Timeseries Analysis of Provider Need
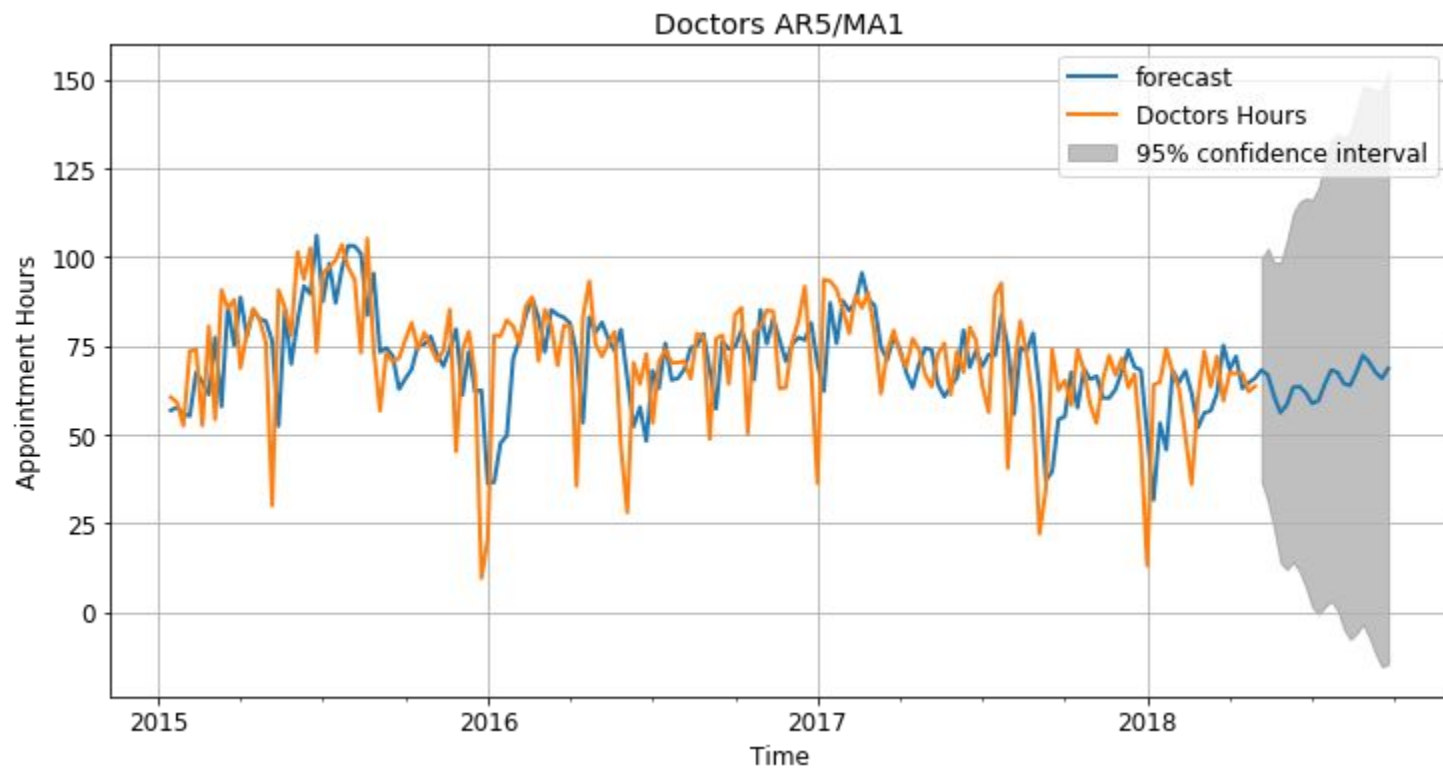
ARIMAX - Doctors
