

HIV Disease Symptoms and Side Effects on Medication Adherence

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9th International
Conference on
**HIV TREATMENT
AND PREVENTION
ADHERENCE**



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June 10, 2014

Collaborators

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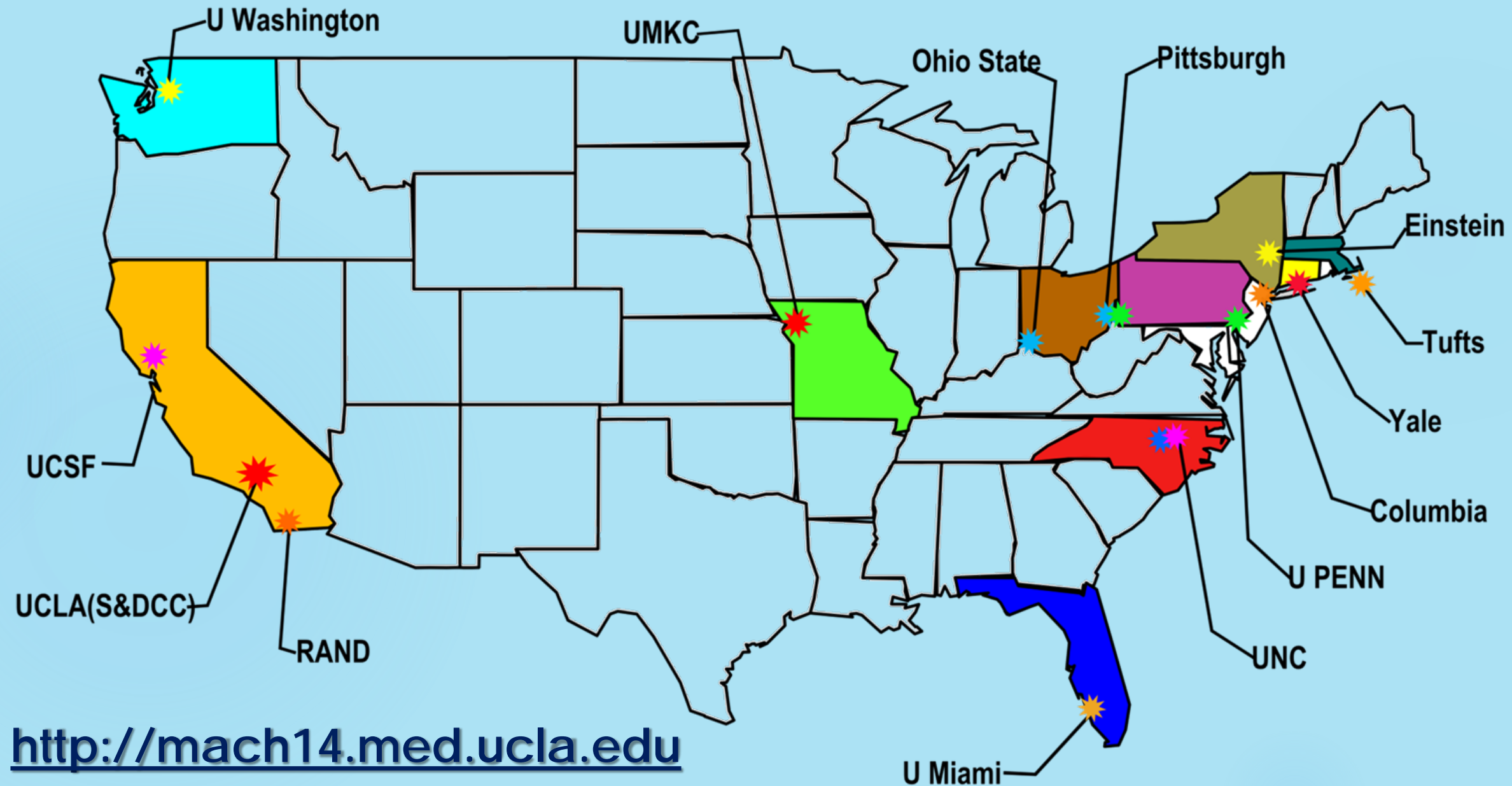
- ❖ Ira Wilson, Brown University
- ❖ Marc Rosen, Yale University
- ❖ Loren Miller, UCLA
- ❖ Carol Golin, UNC
- ❖ Judith Erlen, University of Pittsburgh
- ❖ Jie Shen, UCLA
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For MACH14 Investigators



