Table S1: Detailed Description of Models with Results illustrating model performance

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| --- | --- | --- | --- | --- |
| **Model** | **function(parameters)** | **RMSE** | **AIC** | **Distribution residuals\*\*** |
| **2017/18 data retained** | | | |  |
| Seasonal naive | snaive(differenced\_ts\_data) | 7016.196 | Unavailable\* | Normal with outliers |
| Exponential smoothing | ets(time\_series\_data) | 4377.569 | 2124.396 | Right skewed |
| ARIMA | auto.arima(time\_series\_data,  d=1*, #first difference to remove trend*  D=1, *#first seasonal difference to remove seasonal trend*  stepwise=F, *#preserves accuracy by not allowing algorithm to try smaller number of steps*  approximation=F *#preserves accuracy by not allowing algorithm to calculate AIC by approximation*  ) | 4773.077 | 1711.08 | Right skewed |
| **2017/18 data missing** | | | |  |
| Seasonal naive | snaive(differenced\_ts\_data) | 6794.884 | Unavailable\* | Normal, no outliers |
| Exponential smoothing | ets(time\_series\_data) | 3474.845 | 1234.057 | Normal, no outliers |
| ARIMA | auto.arima(time\_series\_data,  d=1*, #first difference to remove trend*  D=1, *#first seasonal difference to remove seasonal trend*  stepwise=F, *#preserves accuracy by not allowing algorithm to try smaller number of steps*  approximation=F *#preserves accuracy by not allowing algorithm to calculate AIC by approximation*  ) | 3307.779 | 1198.38 | Normal, no outliers |

**This comparison process was performed for antidepressant data. The optimal model from this process was then used for all other data sets.  
RMSE = Root Mean Squared Error; AIC= Akaike Information Criteria**\*unable to calculate AIC for seasonal naive model  
\*\*Unable to output histogram of residuals due to statistical disclosure controls