

Quantification of 5- and 30-day Ambulation after Radical Cystectomy

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**Walking after cystectomy is
good**

Background – Ambulatory Protocols

- Educational materials
- Encouragement
- Supervision (Sallis)
- Enforced mobilization (Magheli)

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=Various intensities of harassment

Set goals

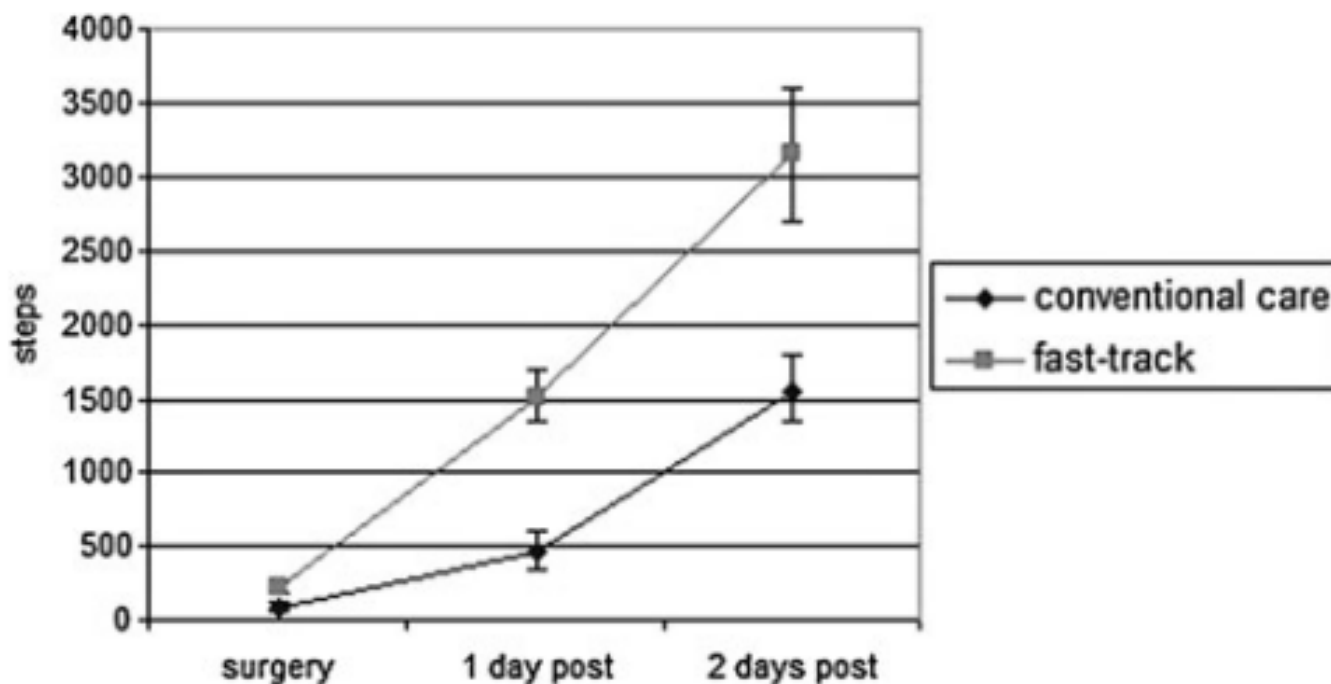
Goal setting

- Target
- Objective evaluation
- Signal for intervention
- Victory condition
- Among others...

How?

Background – How Much is Reasonable?

- 50 patients after laparoscopic radical prostatectomy
- Randomized to fast-track vs conventional protocol



