

Hierarchical Time Series Forecasting in Emergency Medical Services

Rob J Hyndman
Bahman Rostami-Tabar



MONASH University

robjhyndman.com/fem2023

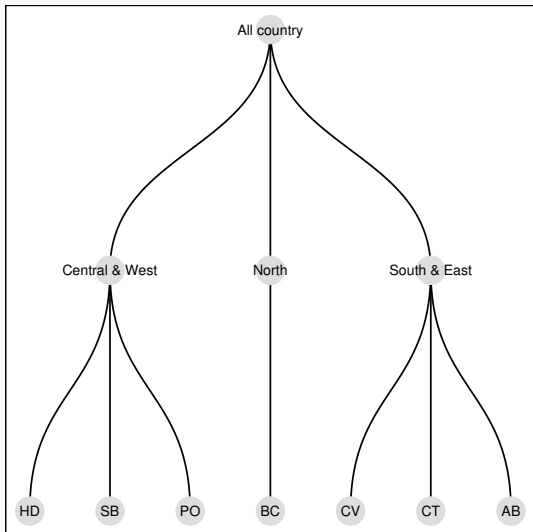


Photo by Graham Richardson on Wikimedia

Outline

- Daily number of attended incidents:
1 October 2015 – 31 July 2019
- Disaggregated by nature of incidents, priority, the health board managing the service and the control area (or region).
- 2,142,000 rows observations from 1,530 time series.

Data structure



*

Priority

Red
Amber
Green

*

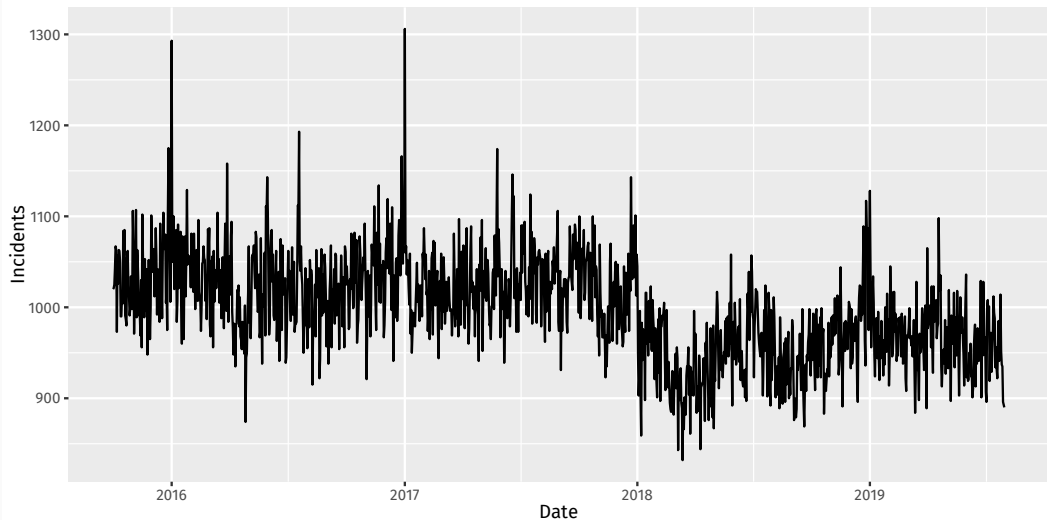
Nature of incident

Chest pain
Stroke
Breathing problem
...
Abdominal pain

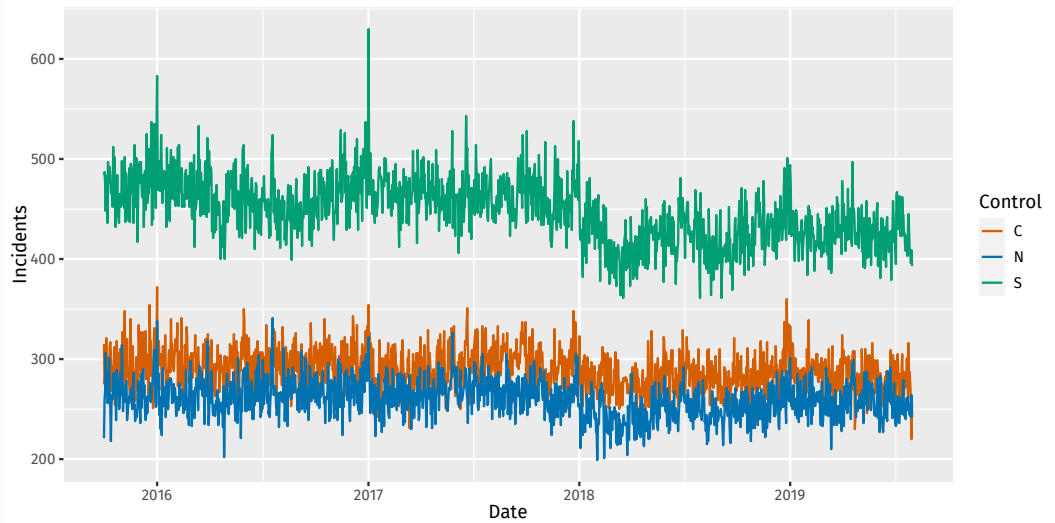
Data structure

Level	Number of series
All country	1
Control	3
Health board	7
Priority	3
Priority * Control	9
Priority * Health board	21
Nature of incident	35
Nature of incident * Control	105
Nature of incident * Health board	245
Priority * Nature of incident	104
Control * Priority * Nature of incident	306
Control * Health board * Priority * Nature of incident (Bottom level)	691
Total	1530

