



DukeHeart *On The Go*

Supermarket and Web-Based Intervention Targeting Nutrition - SuperWIN

A Randomized, Parallel Assignment, Active Control, Efficacy Trial

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Collaborator

- The Kroger Company, the largest U.S. supermarket chain:
 - Partial funding
 - Store/clinic space
 - Study dietitians
 - Purchasing data

Background

- Despite guideline recommendations, 75% of Americans have poor dietary quality
- In 2019, an AHA Scientific Advisory requested “immediate action” to address this gap. Specifically:
 - Sponsored research with retailers (e.g. supermarkets)
 - Studies of online shopping to promote healthier purchases
 - Studies of nutrition applications



versus

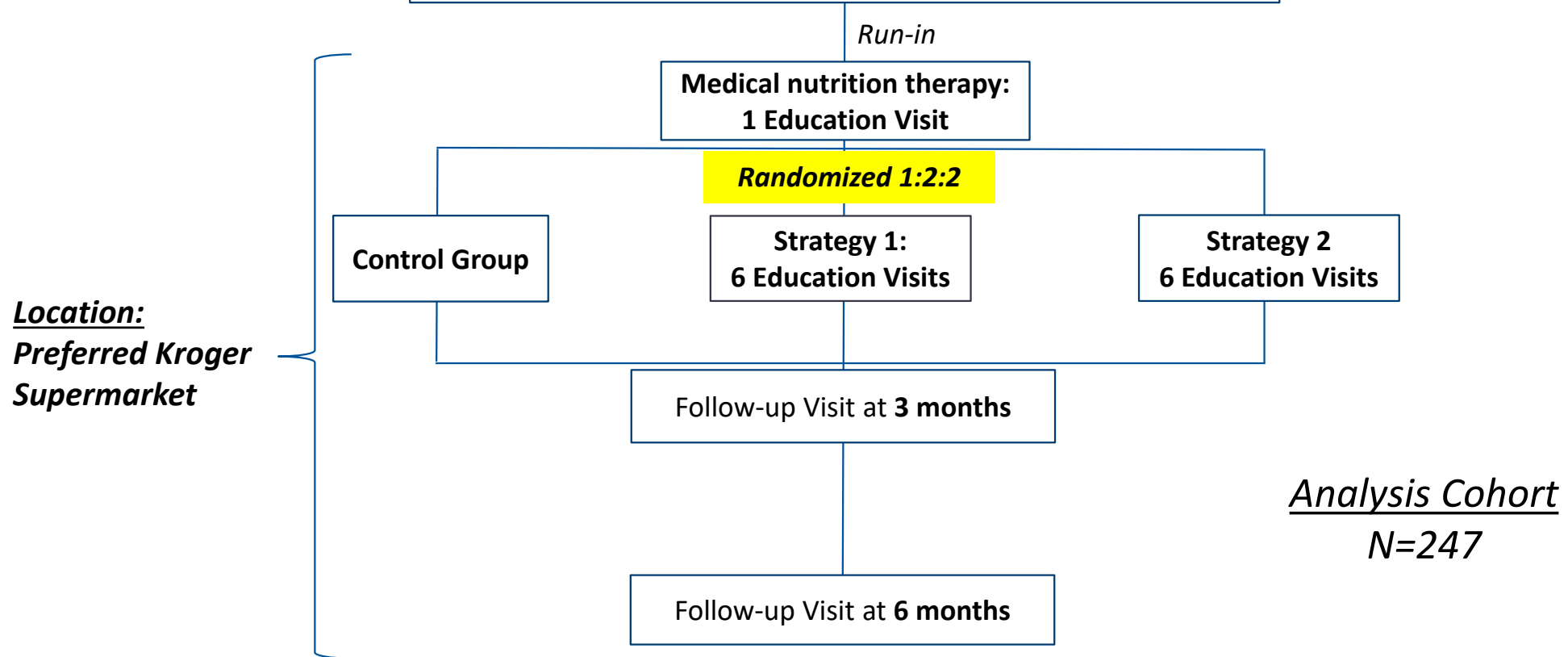


SuperWIN Study Design



University-based primary care network patients who:

- 1) Ages 21-75 years
- 2) ≥ 1 CV risk factor (obesity, hypercholesterolemia, and/or hypertension)
- 3) Shop regularly at a Kroger supermarket in the study ("preferred" store)
- 4) Not an online Kroger shopper
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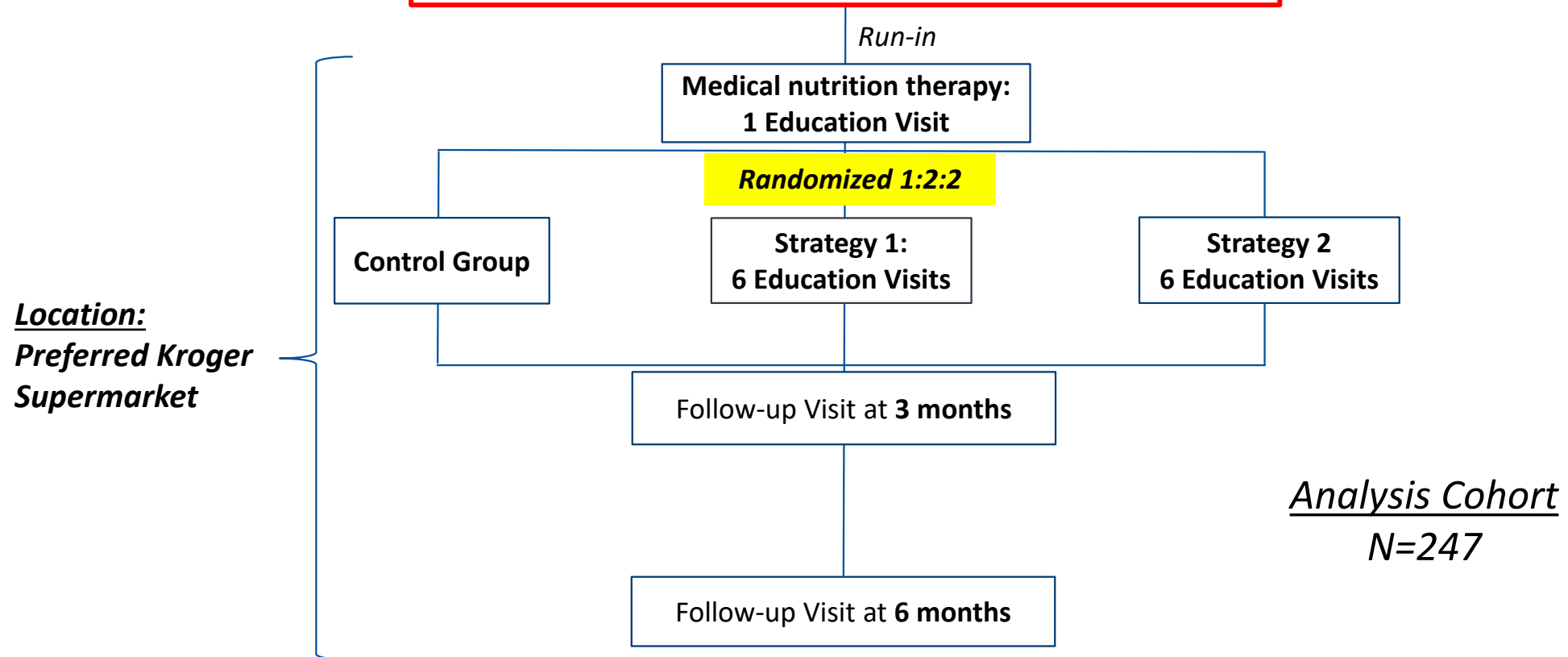