Our Trial

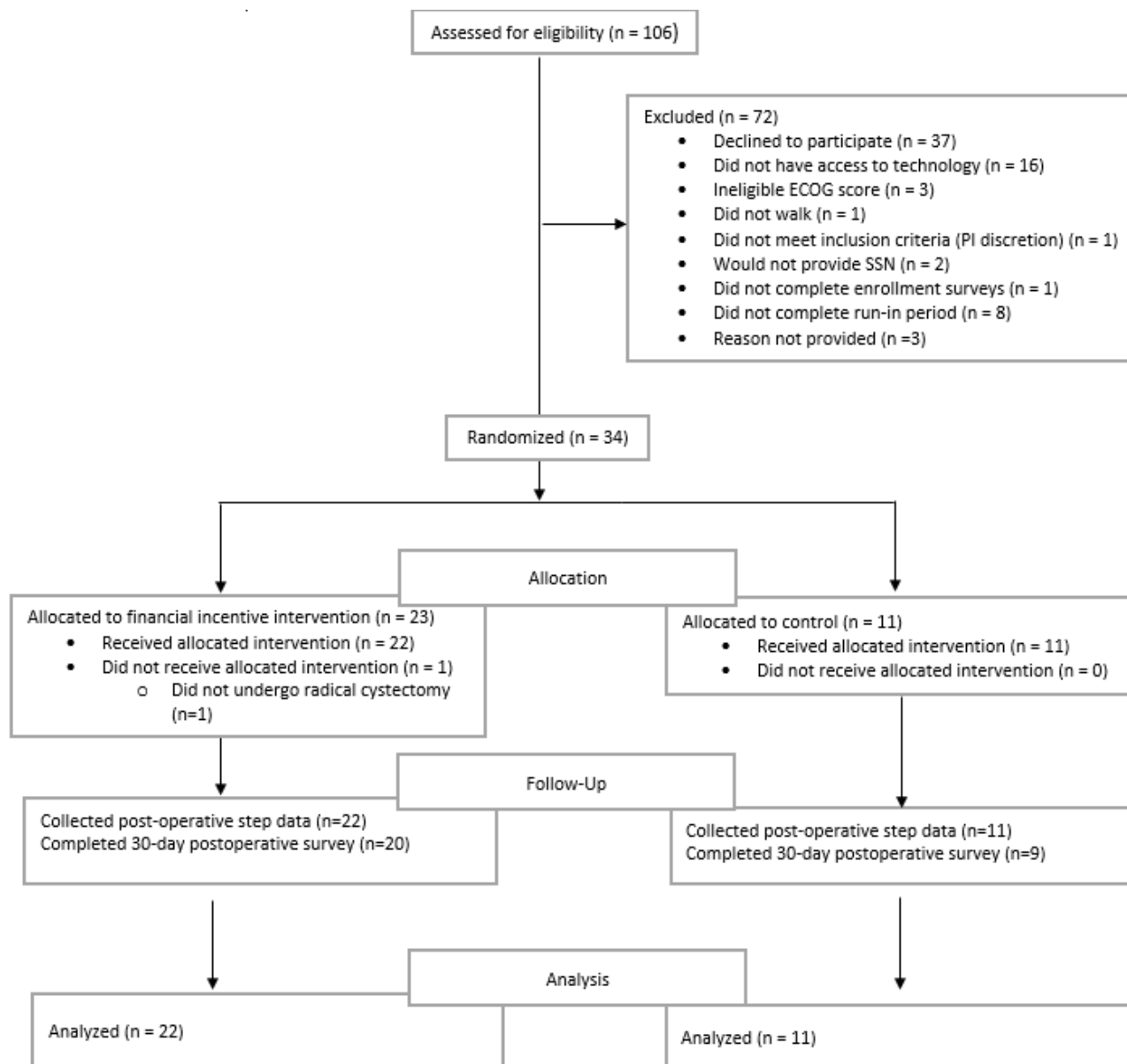
Our Trial

- Pilot randomized controlled trial
- Objectives
 - Primary: Test a financial incentive system to increase ambulation
 - **Secondary**: Quantify ambulation after cystectomy

Study design

- Enrolled 33 undergoing radical cystectomy at a single institution
- All patients given a Fitbit step counter
- Step counts collected during a 3-7 day lead in period
- Step goals set to 10%, 25%, 40%, and 55% of baseline during weeks 1-4
- Randomized to financial incentive vs. control
- All patients: electronic feedback on goal
- Incentive group
 - \$1.50 for every day a step goal is met
 - 20% chance of a \$100 reward if 75% of step goals met in first 30 days
- **Primary outcome:** # of days on which step goals were met

