



Institute for  
Aging Research  
Hebrew SeniorLife



HARVARD MEDICAL SCHOOL  
AFFILIATE

# Automated Clinical Research Tracking And Assessment Using R-Shiny

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## Clinical Research?

- What do people think we do?
  - Doctors?
  - Building Data Models Everyday?
  - In fact, we spent a lot of time on making sure study is running alright
    - Tracking and Continuous Assessment

## Challenges (1)

- How can I pass the story I found in data to team decision makers?
  - ~~Weekly Reports?~~



## Challenges (2)

- Can I reuse my codes in the analysis phase?

- ~~Built-in tools in Data Collection Tools~~

(Also, in most cases, these tools are not that useful...)

## Our Solution

- We use R-Shiny to “automate all the boring things”
- Shiny can
  - Fetch data from database (REDCap)
  - Perform data manipulation
  - Generate results
  - Display results

# Software Design Pattern

- Perform data manipulation [model]
- Generate results [view-model]
- Display results [view]



**MVVM Architecture**



# Projects We Have Helped

IFAR Biostats Dashboard

Home

Projects

IFAR Wiki

REDCap

RStudio Server

Projects We Serve:

Aging Brain Center (ABC)

Coming Soon

Palliative Care

Coming Soon

Mobility and Falls

BrainSTIM

MIWISH

Football Player Health Study

PD-STIM Pilot

Quality of Care & Health Care Standards

Model of Care 2016

Musculoskeletal Research Center (MUSC)

Framingham Osteoporosis Study

External Projects

Coming Soon

# Demos (1)

Table 1a. Phone Screening Summary

Title	2016-04-21	2016-04-27	Difference
Total Contacts	192	197	+ 5
Phone Screening Completed	192	196	+ 4
• Eligible towards Visit 1	88	90	+ 2
• Not Eligible towards Visit 1	104	106	+ 2
Didn't want to participate	34	34	-
Participant Unresponsive	26	27	+ 1
Ineligible for MRI/tDCS Checklist	2	2	-
Failed to meet study criteria	42	43	+ 1

