Team Data Table: Report 3

Savet Hong

Nov 07, 2018

To use the code in this Rmarkdown for each Team/Model in separate Rmarkdown, please do as follow:

- ensure that all library packages (as listed in the library chunk) are installed
- copy chuck containing R libraries
- copy appropriate section of code
- datafile, setup, output for each model
- table for base and experiment(s)
- include “agg_bc_exp1.xlsx” and/or “agg_exp2_exp3.xlsx” in the same folder, if not then change file pathway to the data source

Aggregate Module

Team Experimental Design

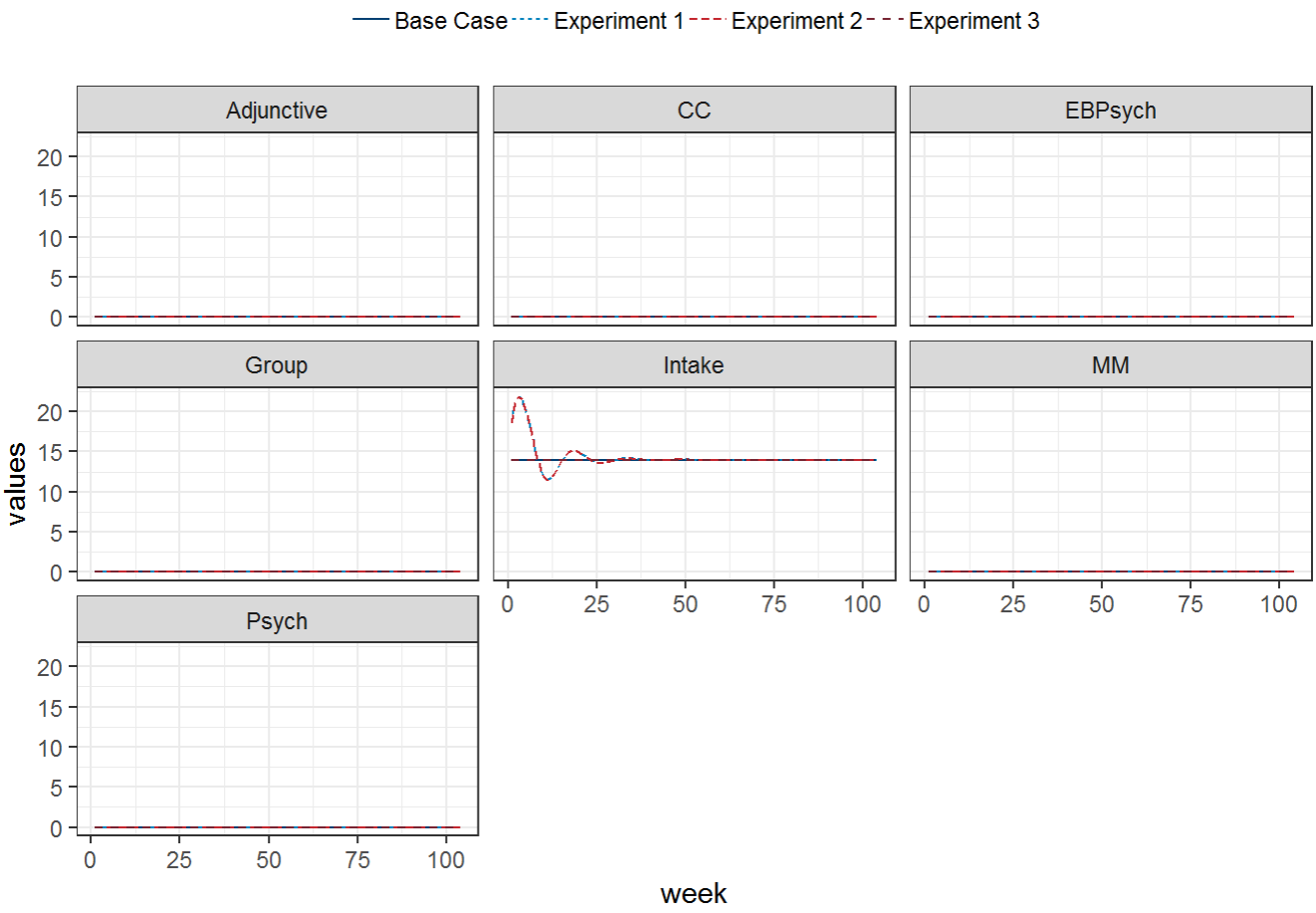
Team Research/Experiment Design Process

Experiment	Our Question	Our Hypothesis	Our Findings	Our Decisions
Base Case	What does our basecase run look like with the 8/30 data pull?	We assume no changes	We found straight horizontal lines	We decided to save base case and will run another expt next time
Experiment 1	How will a reduction in staff affect patient load?	We expect that if we cut Intake from 7 to 4 and PSY from 13.5 to 7, then we will see wait times increase dramatically for those services (losing 9.5 total hours, new total is 35.92).	We see that for patients waiting for Intake and PSY, it did not seem to change much with these reductions in Appt Supply in the long run. For Intake, the number of patients waiting does ~double, but then drop quickly down to its current level. For PSY, the number of patients waiting ~triples, but then quickly drops down to its current level. This is better than the base case, where the number of patients waiting stayed ~double. However, with the reduced staff, we have a slow decline in the number of patients in service. The reduced Intake rate does effect the other serivces, with service start rates dropping in all services.	We will run an experiment where we change both the service proportion and supply together, because we know we won’t start as many patients in PSY if we know the hours aren’t there.