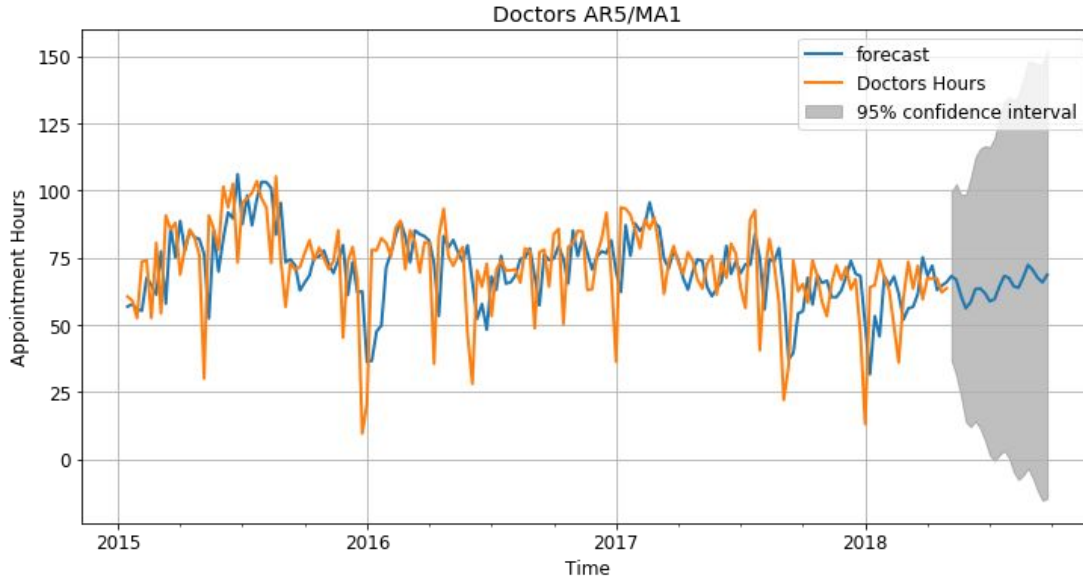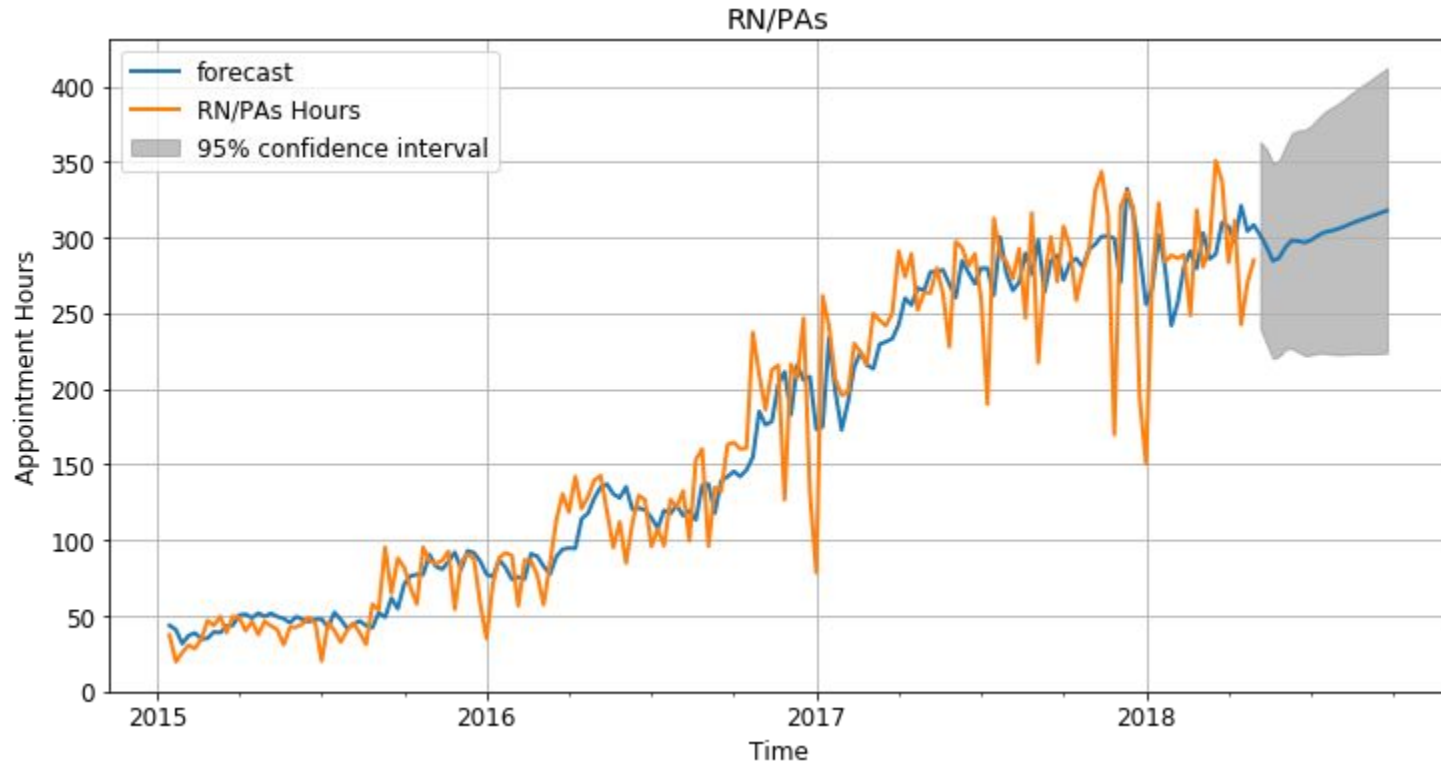