CONSORT Diagram

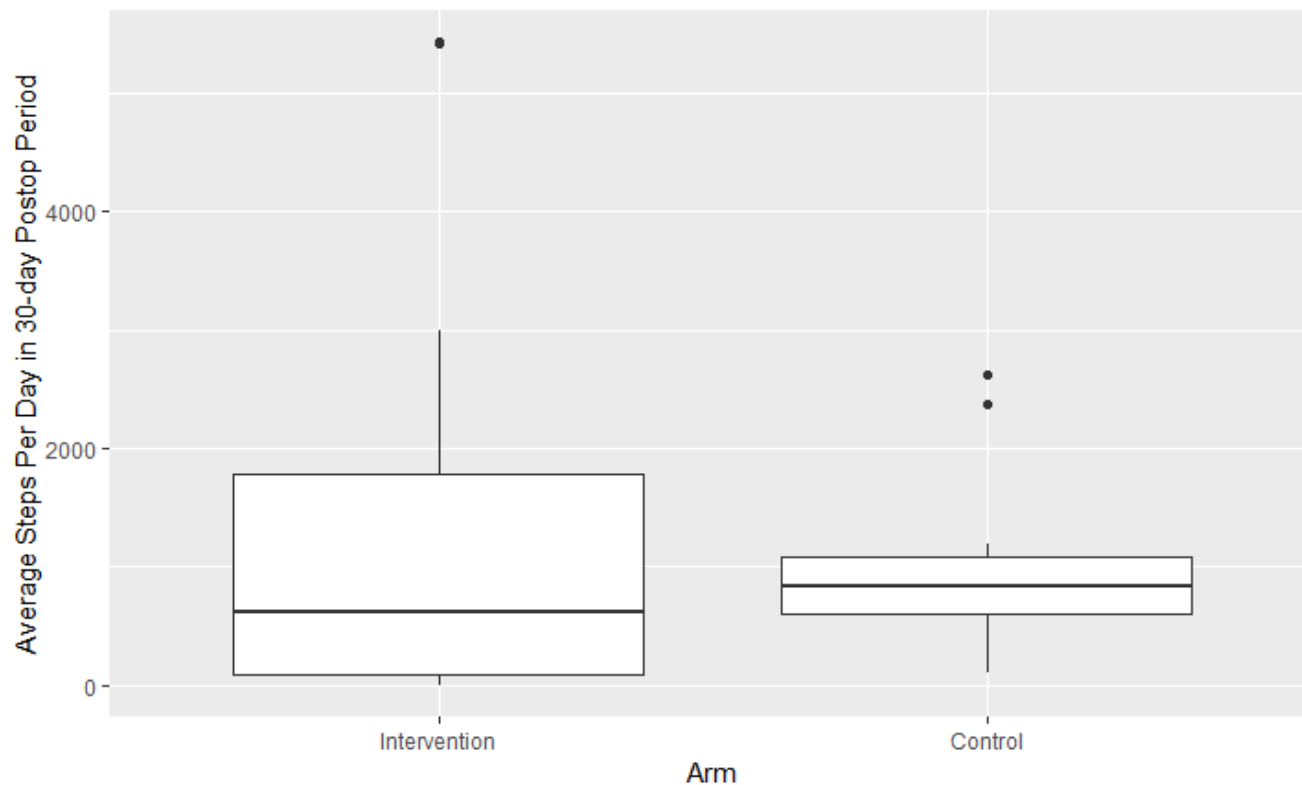


Results – Baseline Characteristics

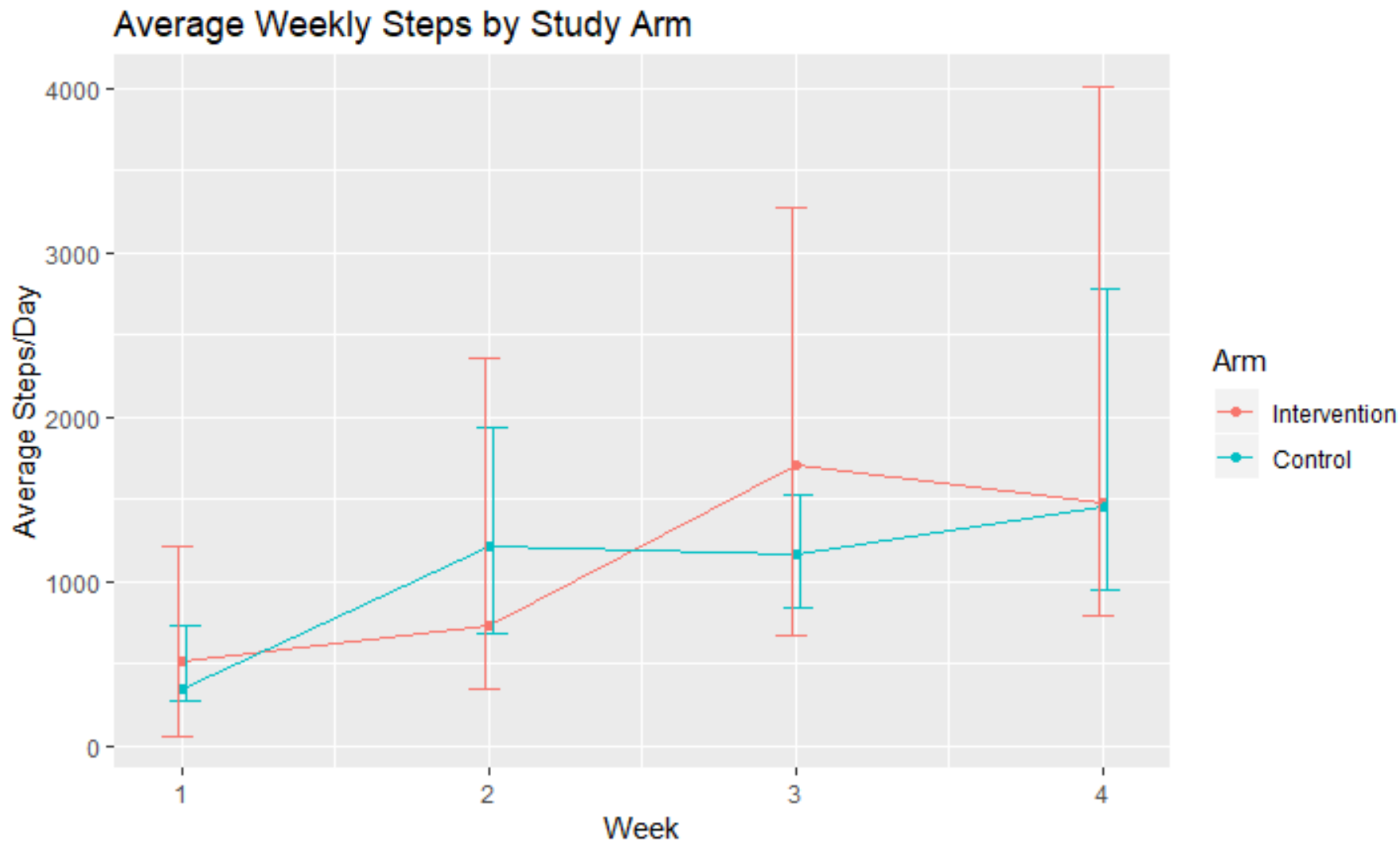
		All (n=33)	Control (n=11)	Intervention (n=22)	p
Age		65 (60.72)	65 (62.75)	64.5 (60.72)	0.6835
Female		3 (9.09)	2 (18.18)	1 (4.55)	0.199
ECOG Performance Status					0.0191
	0	22 (75.86)	3 (42.86)	19 (86.36)	
	1	7 (24.14)	4 (57.14)	3 (13.64)	
Received Neoadjuvant Chemotherapy		22 (66.6%)	5 (45%)	17 (77%)	0.068
Urinary Diversion Type					0.5298
	Incontinent	17(51.52)	7(63.64)	10(45.45)	
	Continent, catheterizable	1(3.03)	0(0.00)	1(4.55)	
	Continent, orthotopic	15(45.45)	4(36.36)	11(50.00)	
Final N Stage >0		4 (12.12%)	0 (0%)	4 (18.2%)	0.1314
Final T Stage					0.1642
	0	5(15.15)	2(18.18)	3(13.64)	
	5	3(9.09)	0(0.00)	3(13.64)	
	6	2(6.06)	2(18.18)	0(0.00)	
	1	7(21.21)	3(27.27)	4(18.18)	
	2	7(21.21)	3(27.27)	4(18.18)	
	3	6(18.18)	0(0.00)	6(27.27)	
	4	3(9.09)	1(9.09)	2(9.09)	
Stanford Health Assessment Disability Index		1(1,1.13)	1(1,1.25)	1(1,1.13)	0.4756
Multidimensional Scale of Perceived Social Support		6.75 (6.25,7)	6.75 (6.25,7)	6.58 (6.181818182,7)	0.9706
Days of Preoperative Data Collected		6(5,11)	6(4,6)	7(6,11)	0.1055
Preoperative Average Steps Per Day		4536.17 (2619.5,6170.9)	3460 (1824.8,4860.6)	4964.54 (2754.3,7001.5)	0.0918
Preoperative IPAQ Metabolic Equivalents		834.0(132.0,1809.0)	148.5(0.0,594.0)	1419.0(409.5,1920.0)	0.0244
Postoperative Disposition to ICU		20 (60.6%)	4 (36.4%)	16(72.73)	0.0439