**Funded by NIMH/NIH
(R01MH 078773)**

Multi-site Adherence Collaboration in HIV



Institute	Length	# PTs	Recall	# Symp	Severity 4	SE
1. Albert Einstein	1998–2004	104	30 days	5		
2. UCSF	1997–2002	108	30 days	20	√	
3-4. Univ. of Pittsburgh	1998–2003	215	Current	12	√	
	2003–2009	349	Current	12	√	
5. UMKC	2004–2008	202	30 days	20	√	√
9. Columbia	2000–2004	215	2 weeks	20	√	√
11. Yale	2002–2005	97	4 weeks	18		
12. Univ. of Miami	1997–2003	404	2 weeks	12		√
13. UW	2002–2009	224	2 weeks	20	√	√
15. Tufts	2001–2003	156	4 weeks	20	√	

Characteristics of the sample

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- We have **1580** patients, with **4632** observations over the **72** weeks.

Age	41.81±8.02	Adherence	0.7±0.3
Male	1006 (63.89%)	Log(VL)	6.34±2.9
African American	686 (44.63%)		
White	514 (33.44%)	No. Symptoms	7.67±5.4
Latino	234 (15.22%)	Severity	47.25±12.26
Other	103 (6.7%)		
		NNRTI	362 (22.91%)
< High School	322 (21.48%)	boosted PI	267 (16.9%)
High School	1001 (66.78%)	PI	219 (13.86%)
> High School	176 (11.74%)	Other ARV	732 (46.33%)

Symptoms	N	%
Fatigue	1489	63.1%
Depressed	1270	53.0%
Sleep	1478	51.8%
Muscle aches	1085	46.4%
Diarrhea	1558	43.8%
Pain	1480	43.6%
Anxiety	1119	42.4%
Skin problems	1471	40.4%
Memory loss	1083	39.6%
Headache	1349	36.8%
Sex problems	1074	35.9%
Nausea	1474	34.3%
Dizzy	1481	34.2%
Pain/gas stomach	1479	34.1%
Weight gain	1472	32.0%
Appetite	1474	31.2%
Cough	1157	28.8%
Fever	1552	24.2%
Weight loss	1547	23.0%
Hair loss	1071	12.9%

Symptom info in MACH14

- 📌 The symptoms are collected by modified ACTG as standard instruments
- 📌 Up to 20 symptoms were collected
- 📌 Number of patients
- 📌 % of symptoms reported

Random Intercept and Slope Models

RIAS

Variables	Coefficient	P-value
Intercept	82.03%	<.0001
Study week	-0.32%	<.0001
No. of Symptom	-0.21%	0.0397
Log (VL)	-1.76%	<.0001
Regimen (Ref: NNRTI)		
PI	-0.21%	NS
Boosted PI	-7.27%	<.0001
Other ARV	2.12%	NS
Age	0.20%	0.0377
Male	-0.47%	NS
Ethnicity (Ref: White)		
African American	-8.93%	<.0001
Latino	-8.23%	0.0009
Other	-4.40%	NS
Education (Ref: above HS)		
Less than HS	-4.18%	NS
HS	0.04%	NS

Random Intercept and Slope (RIAS) Model

-No. of Symptoms

Variables	Coefficient	P-value
Intercept	83.97%	<.0001
Study week	-0.32%	<.0001
Severity	-0.13%	0.004
Log(VL)	-1.63%	<.0001
Regimen (Ref: NNRTI)		
PI	-1.63%	NS
Boosted PI	-6.34%	0.035
Other ARV	3.01%	NS
Age		
	0.23%	<.0001
Male	1.15%	NS
Ethnicity (Ref: White)		
African American	-4.68%	<.0001
Latino	0.23%	NS
Other	1.15%	NS
Education (Ref: above HS)		
< HS	-8.34%	NS
HS	-4.04%	NS