		We expect		

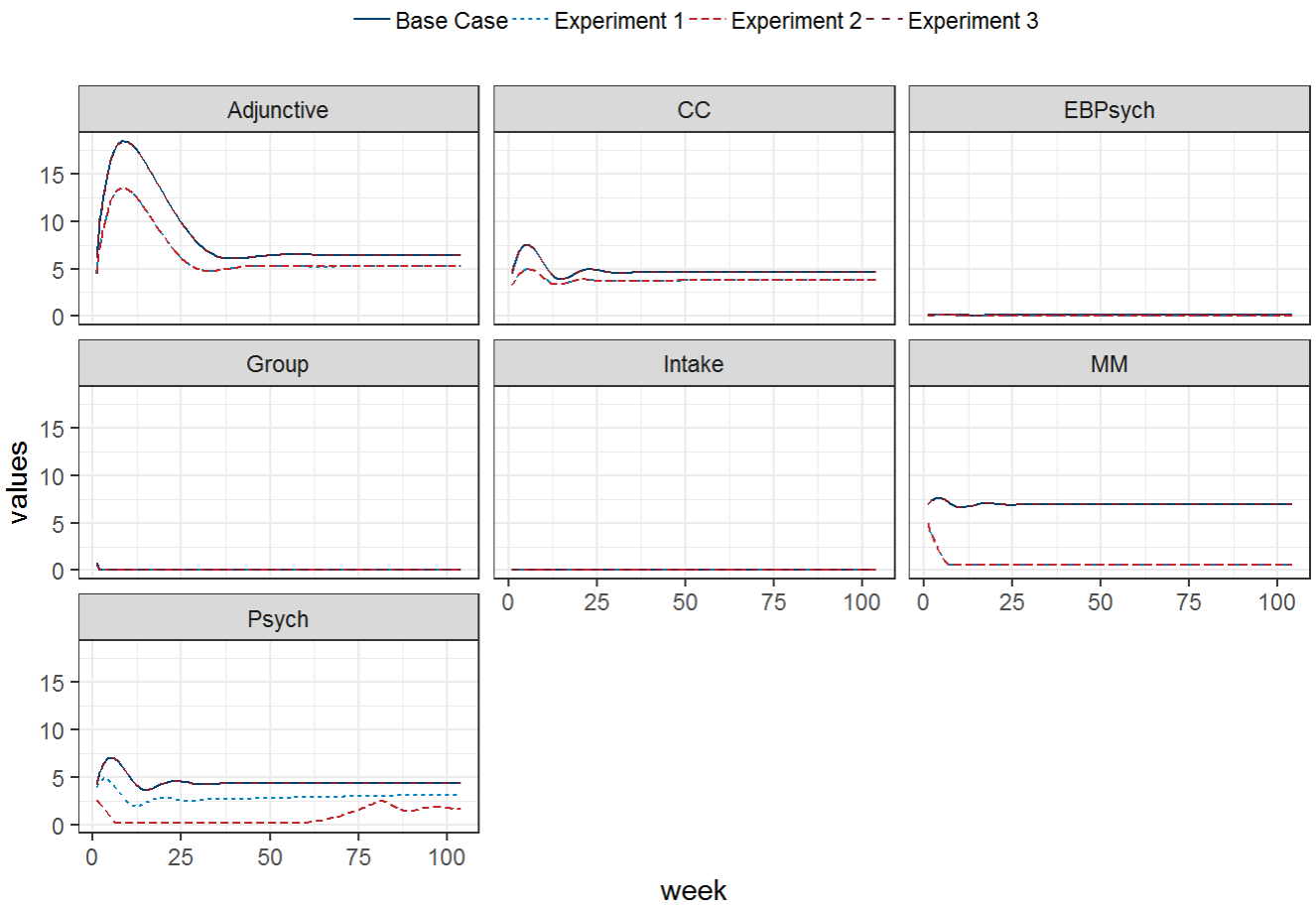
Experiment 2	Can we compensate for the reduction in staff by changing our internal referring and clinical decision making?	that if we change the proportion of patients who start PSY from ~23% to ~12%, as a reaction to the staff hours decreasing from 13.5 to 7 hrs/wk, then wait times for that service will not be affected.	Cutting the service proportion in half does the trick! Now, fewer patients are referred to PSY than we have slots, so the patients waiting to start PSY drops to ~0. The number of patients in PSY drops faster than the run where we only changed staff hours, but the overtime and RVI changes are similar.	Run an experiment where we re-allocate our patient care hours to make up for the lost staff - probably pulling from MM and stopping Group.
Experiment 3	What if we adjust the sensitivity slider for overtime related to work pressure from 1 to 1.7 change ouptut variables?	In short run, efficiency will, increase, but fatigue will lead to inefficiency over time. That when work pressure is low, sensitivity will not impact outcomes significantly due to the balancing feedback (i.e., thermostat).	We were right. Making that change in the results in very little impact against the base case of no new decisions.	Next time we will add a sensitivity test of 1.7 sensitivity of overtime on work pressure to our values for the experiment 2 sliders to see the combined impact of loss of supply and change in service proportions.