Results – Randomized Controlled Trial

- No difference in primary outcome
 - Control : median 9.5
 - Intervention : median 4.5
- No difference in overall average # of steps per day during 30-day postoperative period



Results – Randomized Controlled Trial



Results – Randomized Controlled Trial

	All (n=33 Median(Q1,Q3))	Control (n=11 Median(Q1,Q3))	Intervention (n=22 Median(Q1,Q3))	95% CL difference of means	p
Average Days Meeting Step Goals	7 (2,15)	9 (6,15)	4.5 (0,16)	-2(-8.5,4.5)	0.5338
Postoperative Average Steps Per Day	1006 (652,2393)	1191 (788,1846)	979 (505,2646)	295(-810.0,1400.3)	0.5895
Postoperative Average Steps Per Day (% of baseline, 30-day)	23.33 (6,50)	30 (20,50)	15 (0,53)	-7(-28.3,14.9)	0.5338
30 day SHAQDI	1.25 (1.0,1.5)	1.38 (1.1,1.8)	1.25 (1,1.5)	-0.1(-0.5,0.2)	0.3814
30 day MSPSS	6.9 (6.2,7,0)	6.9 (5.9,7.0)	6.9 (6.3,7.0)	0(-0.3,0.6)	0.5409
30 day IPAQ Metabolic Equivalents	148.5 (99,324)	99 (99,219)	149 (99,339)	59(-88.2,206.0)	0.4152
Length of Stay	7 (6,11)	7 (6,10)	7.5 (6,12)	1(-2.7,5.1)	0.5256

