A Rapid Dietary Assessment in Patients with Breast Cancer: A Kaiser Permanente Pilot Study

Ergas I, PhD, MPH[1], Mindemann C, BS[1], D'Addario L, BS, MPH[1], Roh J, MSW, MPH[1], Liu R, MD[2,3], Shim V, MD[3], Siegel S, MD[2], Kwan M, PhD[1], Kushi L ScD[1], Zwerling Baltrushes R, MD[3]

[1]Division of Research, Kaiser Permanente Northern California (KPNC), [2]San Francisco Medical Center, KPNC, [3]Oakland Medical Center, KPNC

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BACKGROUND

- Adherence to a **healthy diet** can reduce **morbidity and mortality** risk among breast cancer (BC) survivors.[1-3]
- Traditional clinical metrics (blood pressure, lipids, glucose) are routinely measured, yet diet is rarely assessed.[4]
- Current diet assessment tools (food diaries, 24-hour recalls, etc.) are often too time-consuming and burdensome for routine clinical use.[4]
- **The Diet ID™ platform** is a rapid photo-recognition dietary assessment tool that provides complete nutritional profiles and a Healthy Eating Index (HEI) score.[5]

OBJECTIVE

- Evaluate the feasibility and usefulness of Diet ID™ as a dietary assessment tool to determine future implementation into routine clinical BC care.

METHODS

Feasibility Measures: Participation rate, survey completion rate and time.
Usefulness Measures: Reported accuracy, correlation of Diet ID™ diet quality metrics with dietary and clinical covariates.



Figure 1. Map of California, highlighting study locations.

Inclusion criteria:	Exclusion criteria:
Any BC diagnosis within prior 24 months at KP Oakland or San Francisco medical facilities.	• Non-English speaking • Cognitively impaired • Not yet informed of their BC diagnosis

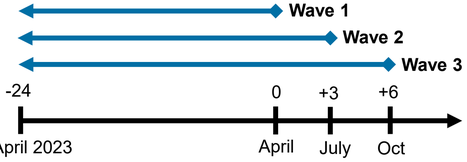


Figure 2. N=1,270 KPNC patients were contacted by email over a 6-month period across three waves.

Table 1. Number and types of dietary metrics provided by the Diet ID™ survey

Output	Number	Examples
Nutrients	**62**	Total sugars, vitamin E, protein, iron, calcium, zinc…
Food Groups	**33**	Red meat, poultry, nuts, dairy, vegetables, fruits…
Diet Quality Scores	**2**	Healthy Eating Index, Diet ID™ score

Diet ID™ Assessment:

Following a series screening questions, Diet ID™ displays **two diet composite images**, from which participants choose the one most closely reflecting their diet. This process repeats until Diet ID™ identifies the participant's dietary pattern (Figure 3) and then calculates their nutritional profile (Table 1).

What photo best matches your diet over the past month?



Figure 3. Examples of diet composite images from Diet ID™.

CONLUSIONS

Diet ID™ is feasible: 43% of contacted participants enrolled in the study, and of those, 93% fully completed the assessment. The average time to complete the Diet ID™ survey was **3.6 minutes**.

Diet ID™ has potential to be clinically useful: Only 16.2% of participants reported inaccuracy of the assessment. Also, diet quality was higher among patients with lower BMI.

Clinical implications: The influence of treatment status and cancer stage on the participation rate was minimal, suggesting Diet ID™ may be useable at all stages of the survivorship trajectory.

Participant Feedback:

"It'd be interesting to look at what people are eating before [their] cancer diagnosis… I've made some positive changes to my diet since then."

"The food groups are never what I consider my typical diet… you don't show a group of salad and fruit without [including] tofu."

RESULTS

Table 2. Participant characteristics by participation status and healthy eating index score

	Participation Status			Healthy Eating Index Score			
	Unenrolled n=719 (%)	Enrolled n=551 (%)	*P-X²*	T1 (Low) n=166 (%)	T2 (Med) n=170 (%)	T3 (High) n=175 (%)	*P-X²*
Age (years)			0.02				0.52
<50	173 (24.1)	169 (30.7)		62 (37.4)	49 (28.8)	49 (28.0)	
50-59	139 (19.3)	106 (19.2)		28 (16.9)	34 (20.0)	40 (22.9)	
60-69	181 (25.2)	140 (25.4)		38 (22.9)	42 (24.7)	45 (25.7)	
≥70	226 (31.4)	136 (24.7)		38 (22.9)	45 (26.5)	41 (23.4)	
Race and Ethnicity			<0.01				0.08
African American	136 (18.9)	44 (8.0)		22 (13.3)	11 (6.47)	10 (5.71)	
Hispanic	67 (9.3)	34 (6.2)		10 (6.0)	9 (5.29)	11 (6.29)	
Asian/PI	197 (27.4)	108 (19.6)		35 (21.1)	37 (21.76)	26 (14.86)	
White	257 (35.7)	327 (59.4)		89 (53.6)	104 (61.18)	111 (63.43)	
Other/Unknown	62 (8.6)	38 (6.9)		10 (6.0)	9 (5.3)	17 (9.7)	
Body Mass Index			<0.01				0.01
Under weight	18 (2.5)	10 (1.8)		1 (0.6)	5 (2.9)	4 (2.3)	
Normal weight	196 (27.3)	235 (42.7)		58 (34.9)	80 (47.1)	88 (50.3)	
Overweight	163 (22.7)	159 (28.9)		60 (36.1)	42 (24.7)	52 (29.7)	
Obese	188 (26.2)	115 (20.9)		45 (27.1)	41 (24.2)	26 (14.9)	
Cancer Stage			0.42				0.97
0 (DCIS)	148 (20.6)	117 (21.2)		37 (22.3)	34 (20.0)	35 (20.0)	
I/II	457 (63.6)	364 (66.1)		105 (63.3)	114 (67.1)	119 (68.0)	
III/IV	63 (8.77)	34 (6.2)		12 (7.2)	12 (7.2)	9 (5.2)	
Treatment status			0.10				0.07
Pre-treatment	18 (12.2)	62 (11.3)		19 (11.5)	16 (9.4)	25 (14.3)	
Active treatment	176 (24.5)	110 (20.0)		38 (22.9)	43 (25.3)	24 (13.7)	
Post treatment	455 (63.3)	379 (68.8)		109 (65.7)	111 (65.3)	126 (72.0)	
Did Diet ID accurately capture your overall diet?							<0.01
Agree	-	243 (47.7)		56 (33.7)	85 (50.0)	102 (58.3)	
Neutral	-	177 (32.1)		64 (38.6)	61 (35.9)	52 (29.7)	
Disagree	-	89 (16.2)		45 (27.1)	23 (13.5)	21 (12.0)	

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