Doctors AR5/MA1
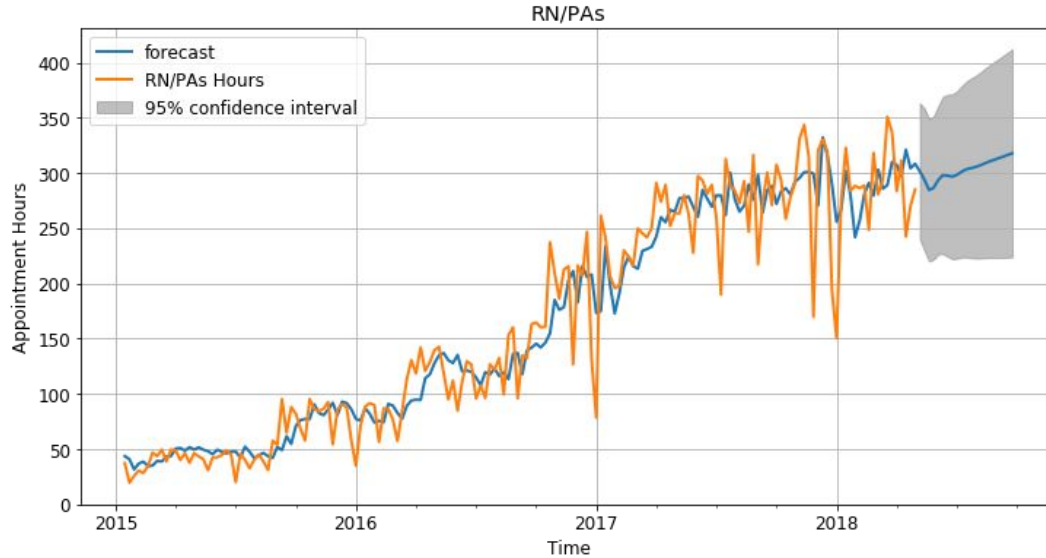
ARIMAX - Doctors

Doctors AR5/MA1

	Appointment Hours	Number of Providers
2018-05-07	57.5	3.0
2018-05-14	63.0	3.0
2018-05-21	72.75	3.0
2018-05-28	68.5	3.0

	Predicted_Hours	Predicted_Num_Providers
2018-05-07	68.17	2.5
2018-05-14	66.83	2.5
2018-05-21	60.87	2.2
2018-05-28	56.19	2.1

ARIMAX - RN/PAs

ARIMAX - RN/PAs

	Appointment Hours	Number of Providers
2018-05-07	310.75	9.0
2018-05-14	300.5	9.0
2018-05-21	302.0	9.0
2018-05-28	203.0	9.0

	Predicted_Hours	Predicted_Num_Providers
2018-05-07	301.63	8.2
2018-05-14	294.11	8.0
2018-05-21	284.59	7.7
2018-05-28	286.63	7.8