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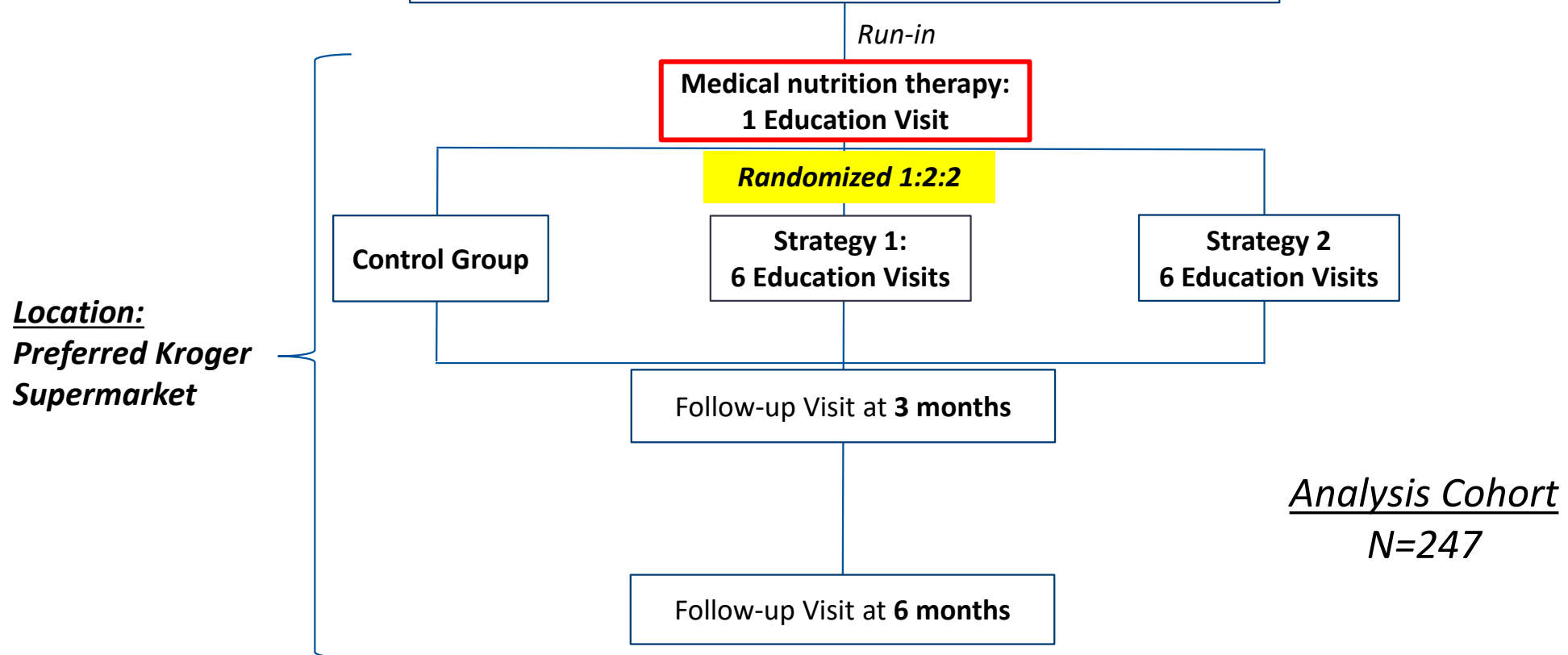


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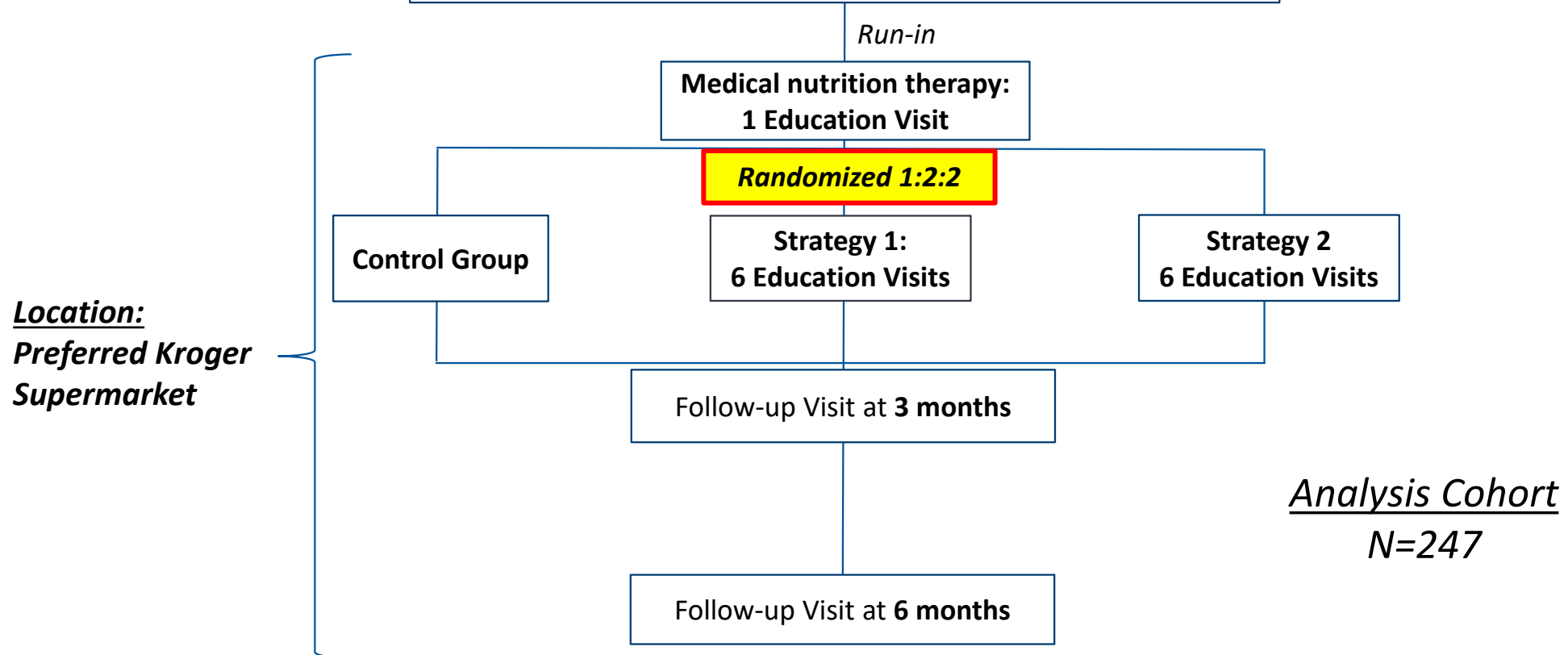


