

Estimating time equivalents for cancer side effects among lung cancer survivors and caregivers: a discrete-choice experiment



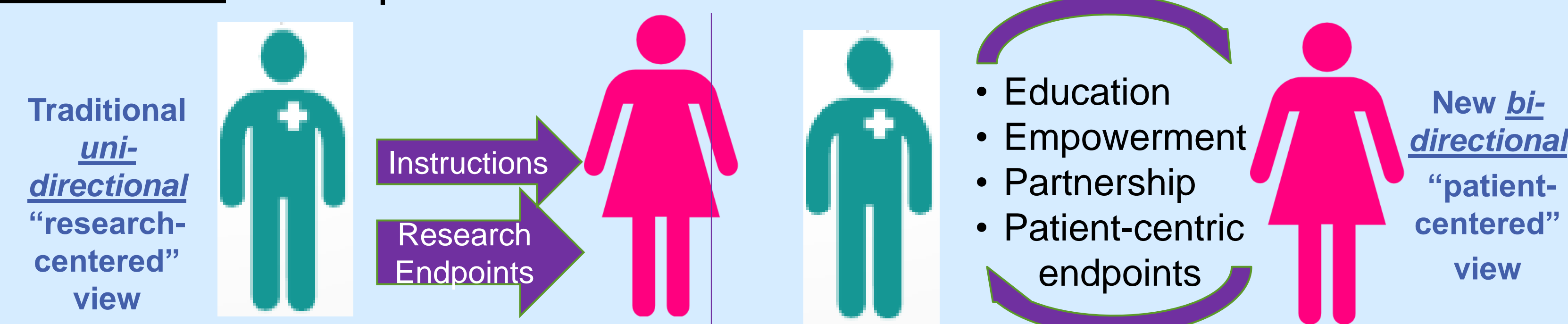
Andrea Ferris, MBA¹; Upal Basu Roy, PhD, MPH¹; John FP Bridges, PhD²; Ellen M Janssen, BA²; Sydney M Dy, MD^{2,3}

¹LUNGevity Foundation; ²Johns Hopkins Bloomberg School of Public Health; ³Johns Hopkins School of Medicine

Project Transform was initiated in 2015 to integrate the patient experience into lung cancer treatment, research, and policy. Project Transform's vision is to ensure that the preferences of patients with lung cancer are recognized, their values are valued, and that living well with lung cancer can be the norm

Objective

Lung cancer is the leading cause of cancer mortality in the US [1]. The treatment landscape of lung cancer has evolved in the past two years, and novel treatments have improved outcomes. With improved survival, issues of long-term side effects and quality of life arise. *Project Transform* aims to change the paradigm in lung cancer from assumptions being made about patient wishes to evidence-based conclusions about patient desires about their treatments.



Approach

Through rigorous engagement of a national advisory board of lung cancer survivors, a discrete-choice experiment (DCE) was developed, pretested and piloted [2]. The DCE was administered to 114 lung cancer survivors and caregivers at LUNGevity's National HOPE Summit. Respondents completed 13 paired-comparison choice tasks described across six attributes. The preference for avoiding side-effects were estimated using their time equivalents by using maximum simulated likelihood.

Table 1 – Attributes and levels

Attribute	PFS	Short-term side effects	Long-term side effects
Levels	6 months	Mild	None
	12 months	Moderate	Mild
	18 months	Severe	Moderate

Results

What is a discrete choice experiment?

A DCE is based on the idea that even if people can't provide a direct measure of value, they can usually indicate which scenario they prefer. Choices are made for a hypothetical third person with specific health outcomes to minimize biases that can arise due to personal choices for treatments.