ARIMAX - therapists
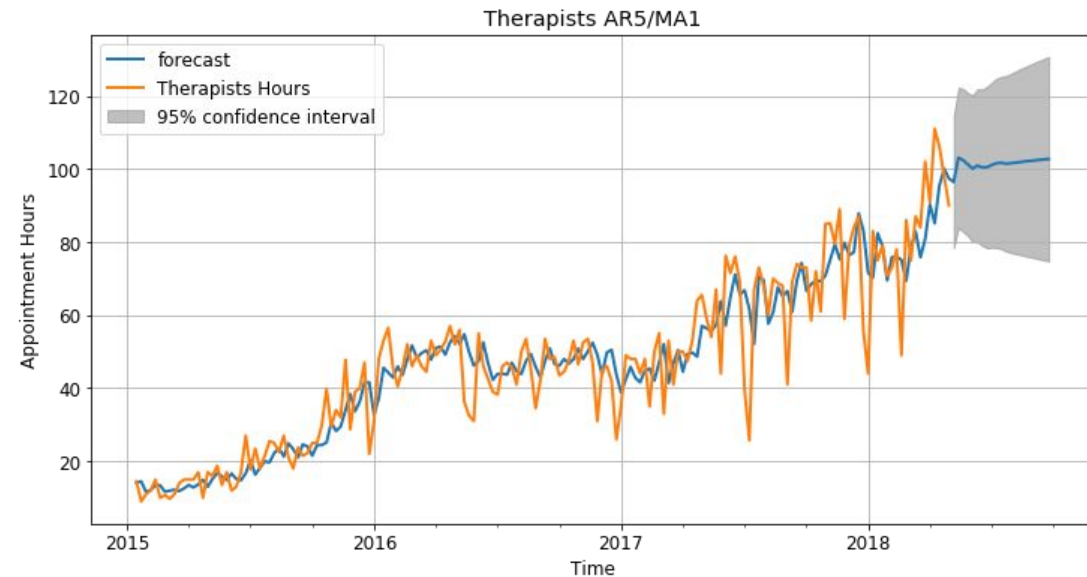
Therapists AR5/MA1

Legend:
- forecast
- Therapists Hours
- 95% confidence interval

ARIMAX - therapists

Therapists AR5/MA1

	Appointment Hours	Number of Providers
2018-05-07	95.75	5.0
2018-05-14	89.75	5.0
2018-05-21	86.0	5.0
2018-05-28	69.5	5.0

	Predicted_Hours	Predicted_Num_Providers
2018-05-07	95.21	5.3
2018-05-14	98.68	5.5
2018-05-21	99.15	5.5
2018-05-28	96.74	5.4