Results: Pooled Analysis of Step Counts

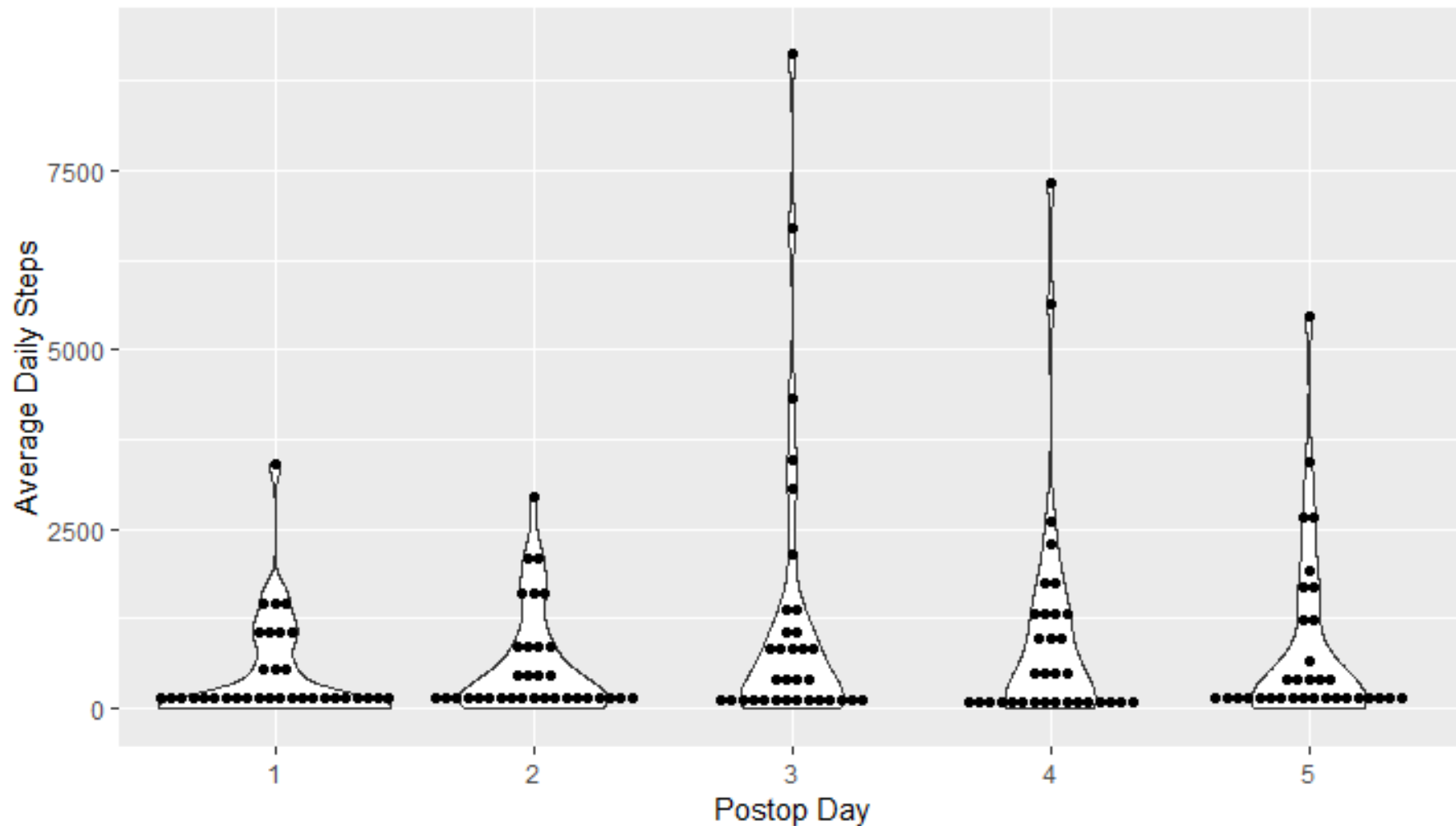
**NO
difference
between
study
groups**



**Pool groups
for
descriptive
analysis**

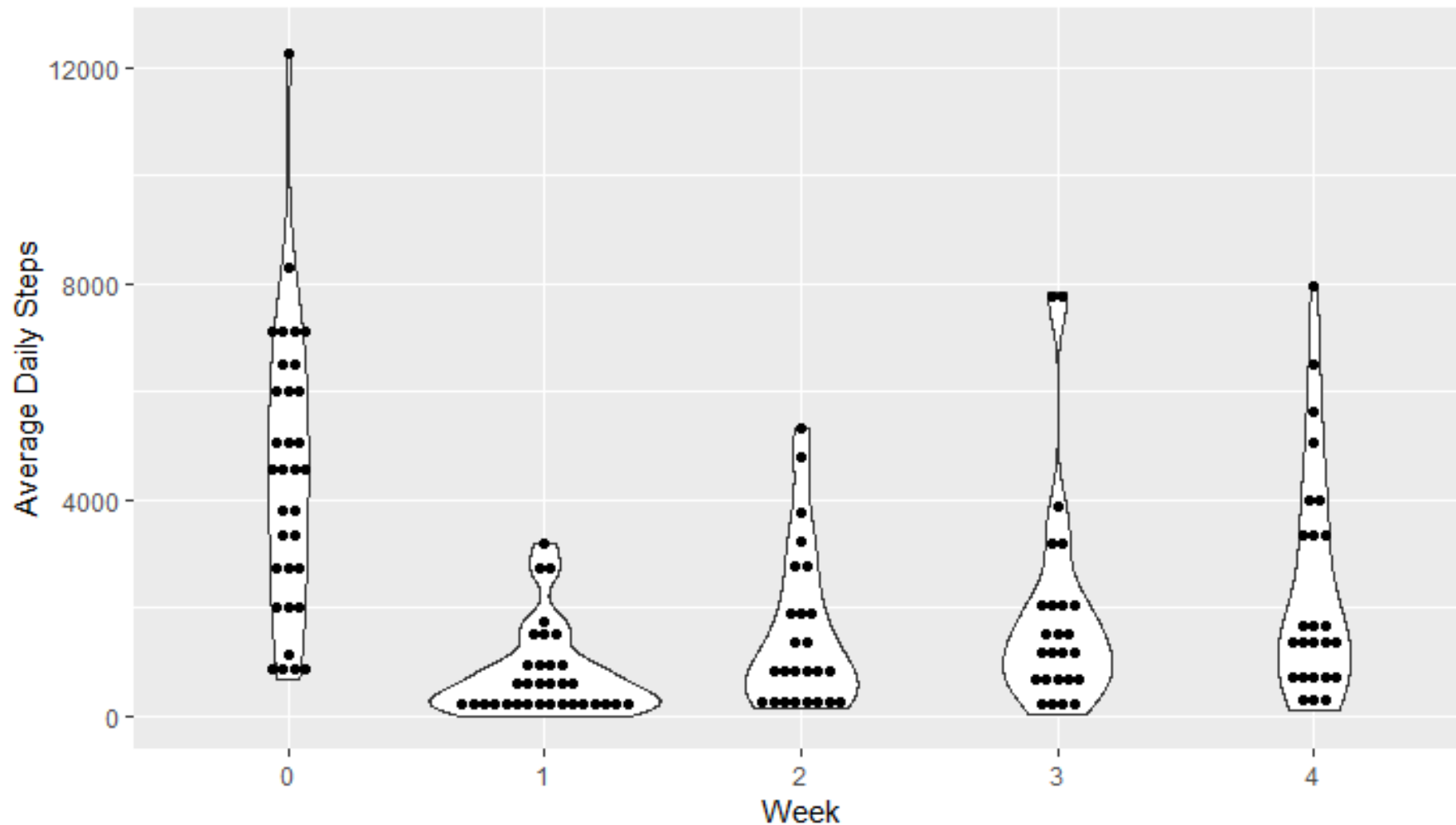
Results: Pooled Analysis of Step Counts

Average Daily Steps in Overall Cohort