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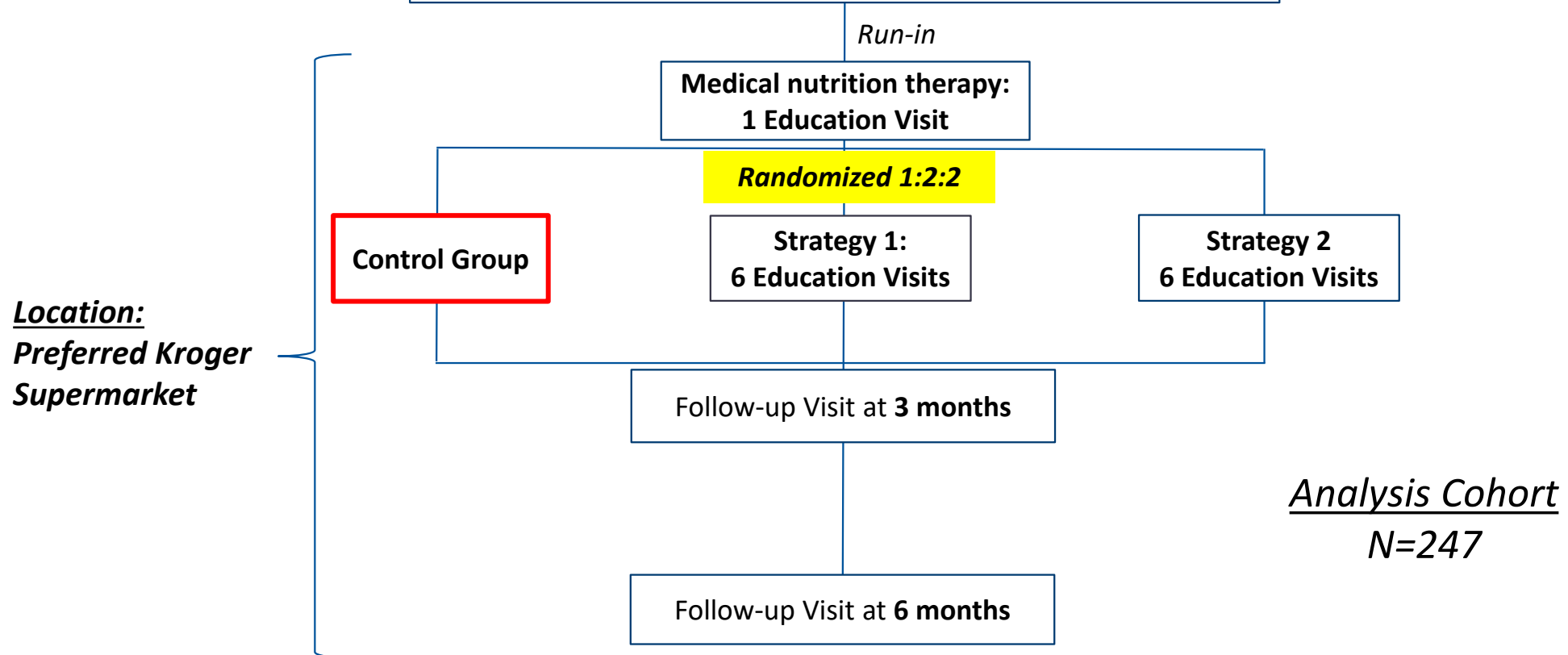


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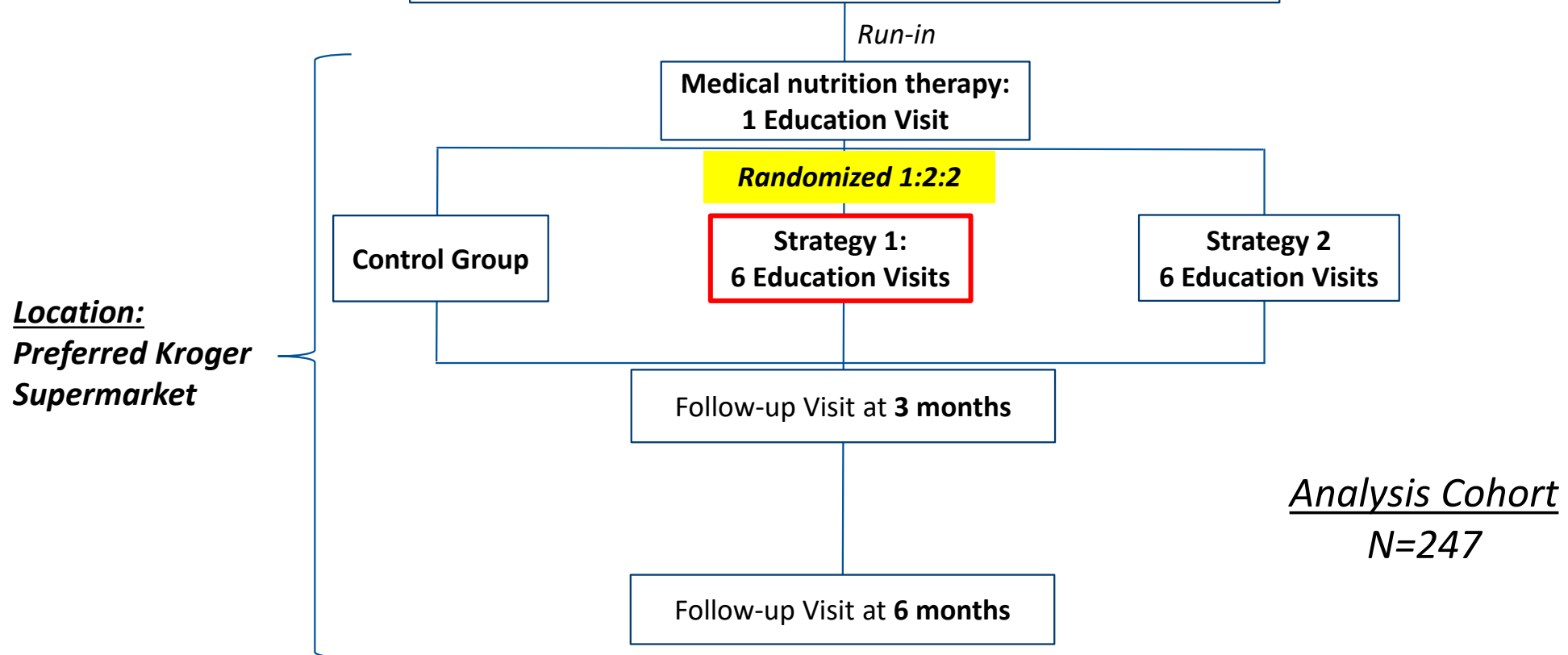