Team Graphs

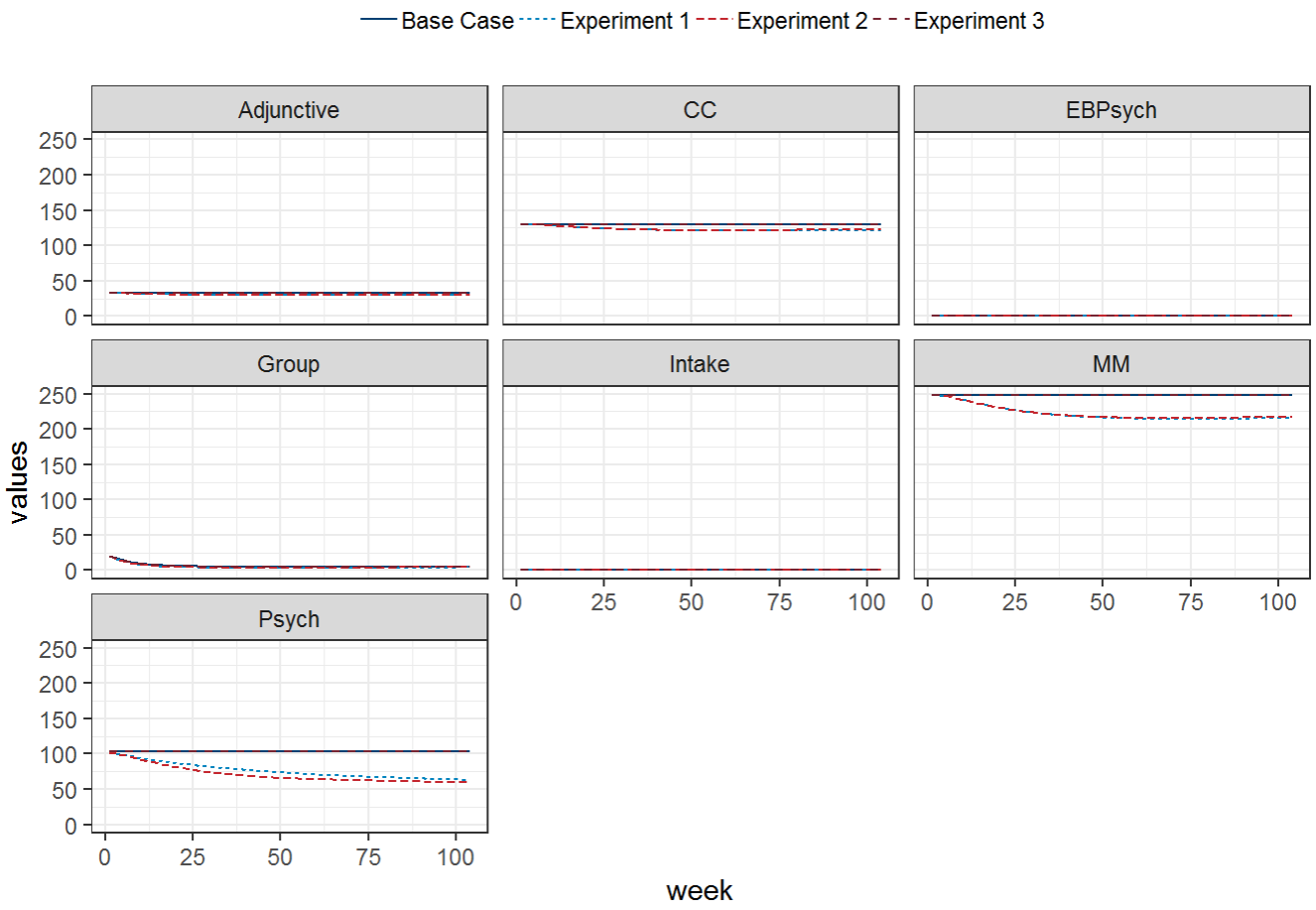
Compare Services: Patients Waiting for Intake Evaluation