RIAS Model

-Symptom Severity

Symptom	Adherence	P-value
Cough	-3.42%	0.0029
WT loss	-2.80%	0.0111
Fever	-2.55%	0.0156
Depressed	-2.05%	0.0505
Pain	-1.92%	0.0506
Muscle	-1.92%	NS
Nausea	-1.19%	NS
Appetite	-1.20%	NS
Stomach	1.06%	NS
Dizzy	-1.01%	NS
Memory	-1.12%	NS
Skin	-0.74%	NS
Hair loss	-0.56%	NS
Diarrhea	0.32%	NS
WT gain	0.23%	NS
Headache	0.23%	NS
Anxiety	0.18%	NS
Sleep	0.03%	NS
Fatigue	0.03%	NS
Sex	0.01%	NS

Symptoms vs adherence

- 📌 Coughing or trouble catching my breath
- 📌 Problems with weight loss
- 📌 Fevers, chills or sweats
- 📌 Sad, down, or depressed
- 📌 Pain, numbness or tingling in my hands or feet

Side Effects (SE) vs Disease

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- 📌 4 studies collected the information
- 📌 783 patients answered the question,
 - Do you think the symptom is caused by,
 - HIV disease
 - HIV Medication
 - Other answers

Symptoms	N	% Symptoms	% SE	% Disease
Depressed	782	45.52%	11.76%	33.38%
Sleep	783	46.49%	17.62%	28.35%
Anxiety	782	38.62%	11.38%	27.11%
Muscle ache	783	41.12%	15.45%	25.54%
Fatigue	779	56.61%	31.32%	25.03%
Memory	782	31.59%	12.92%	18.41%
Headache	783	34.10%	15.96%	18.01%
Sex	781	32.39%	14.72%	16.90%
Cough	783	22.09%	5.11%	16.60%
Skin	782	35.42%	19.31%	15.60%
Pain	782	37.08%	22.12%	14.58%
Fever	783	20.95%	8.56%	12.13%
Dizzy	782	31.20%	19.82%	11.38%
Stomached	783	31.67%	20.05%	11.24%
Appetite	782	22.38%	11.51%	10.61%
Wtgain	783	24.39%	15.71%	8.30%
Diarrhea	782	37.85%	29.67%	7.93%
Wtloss	783	12.77%	5.62%	7.02%
Nausea	781	30.99%	24.33%	6.53%
Hairloss	783	7.79%	3.83%	3.58%

Summary of Top 5 Symptoms

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Symptoms	Low Adherence	Caused by HIV	Side Effect
Fatigue	Cough	Depressed	Fatigue
Depressed	WT loss	Sleep	Diarrhea
Sleep	Fever	Anxiety	Nausea
Muscle ache	Depressed	Muscle ache	Pain
Diarrhea	Pain	Fatigue	Stomached

Discussion

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- ▶ No objective determination
- ▶ All symptoms are self-reported by patients.
- ▶ Differentiate the cause by HIV or by medication

- ▶ Symptoms vs Adherence
 - ▶ Can not determine the “order”
 - ▶ No causal relationship in this study

Acknowledgements

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- 🏆 This research was supported by the multi-site adherence collaboration grant R01MH078773 from the National Institute of Mental Health (NIMH), Office on AIDS.
- 🏆 The original grants of the individual participating studies are: DA 11869, MH54907, R01 NR04749, R01 NR04749, MH68197, R01 DA13826, K23MH01862-01, MH01584, NIH R01 AI41413, R01 MH61173, NIH, NIAID, AI38858, AI069419, K02 DA017277, R01-DA15215, NIMH P01 MH49548, MH58986, RO1MH61695, CC99-SD003, CC02-SD-003 and 5R01DA015679.
- 🏆 We would also like to thank all the patients who participated in each of the individual studies.