Results: Pooled Analysis of Step Counts

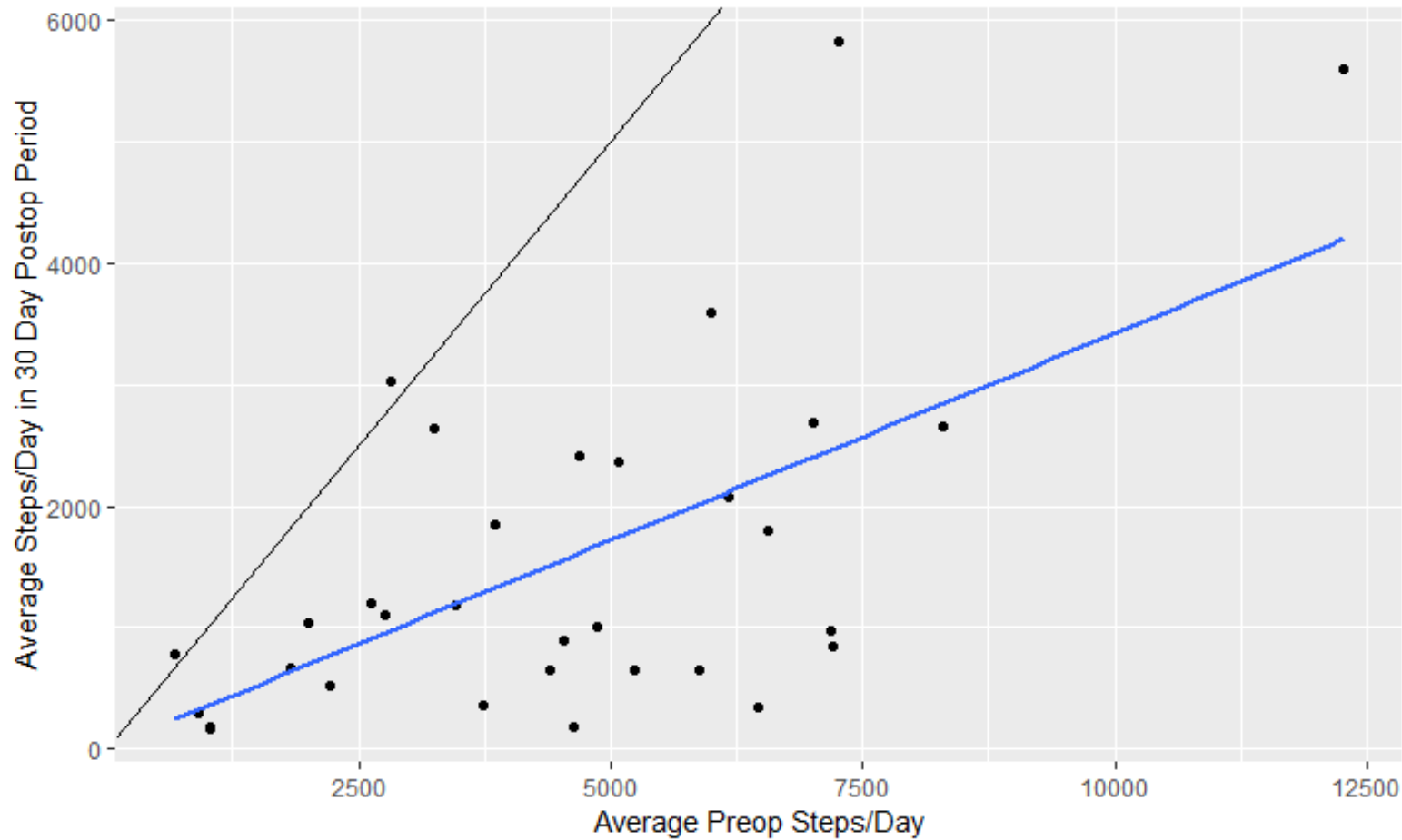
Average Daily Steps in Overall Cohort



(days with 0 steps reported excluded after week 0)

One size fits all?

Results: Pooled Analysis of Step Counts



(days with 0 steps reported excluded after week)