Prophet - Doctors
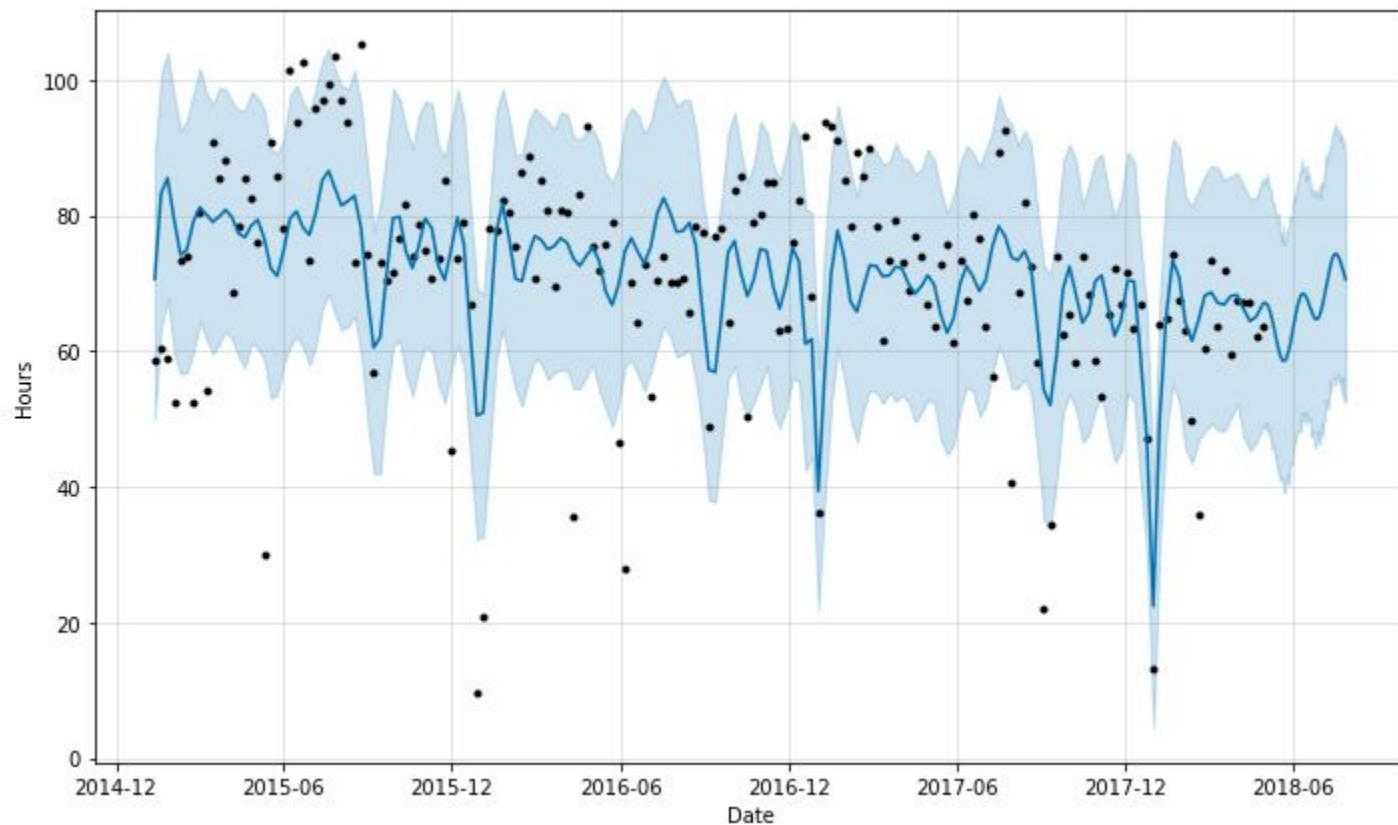
Prophet - Doctors
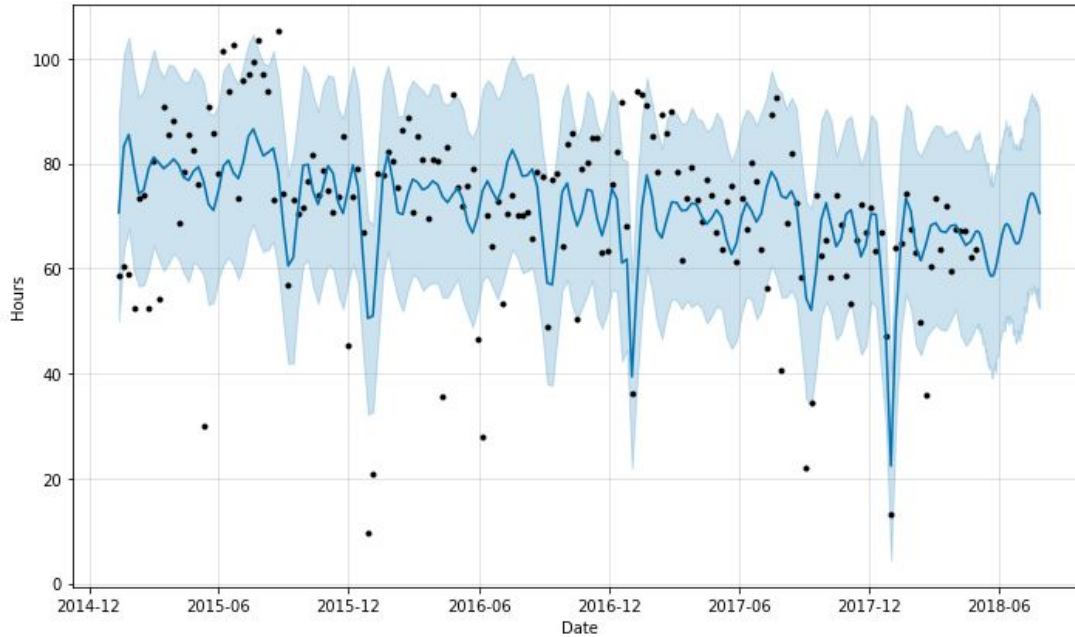
	Appointment Hours	Number of Providers
2018-05-07	57.5	3.0
2018-05-14	63.0	3.0
2018-05-21	72.75	3.0
2018-05-28	68.5	3.0

	Predicted_Hours	Predicted_num_Providers
2018-05-07	66.82	2.47
2018-05-14	64.05	2.36
2018-05-21	59.92	2.21
2018-05-28	58.98	2.19

