

Patient pathways paper - results

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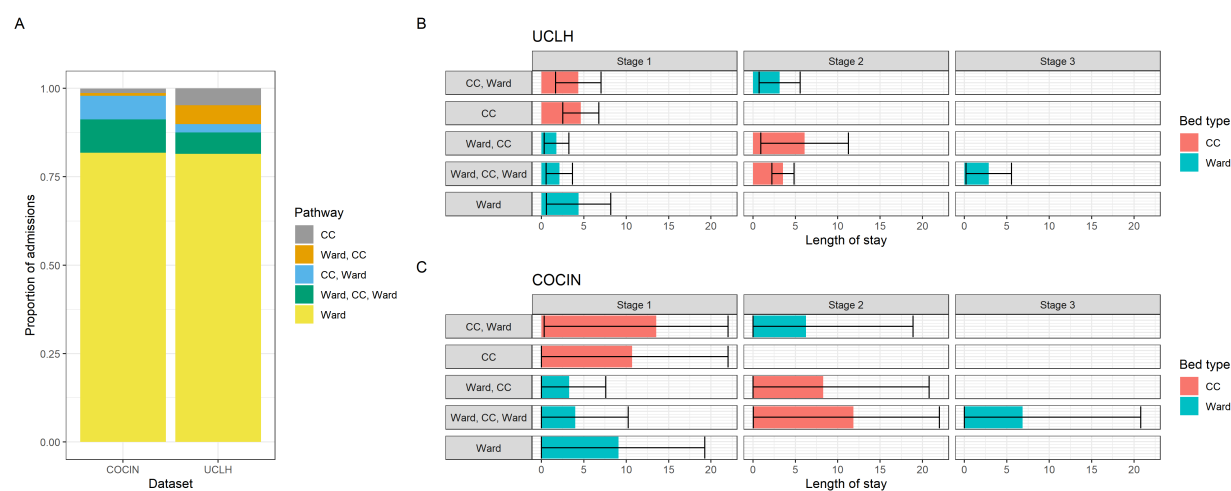
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1 Setup

- 1.1 Load packages
- 1.2 Load England hospital data
- 1.3 Load UCLH data
- 1.4 Load model results

2 Visualise pathways



3 Visualise model results

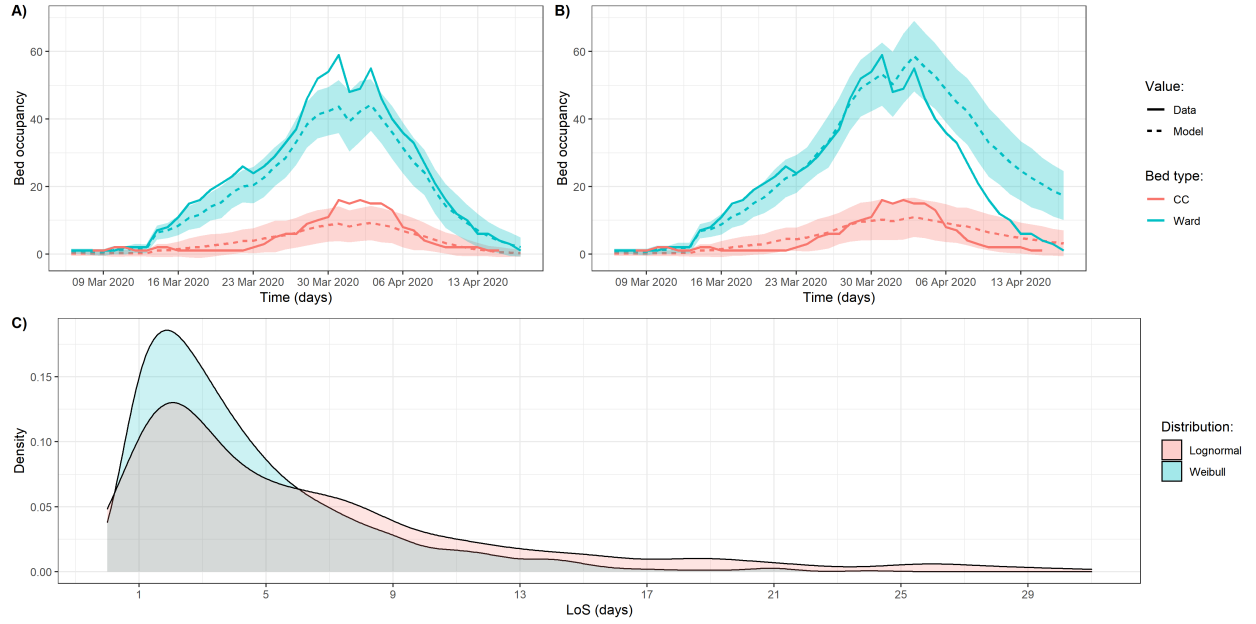
```
##
## FALSE TRUE
## 0.05 0.95

##
## FALSE TRUE
## 0.11 0.89
```