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The End

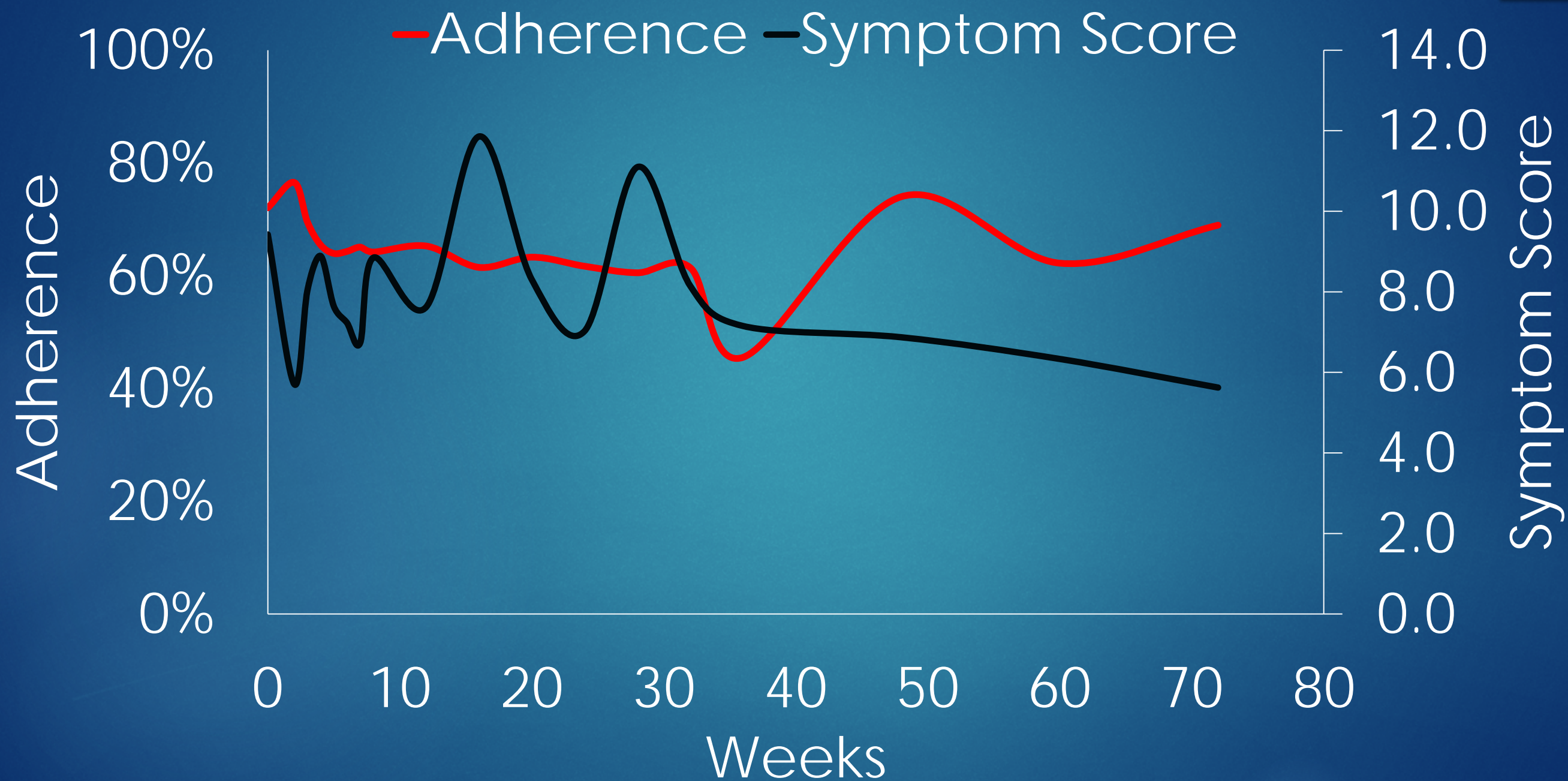


Appendix

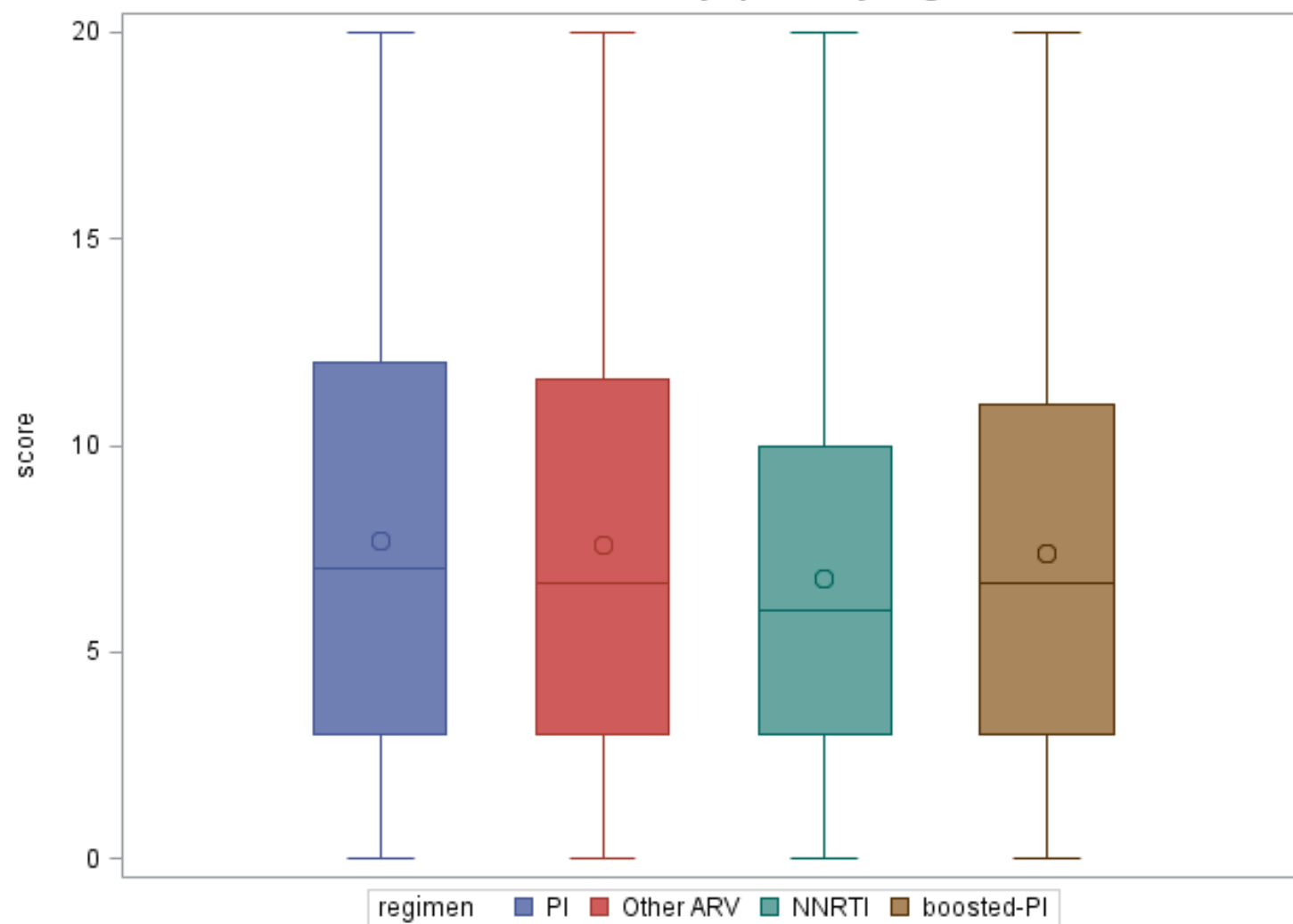
20 Symptoms in MACH14 study

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1. Fatigue or loss of energy
2. Fevers, chills or sweats
3. Dizzy or lightheaded
4. Pain, numbness or tingling in my hands or feet
5. Memory/Trouble remembering
6. Nausea or vomiting
7. Diarrhea or loose bowel movements
8. Sad, down, or depressed
9. Nervous or anxious
10. Difficult falling or staying asleep
11. Skin problems (rash, dryness or itching)
12. Coughing or trouble catching my breath
13. Headaches
14. Loss of appetite or a change in the taste of food
15. Bloating, pain or gas in my stomach
16. Muscle aches or joint pain
17. Problems of having sex
18. Changes in the way my body looks
19. Problems with weight loss
20. Hair loss or change in the way of my hair looks



Plot of number of symptoms by Regimen



Plot of severe of symptoms by Regimen