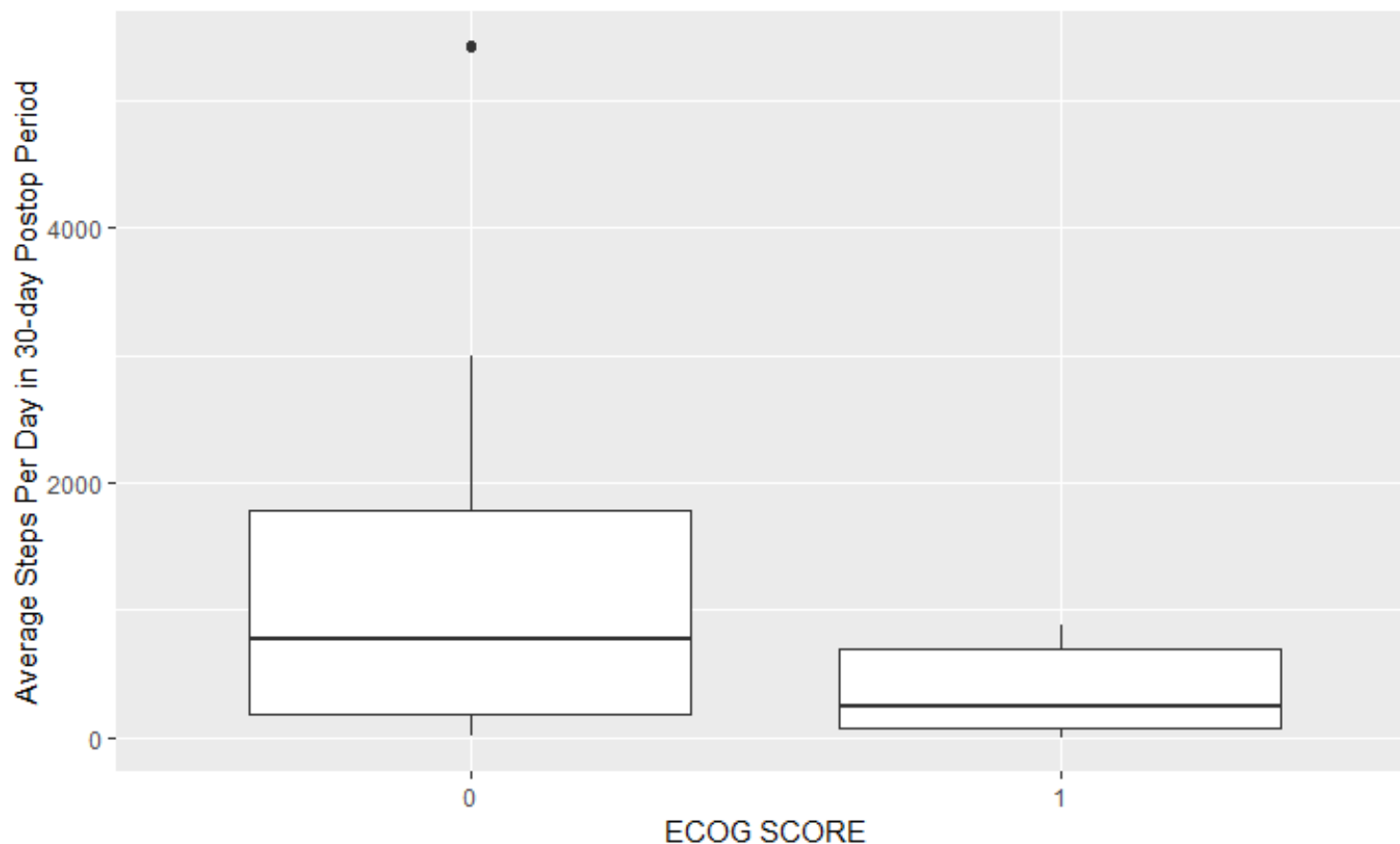
Results: Pooled Analysis of Step Counts

- Age
- Preop step counts
- Self-reported ECOG Status
- International Physical Activity Questionnaire – Short 7 Day
- Stanford Health Assessment Questionnaire Disability Index
- Multidimensional Scale of Perceived Social Support