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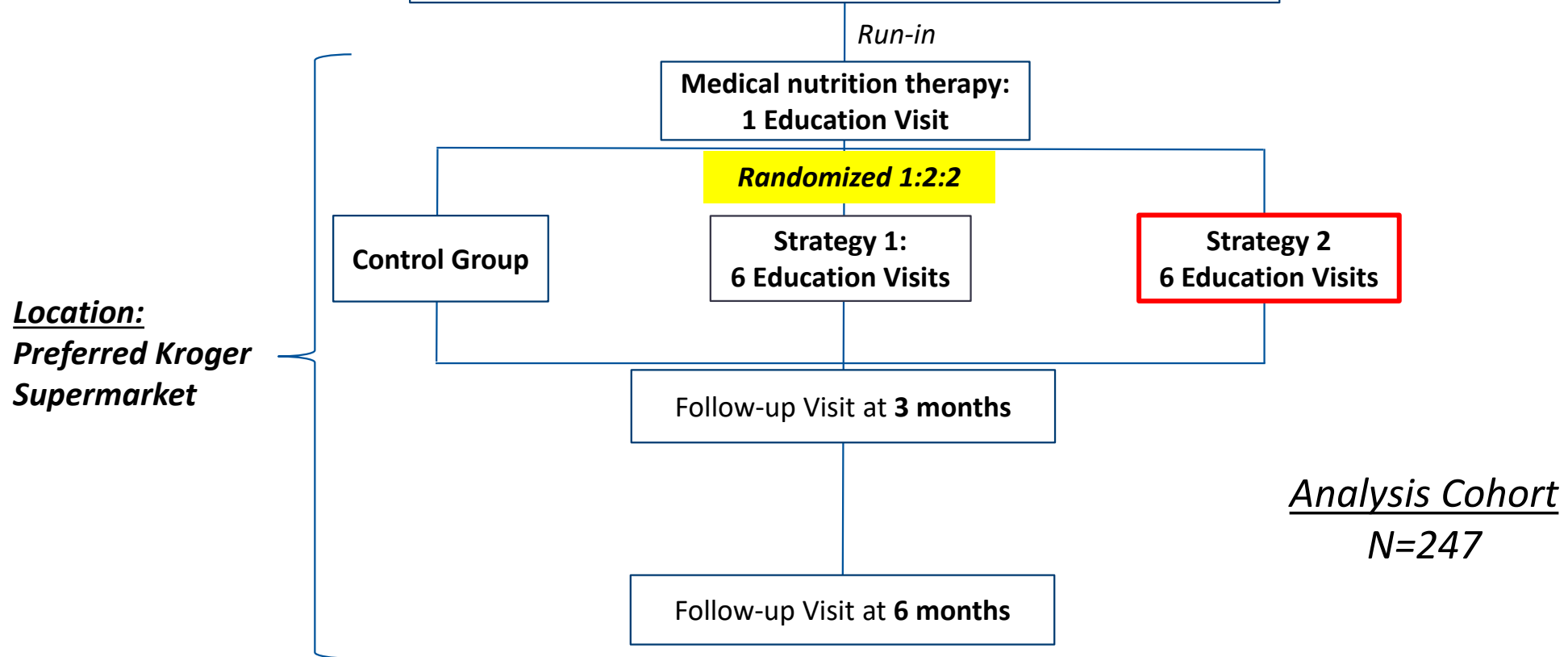


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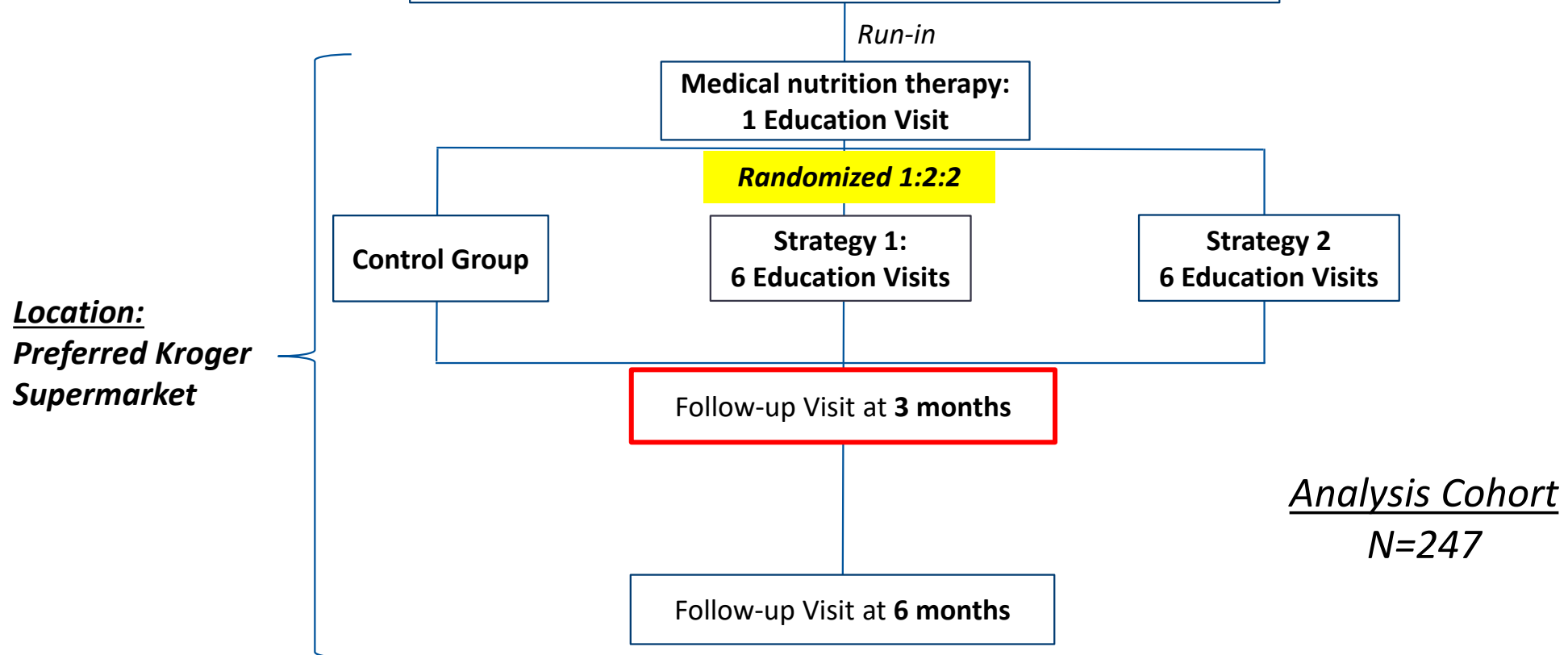