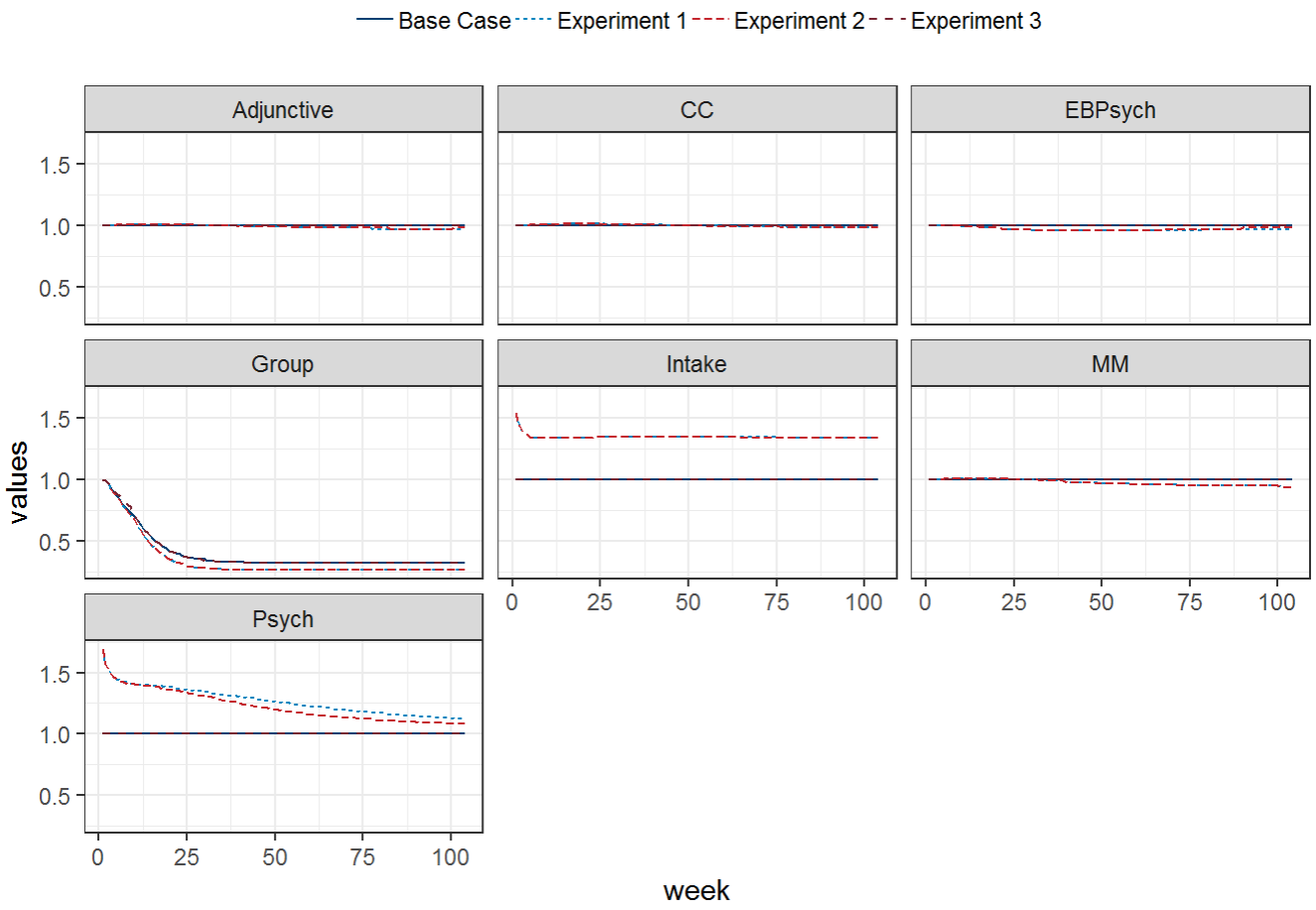
Compare Services: Patients Waiting to Start a Service