EXAMPLE

Please select the person you think is better off:		
Attributes	Person A	Person B
Progression free survival	6	18
Short-term side effects	Mild	Moderate
Physical long-term effects	Mild	None
Emotional long-term effects	Moderate	None
Cognitive long-term effects	None	Moderate
Functional long-term effects	None	Mild
Who do you think is better off?	<input type="checkbox"/>	<input type="checkbox"/>

Table 2 – Respondent Demographics

Total sample (n = 114)		
Respondent type	Patient – N (%)	87 (76%)
	Caregiver* – N (%)	24 (21%)
Years since diagnosis – mean (SE)		4.43 (0.28)
Lung cancer type	Adenocarcinoma – N (%)	81 (71%)
Disease stage	Stage 1-3 – N (%)	9 (9%)
	Stage 4	53 (46%)
Treatment received	Chemotherapy	72 (63%)
	Radiation	50 (44%)
	Targeted Therapy	59 (52%)
	Immunotherapy	15 (13%)
	Surgery	54 (47%)

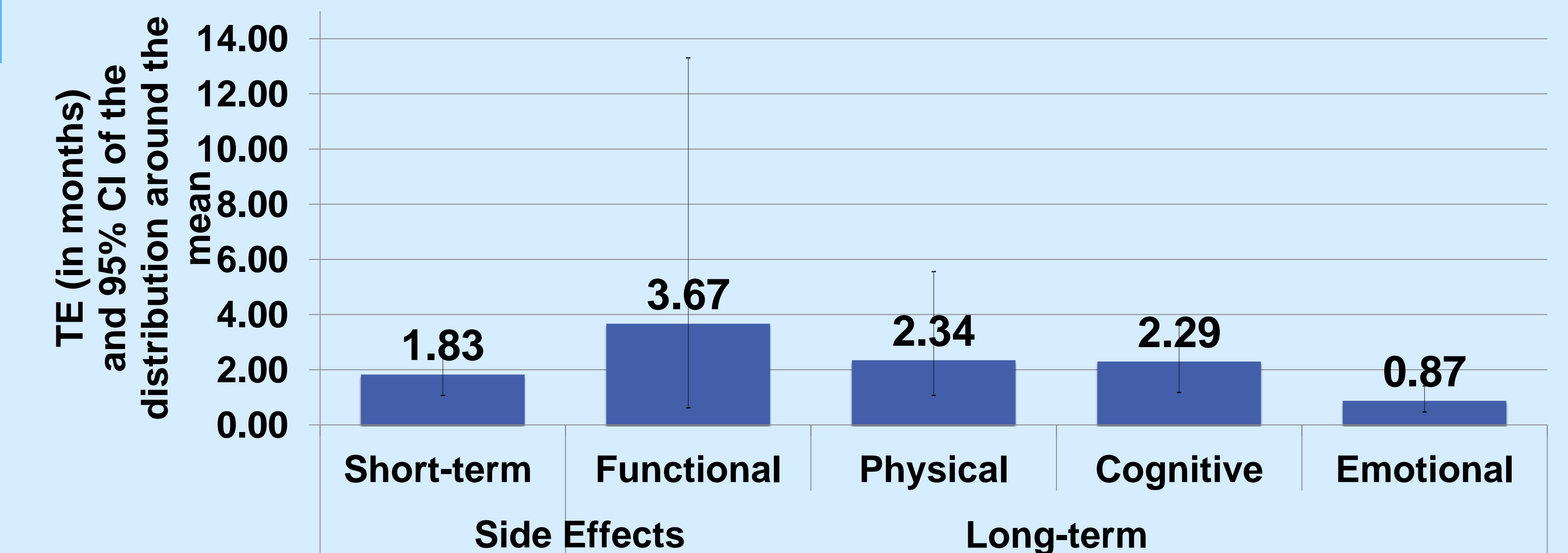
*caregivers responded for the patient they were a caregiver for

Major Findings

“Well, maybe I might actually live, and if I do, I want to live with quality.”

National Patient Advisory Board member on why participation in Project Transform is important

Figure 2 – Additional PFS required to accept an increase in side effect severity



Respondents valued a one-unit decrease in functioning the most (equivalent to extending PFS by 3.67 months). Changes in physical (2.34) and cognitive (2.29) long-term effects were valued more than a composite of short-term side effects (1.83).

Conclusions

Lung cancer survivors

1. Value PFS as the most important component in their treatment choice
2. Consider functional long-term side effects as important in their treatment choice
3. Value reduction in long-term side effects the same as increasing PFS by 1.39-3.59 months

We are grateful to the lung cancer survivor community for making this study possible. Funding provided by Celgene