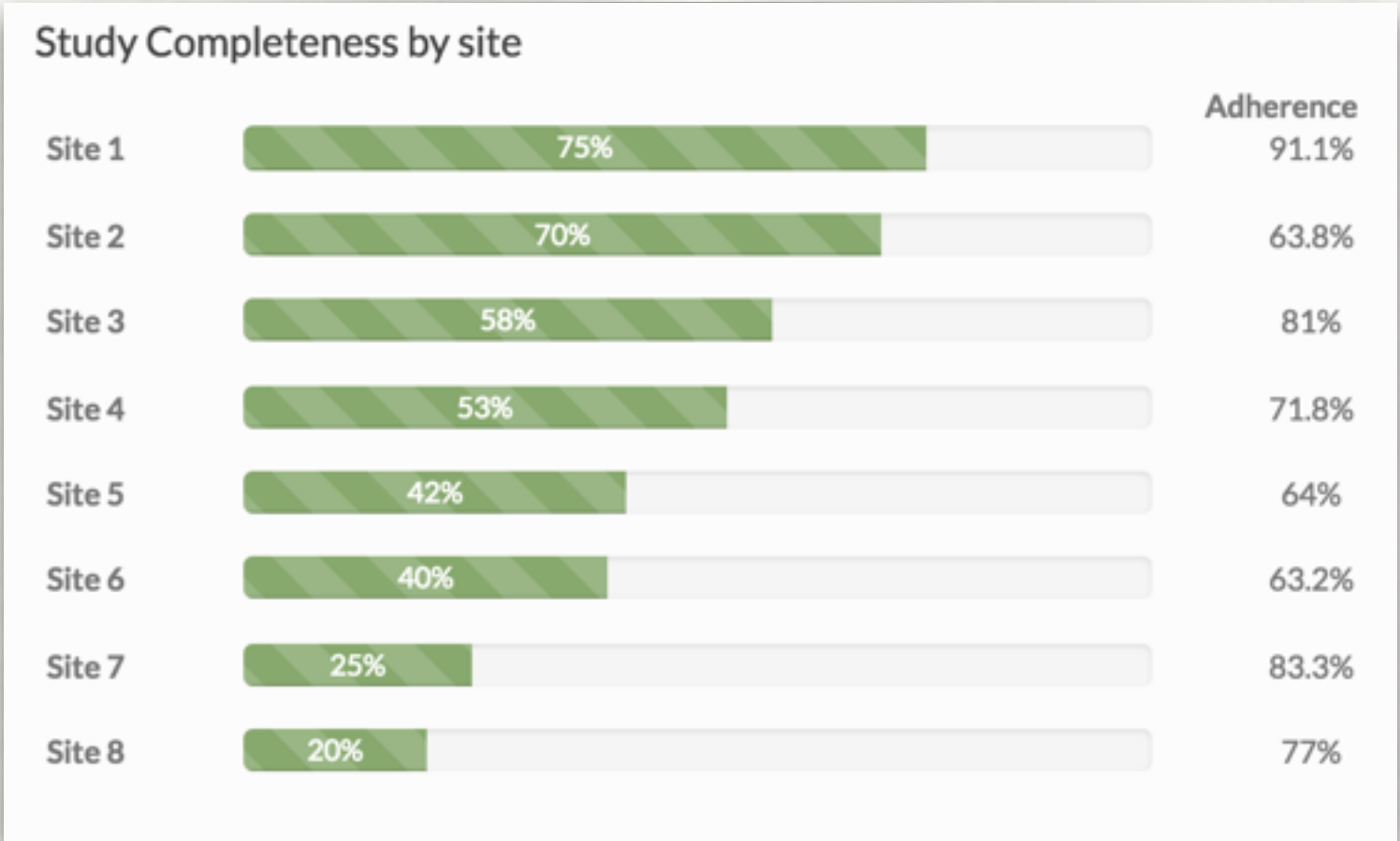


# Demos (2)

Table 3. Post-Visit-1 Adherence Status

[illegible]

# Demos (3)



# Demos (4)

267

Tests Completed

Walking: 149, Balance: 118

Public Users: 128

▲ From Last Week: 0

141

Participants Joined

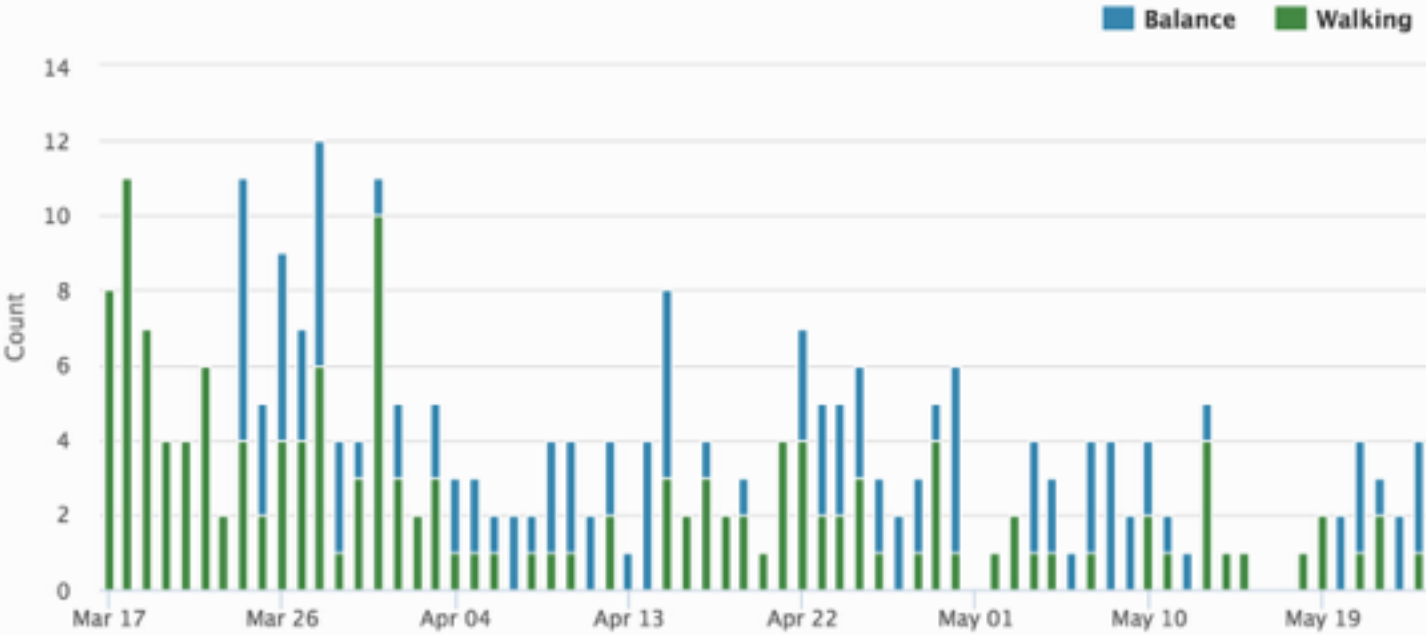
Public Users: 71

Public Users: 70

▲ From Last Week: 0

Select Participant Group

All Participants





# Demos (5)

## Phone Screening

### Phone Screening Incompleted

ID	Status	Update Date	Contact	Voicemail Left
PC [REDACTED]	XXXXX	2016-06-15	J.G.	2016-06-15 15:39:16
PC [REDACTED]	XXXXX	2016-05-11	R.H.	
PC [REDACTED]	XXXXX	2016-06-15	J.G.	2016-06-15 15:56:33
PC [REDACTED]	XXXXX	Not available		
PC [REDACTED]	XXXXX	2016-06-02	R.H.	
PC [REDACTED]	XXXXX	Not available		

### Upcoming Calls

We don't have any upcoming calls scheduled

## Help Your Team Build The Habit Of Using Shiny

- Start with a proof-of-concept project to demonstrate the idea
- Work with small teams first
- Pilot Shiny with new study projects

# Acknowledgement

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- We appreciate our sponsors who make these happen
  - Falk Medical Research Trust
  - Football Players Health Study
  - MIWISH Study
  - Michael J Fox Foundation
- REDCapR developer team
- R community



**Thank You!**