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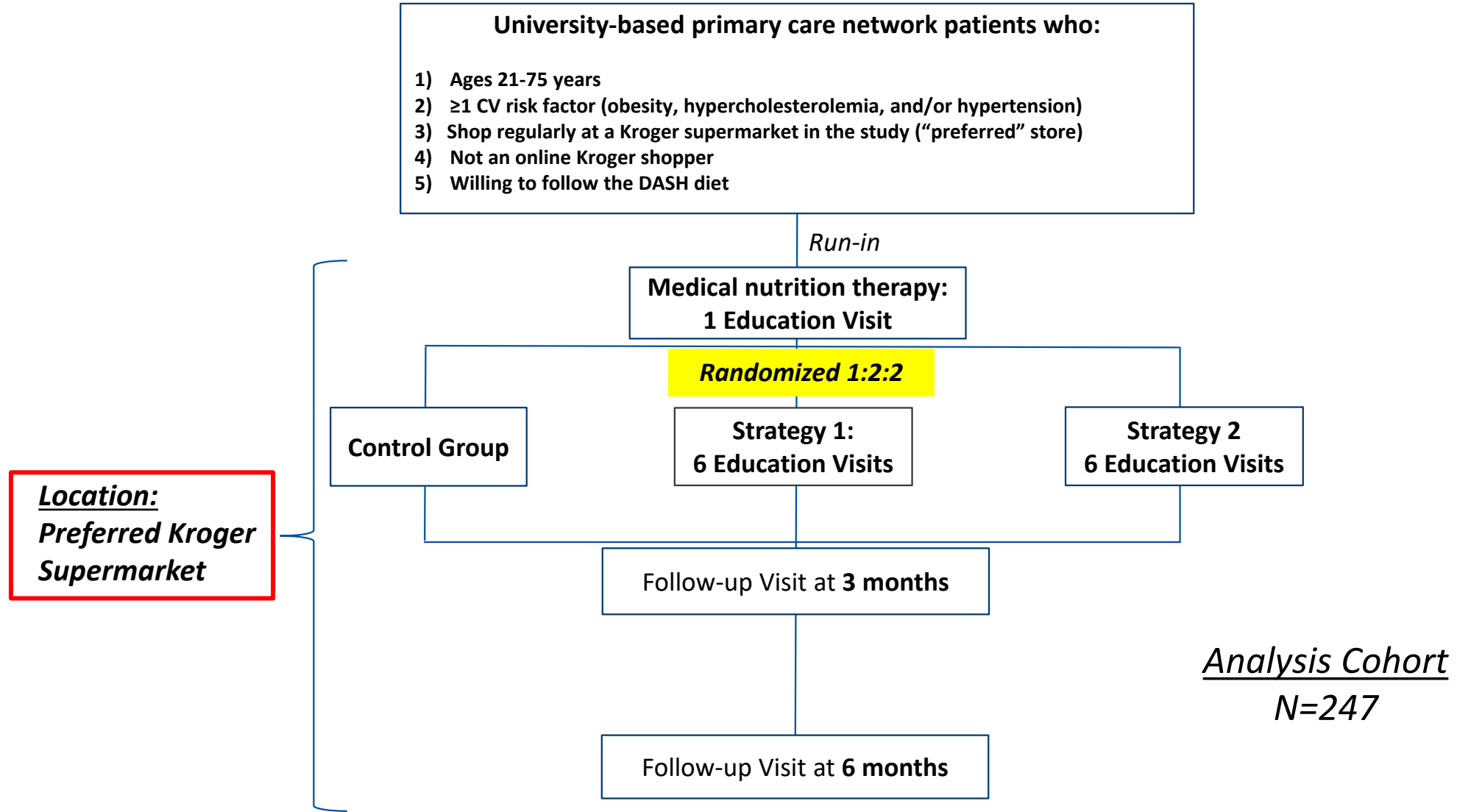


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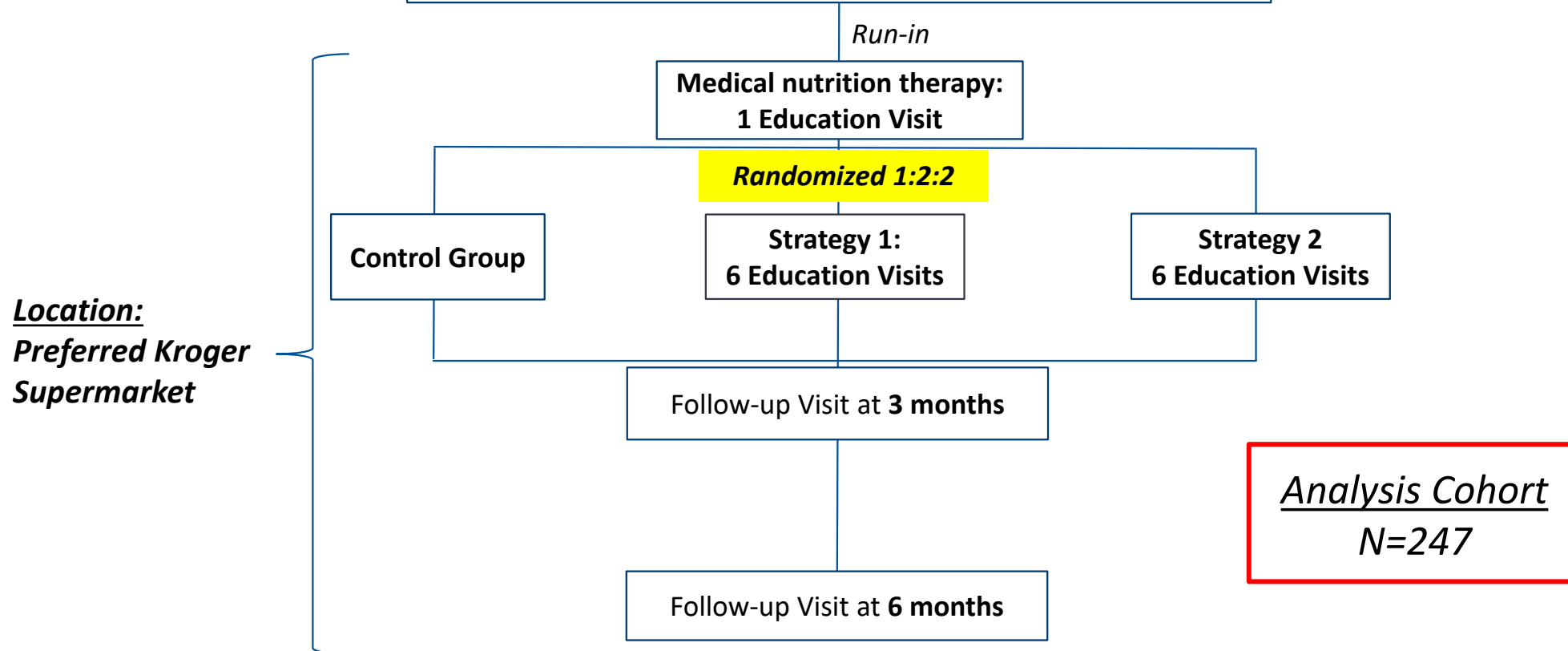