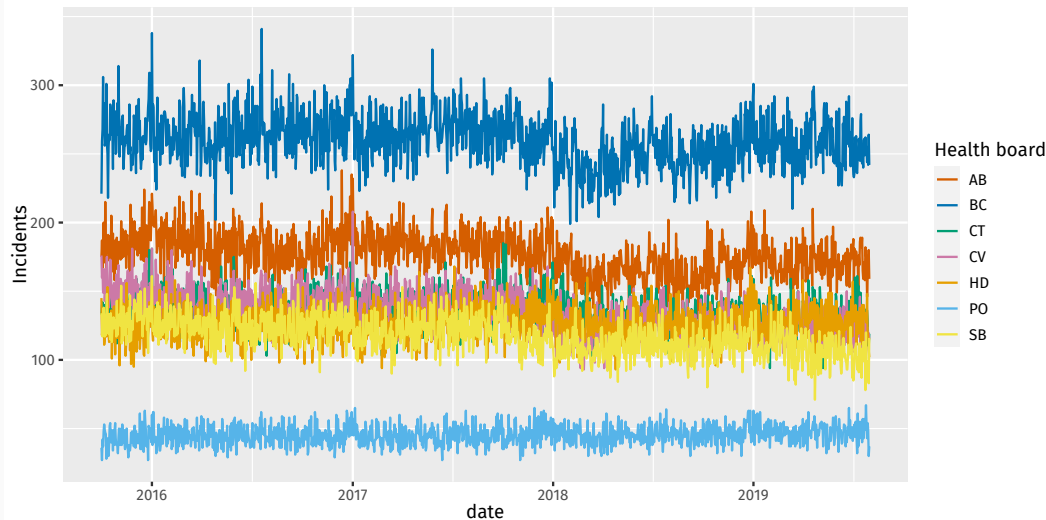
Aggregated daily incidents



Daily incidents by control area



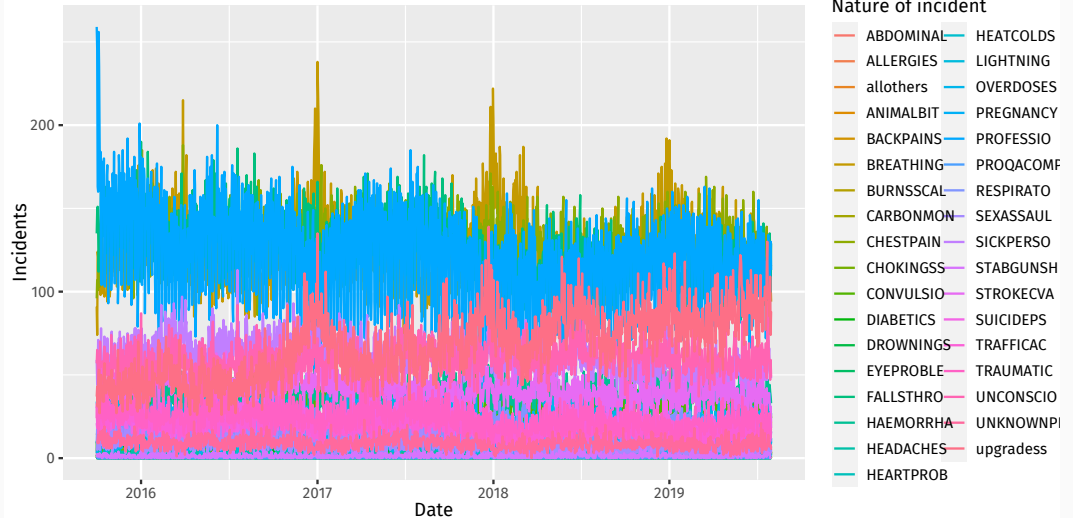
Data incidents by health board



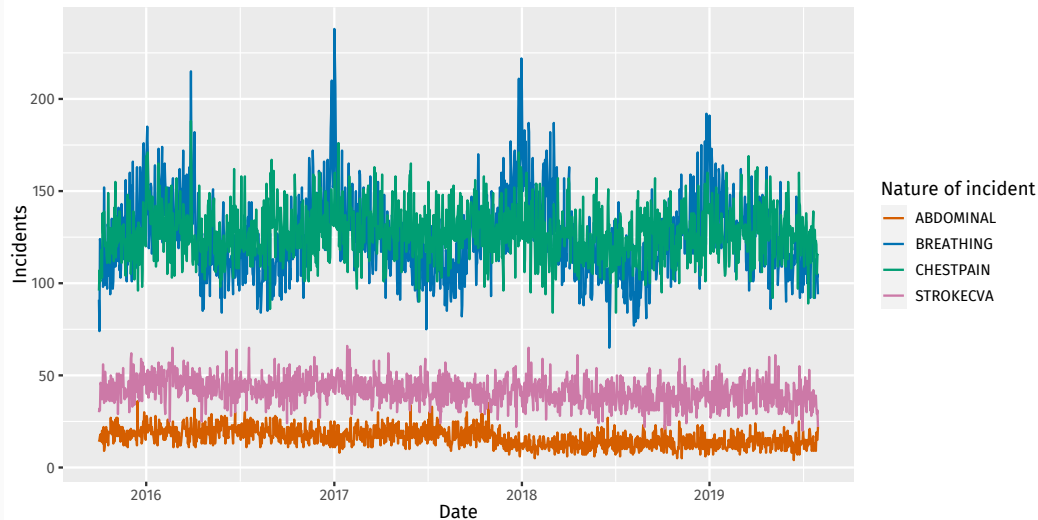
Data incidents by priority



Data incidents by nature of incident



Data incidents by nature of incident



Data features