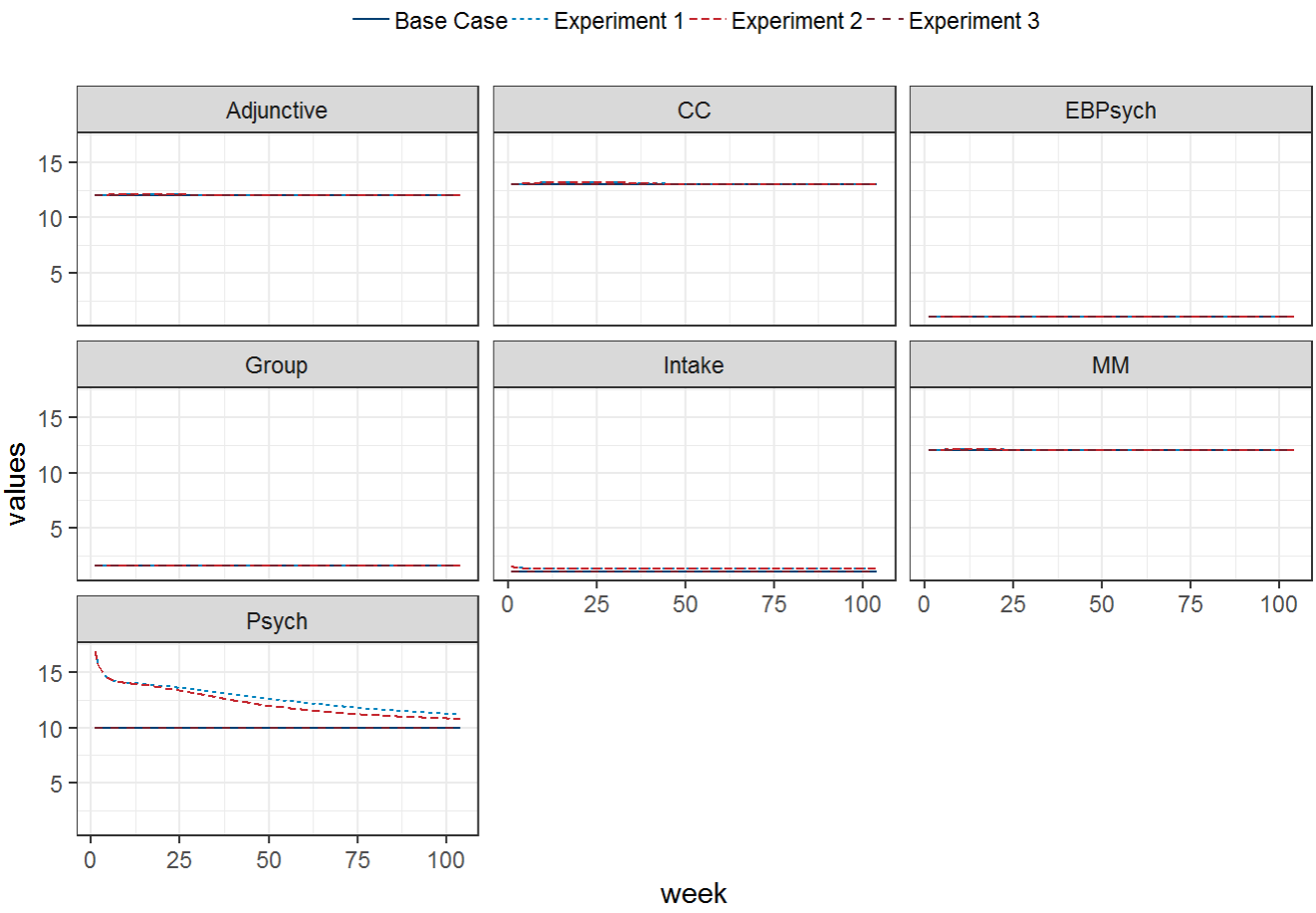
Compare Services: Patients in Service



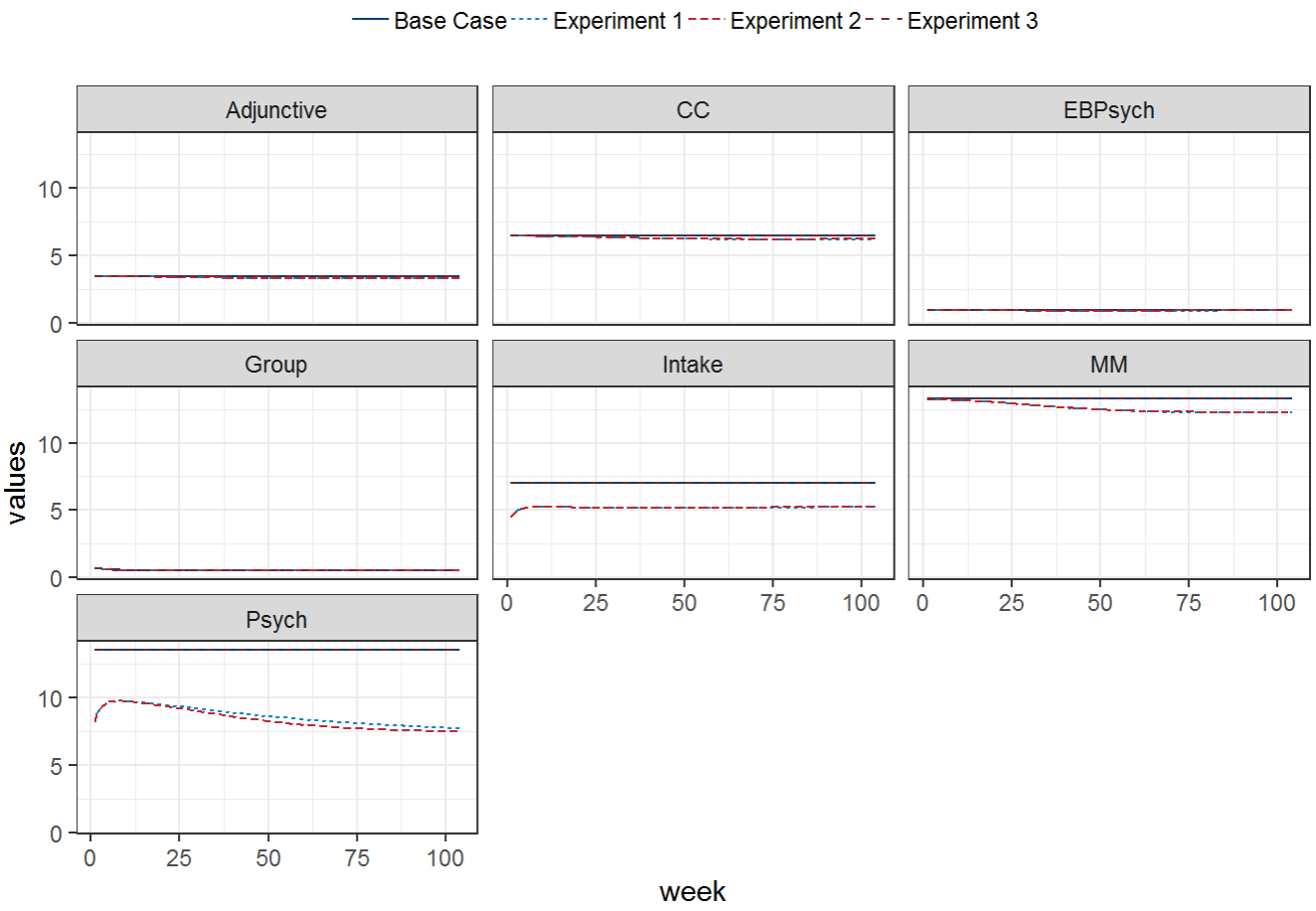
Compare Services: Work Pressure



Compare Services: Actual Return Visit Interval



Compare Services: Actual Hours Available for Service


Base Case
Experiment 1
Experiment 2
Experiment 3
Adjunctive
CC
EBPsych
Group
Intake
MM
Psych
values
week
0
5
10
0
25
50
75
100