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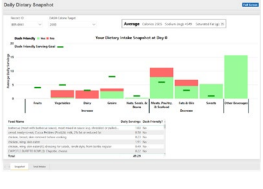






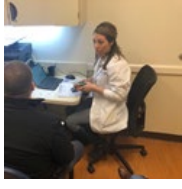

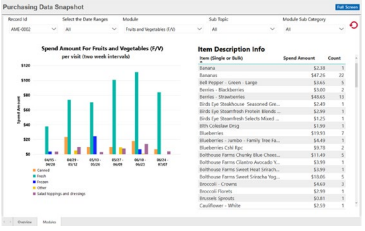



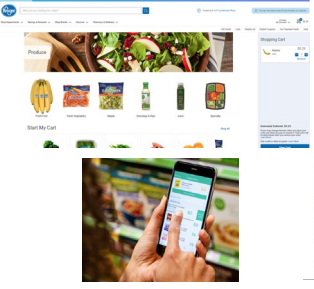



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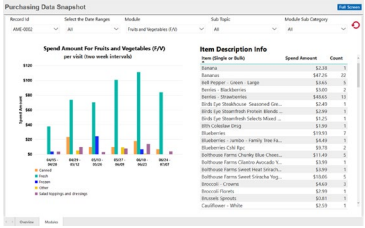



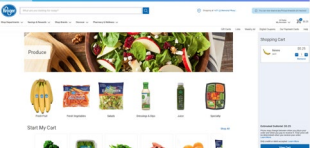


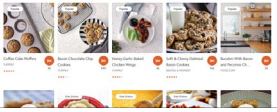
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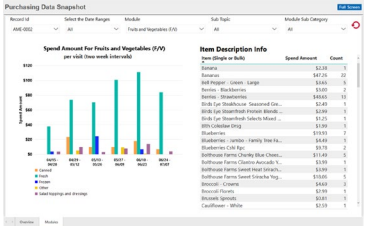



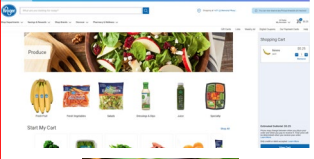


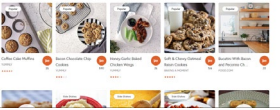
Dietary Education

Control	Strategy 1	Strategy 2
<p>Medical Nutrition Therapy (30min)</p>   	<p>Medical Nutrition Therapy (30min)</p>   	<p>Medical Nutrition Therapy (30min)</p>   
<p>Randomized 1:2:2</p>		
	<p>Purchasing data-guided, “in the aisles” education (6 sessions- 60min each)</p>  	<p>Purchasing data-guided, “in the aisles” education (6 sessions- 60min each)</p>  
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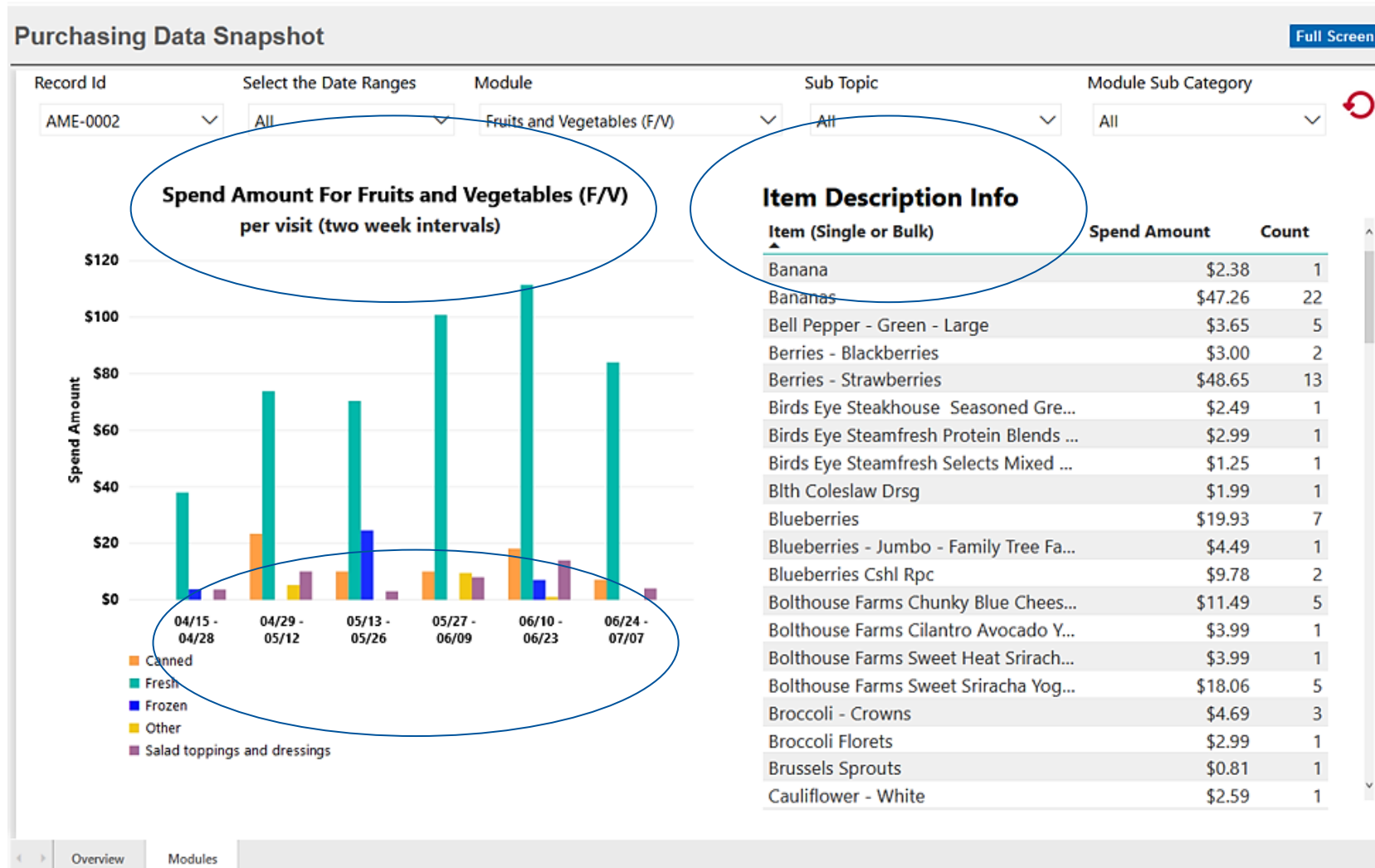
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Individualized Purchase Review