Prophet - RN/PAs
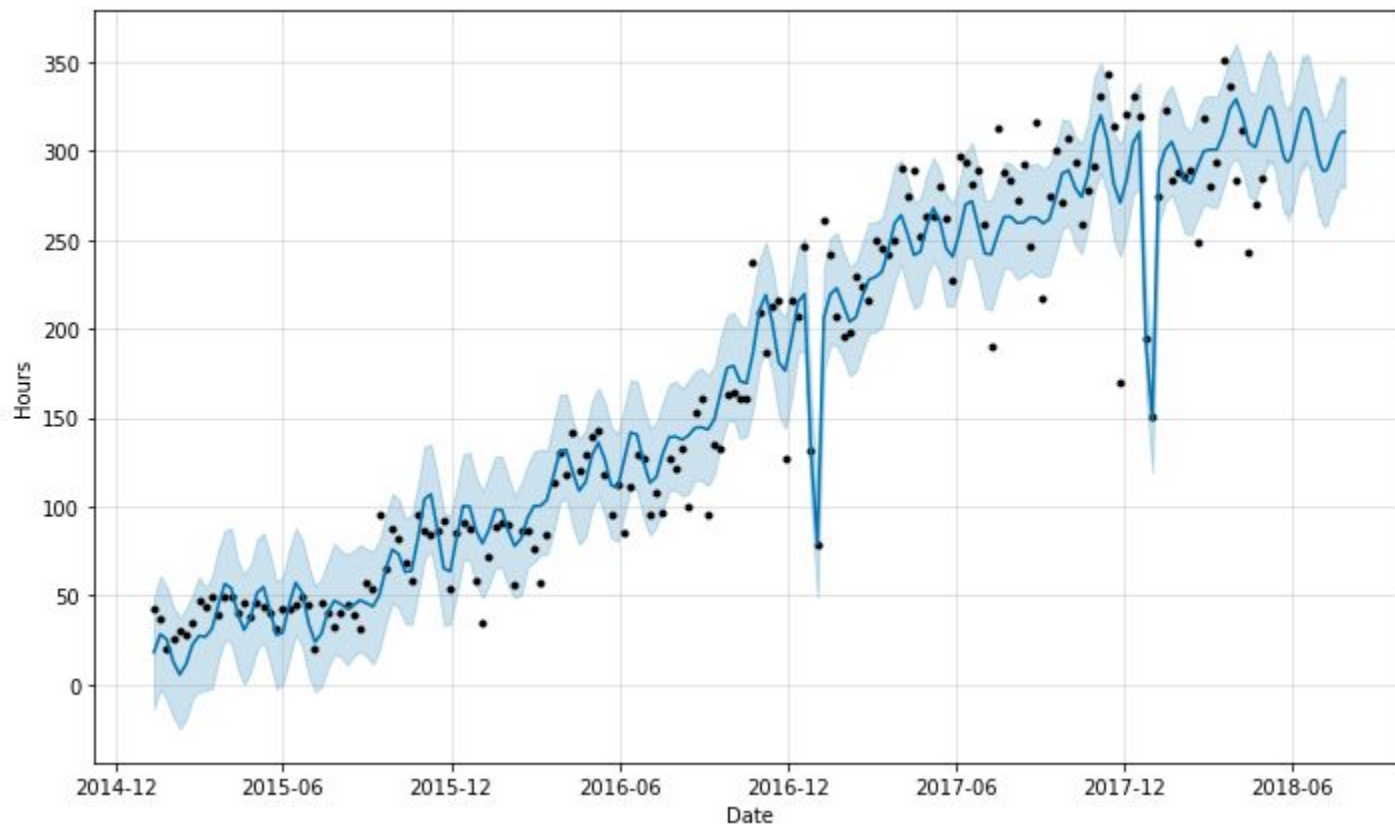
Prophet - RN/PAs
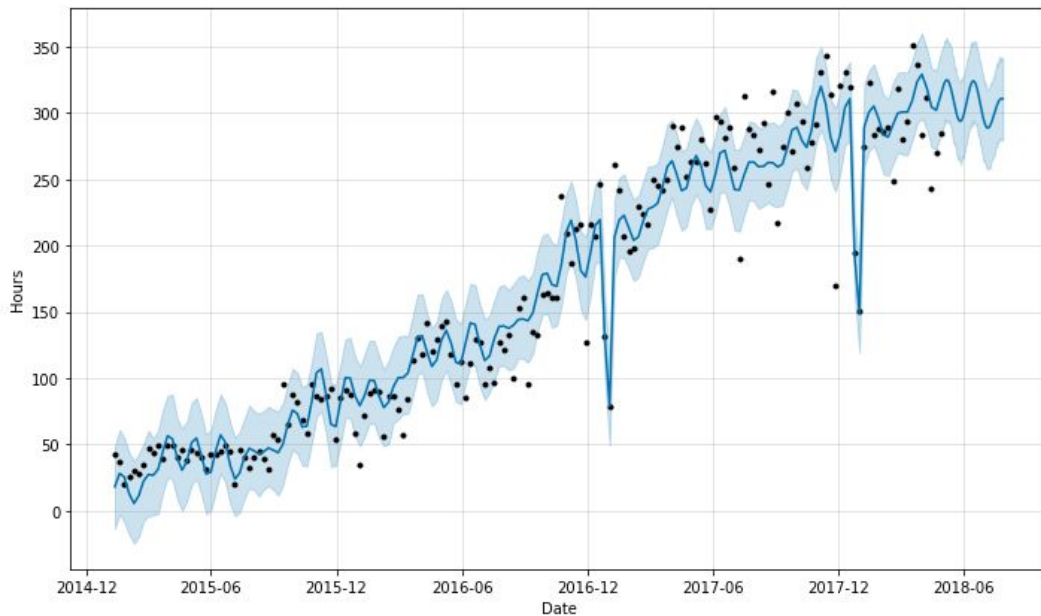
	Appointment Hours	Number of Providers
2018-05-07	310.75	9.0
2018-05-14	300.5	9.0
2018-05-21	302.0	9.0
2018-05-28	203.0	9.0

