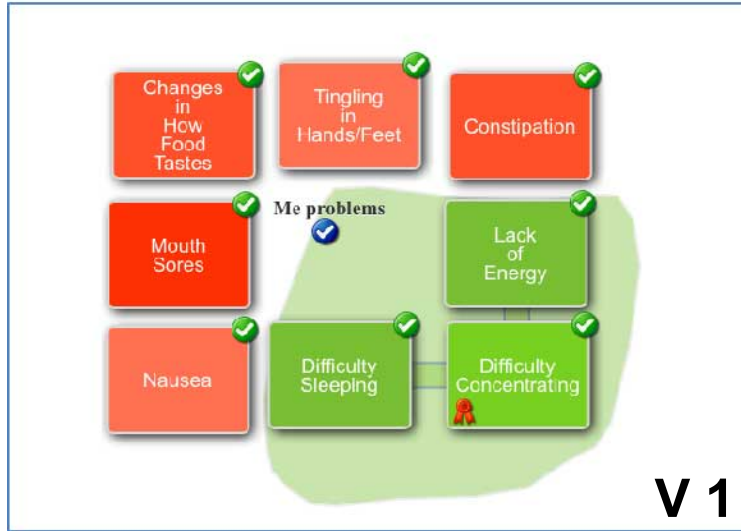


# Results

## Fixed Effects Results for PROMIS S-E and PPCS

	ndf	ddf	F	p value
<b>PROMIS S-E</b>				
<b>Main effects</b>				
Site	4	76.69	1.35	0.258
Visit	2	150.20	3.46	<b>0.034*</b>
<b>Interaction effects</b>				
Site x Visit	8	150.10	1.13	0.349
<b>PPCS</b>				
<b>Main effects</b>				
Site	4	81.51	1.46	0.224
Visit	2	151.70	1.00	0.369
<b>Interaction effects</b>				
Site x Visit	8	151.60	0.73	0.664

# Examples of C-SCAT



# Conclusions

- ▣ Conclusion: Self-efficacy for managing symptoms improved over time but communication with providers did not change.
- ▣ Limitations: single group, non-randomized, no control group
- ▣ Next study: Randomized control trial to examine the effectiveness of the use of C-SCAT to improve symptom self-management

Acknowledgements: A very special thank you to the AYAs who participated in the study, John Charlson, MD, Stefanie Thomas, MD, the research assistants, Sally Russell, and Elizabeth Miles .