(Both Strategies 1 and 2)

Example



Hypothesis Testing

Primary Endpoint:

- **DASH score** (measure of DASH diet adherence)
- Calculated from raw dietary intake data (24-dietary phone recalls)
- Range 0-90
- Increased score = increased adherence

Two tests for DASH score change (baseline to 3 months):

1. What is the efficacy of data-guided, in-store teaching?

Strategies 1 and 2 versus Control (“S1/S2 vs. Control”)

if $p < 0.05$, then

2. What is the efficacy of online shopping and nutrition apps?

Strategy 2 versus Strategy 1 (“S2 vs. S1”)

Baseline Characteristics

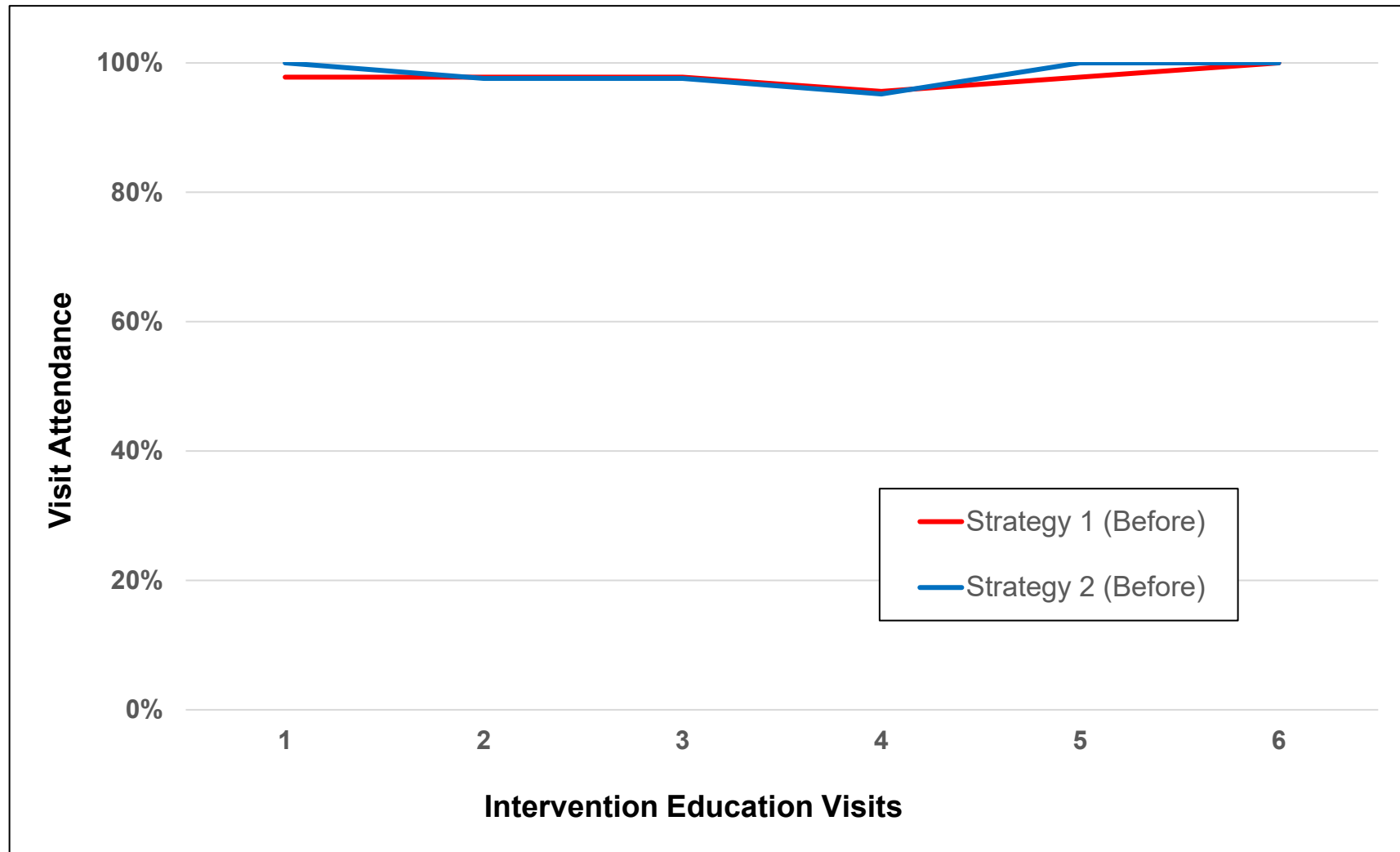
Variable	Control (n=46)	Strategy 1 (n=100)	Strategy 2 (n=101)
Age - mean - yr	56.2 (11.4)	57.0 (10.7)	55.8 (11.0)
Female - %	69.6%	68.0%	70.3%
Race - %			
Black or African American	13.0%	23.0%	21.8%
White	78.3%	73.0%	71.3%
Household annual income \geq \$125,000 - %	28.3%	37.0%	39.6%
Children in the household – mean (SD)	0.33 (0.67)	0.43 (0.89)	0.42 (0.89)
Prior myocardial infarction or stroke - %	10.9%	7.0%	5.0%
Hypertension medications - %	67.4%	77.0%	72.3%
Blood pressure- mean (SD) - mm Hg			
Systolic	130.0 (16.4)	129.8 (18.6)	128.4 (14.9)
Diastolic	85.7 (11.1)	82.1 (11.6)	83.4 (10.4)
Body mass index- mean (SD) - kg/m ²	33.8 (7.2)	34.0 (7.9)	32.9 (8.1)
Hypercholesterolemia medications - %	43.5%	47.0%	36.6%
Non-HDL cholesterol - mean (SD) - mg/dl	107.0 (32.5)	115.2 (37.0)	112.5 (35.3)