	Predicted_Hours	Predicted_num_Providers
2018-05-07	320.16	8.87
2018-05-14	322.13	8.93
2018-05-21	309.09	8.57
2018-05-28	295.32	8.19

Prophet - Therapists
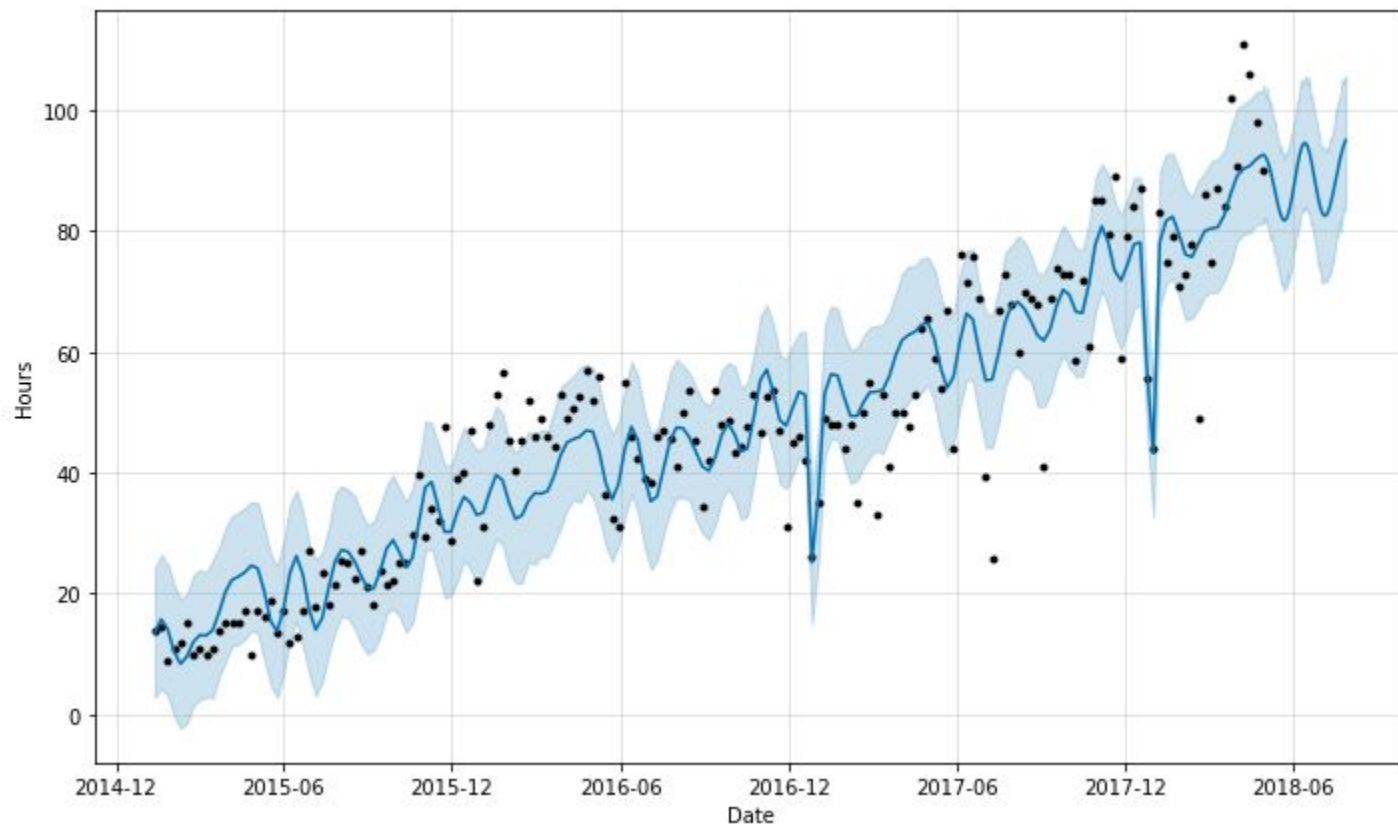
Prophet - Therapists
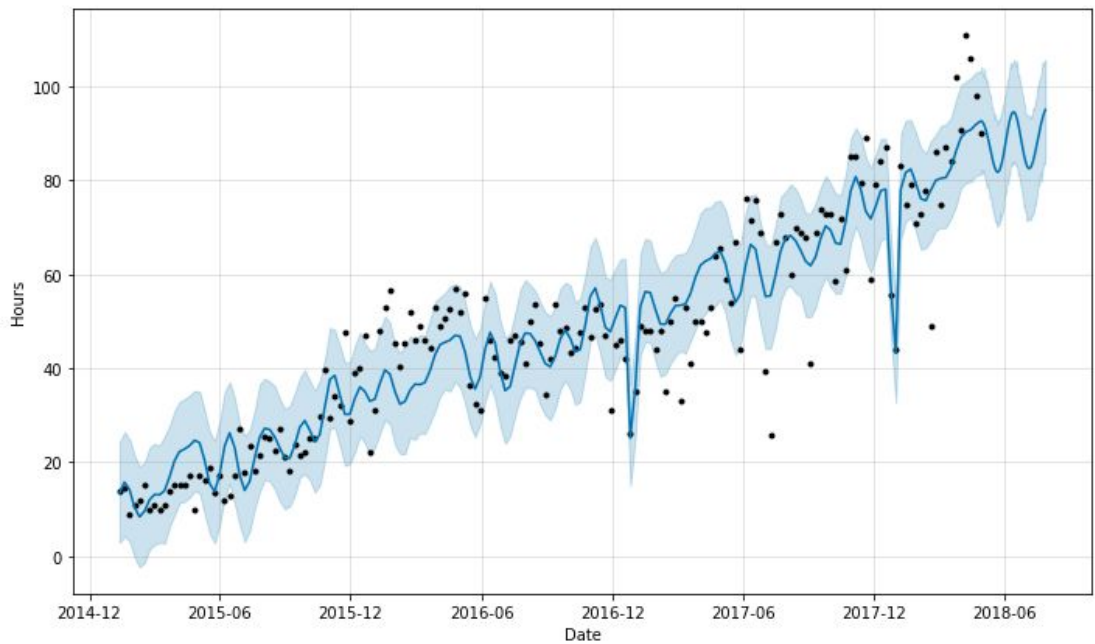
	Appointment Hours	Number of Providers
2018-05-07	95.75	5.0
2018-05-14	89.75	5.0
2018-05-21	86.0	5.0
2018-05-28	69.5	5.0

	Predicted_Hours	Predicted_num_Providers
2018-05-07	91.88	5.14
2018-05-14	88.22	4.91
2018-05-21	83.57	4.67
2018-05-28	82.18	4.6

Future Directions

- Separate models for new vs. existing patients
- Breakdown by appointment type
- Latency between when an appointment is made and when it occurs
- Patient retention time and/or number of appointments per patient