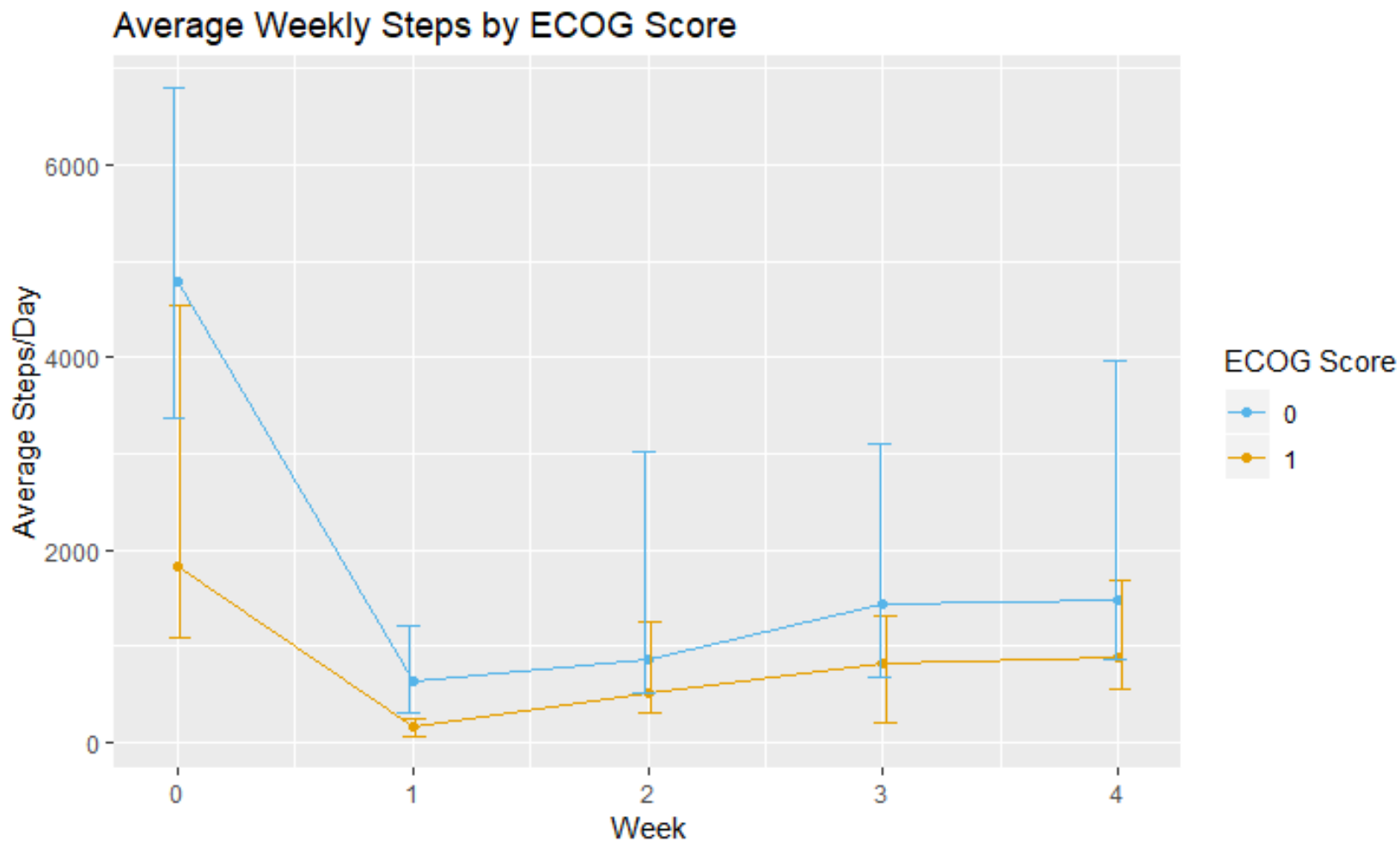
- Diversion Type
- Neoadjuvant Chemo
- Postop ICU Admission

Results: Pooled Analysis of Step Counts

- ECOG performance status only significant predictor of overall average postoperative step count
 - ECOG status 1 vs 0: -685 steps (95% CI -1370,-0.50 p=0.0498).



Results: Pooled Analysis of Step Counts



(days with 0 steps reported excluded after week 1)

Conclusions

- Our financial incentive system did not increase postoperative ambulation
- Step counts after cystectomy are low
- Self-reported ECOG performance status was the best predictor of postoperative step counts
 - Surpassed preop step counts and more complex survey instruments
- Physical activity 1 month after cystectomy remains persistently depressed