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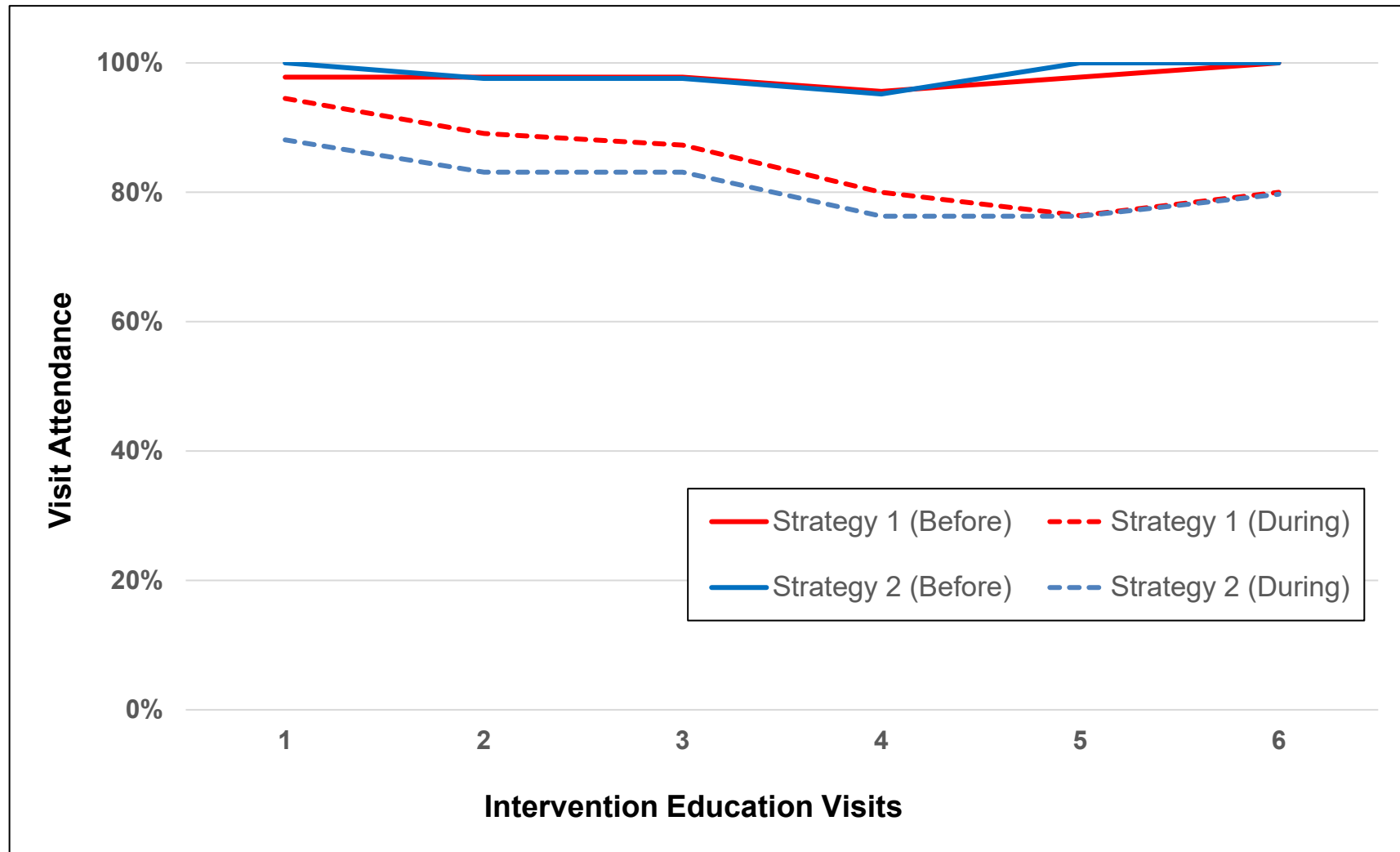
Impact of COVID-19 on SuperWIN

Education Visit Attendance



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DASH Changes at 3 Months

Overall Cohort	Control (N=46)	Strategy 1 (N=100)	Strategy 2 (N=101)
At baseline	45.2 (42.0, 48.4)	44.4 (42.0, 46.8)	43.2 (40.8, 45.5)
At 3 months	51.0 (47.6, 54.4)	53.1 (50.6, 55.5)	55.6 (53.2, 58.1)
DASH Change	5.8 (2.5, 9.2)	8.6 (6.4, 10.8)	12.4 (10.3, 14.6)

Endpoints are reported as least-squares means (95%CI).

DASH Changes at 3 Months

Overall Cohort	Control (N=46)	Strategy 1 (N=100)	Strategy 2 (N=101)	S1/S2 vs. Control	P-value
At baseline	45.2 (42.0, 48.4)	44.4 (42.0, 46.8)	43.2 (40.8, 45.5)		
At 3 months	51.0 (47.6, 54.4)	53.1 (50.6, 55.5)	55.6 (53.2, 58.1)		
DASH Change	5.8 (2.5, 9.2)	8.6 (6.4, 10.8)	12.4 (10.3, 14.6)	4.7 (0.9, 8.5)	0.02

Endpoints are reported as least-squares means (95%CI).

DASH Changes at 3 Months

Overall Cohort	Control (N=46)	Strategy 1 (N=100)	Strategy 2 (N=101)	S1/S2 vs. Control	P-value	S2 vs. S1	P-value
At baseline	45.2 (42.0, 48.4)	44.4 (42.0, 46.8)	43.2 (40.8, 45.5)				
At 3 months	51.0 (47.6, 54.4)	53.1 (50.6, 55.5)	55.6 (53.2, 58.1)				
DASH Change	5.8 (2.5, 9.2)	8.6 (6.4, 10.8)	12.4 (10.3, 14.6)	4.7 (0.9, 8.5)	0.02	3.8 (0.8, 6.9)	0.01

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DASH Changes at 6 Months

Overall Cohort	Control (n=46)	Strategy 1 (n=100)	Strategy 2 (n=101)
At baseline	45.2 (42.0, 48.4)	44.4 (42.0, 46.8)	43.2 (40.8, 45.5)
At 6 months	49.6 (46.3, 52.8)	51.0 (48.6, 53.5)	51.6 (49.2, 54.0)
DASH Change	4.4 (0.6, 8.1)	6.6 (4.0, 9.2)	8.4 (5.9, 11.0)

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At 6 months	49.6 (46.3, 52.8)	51.0 (48.6, 53.5)	51.6 (49.2, 54.0)		
DASH Change	4.4 (0.6, 8.1)	6.6 (4.0, 9.2)	8.4 (5.9, 11.0)	3.1 (-1.0, 7.3)	0.14

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DASH Changes at 6 Months

Overall Cohort	Control (n=46)	Strategy 1 (n=100)	Strategy 2 (n=101)	S1/S2 vs. Control	P-value	S2 vs. S1	P-value
At baseline	45.2 (42.0, 48.4)	44.4 (42.0, 46.8)	43.2 (40.8, 45.5)				
At 6 months	49.6 (46.3, 52.8)	51.0 (48.6, 53.5)	51.6 (49.2, 54.0)				
DASH Change	4.4 <i>(0.6, 8.1)</i>	6.6 <i>(4.0, 9.2)</i>	8.4 <i>(5.9, 11.0)</i>	3.1 <i>(-1.0, 7.3)</i>	0.14	1.8 <i>(-1.9, 5.5)</i>	0.34

Endpoints are reported as least-squares means (95%CI).

Summary

- Adherence to the DASH diet increased in all 3 groups not only at 3 months, but at 6 months
- SuperWIN demonstrated the efficacy of dietary interventions harnessing the store's physical environment, dietitians, purchasing data, and new technologies and services
- Data suggest that the participant experience was excellent

And finally...

- SuperWIN was made possible by a unique-to-date research collaboration between our diverse academic team and a large retailer. More collaborations are needed