Table 1: Squared difference between model results for average LoS or full pathways, and Weibull or Lognormal distribution.

Rounding	Distribution	LoS used	Squared difference
Round	Weibull	Average LoS	2677.7359
Round	Weibull	Full pathways	910.6196
Round	Lognormal	Average LoS	3596.9332
Round	Lognormal	Full pathways	6096.2135
Ceiling	Weibull	Average LoS	1431.0788
Ceiling	Weibull	Full pathways	586.7672
Ceiling	Lognormal	Average LoS	3905.7135
Ceiling	Lognormal	Full pathways	7590.3518

4 Supplementary



5 Look at COCIN data

5.1 Plot all the simulations together

5.2 Massive figure for both datasets

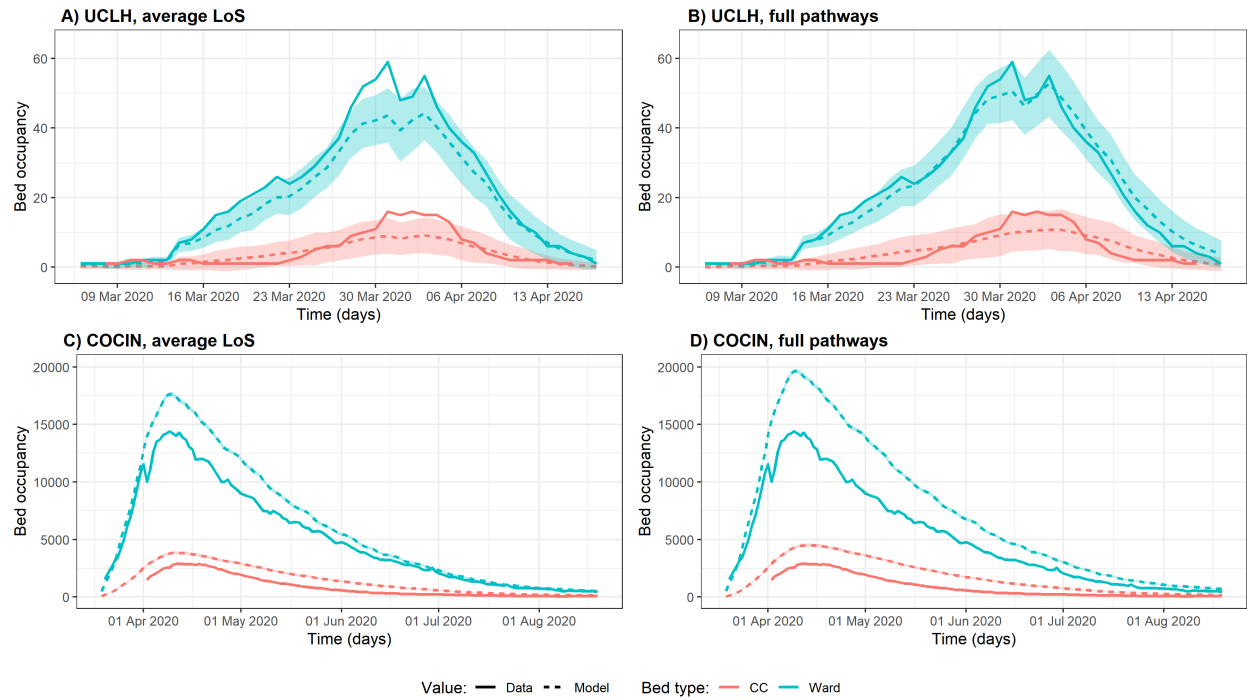
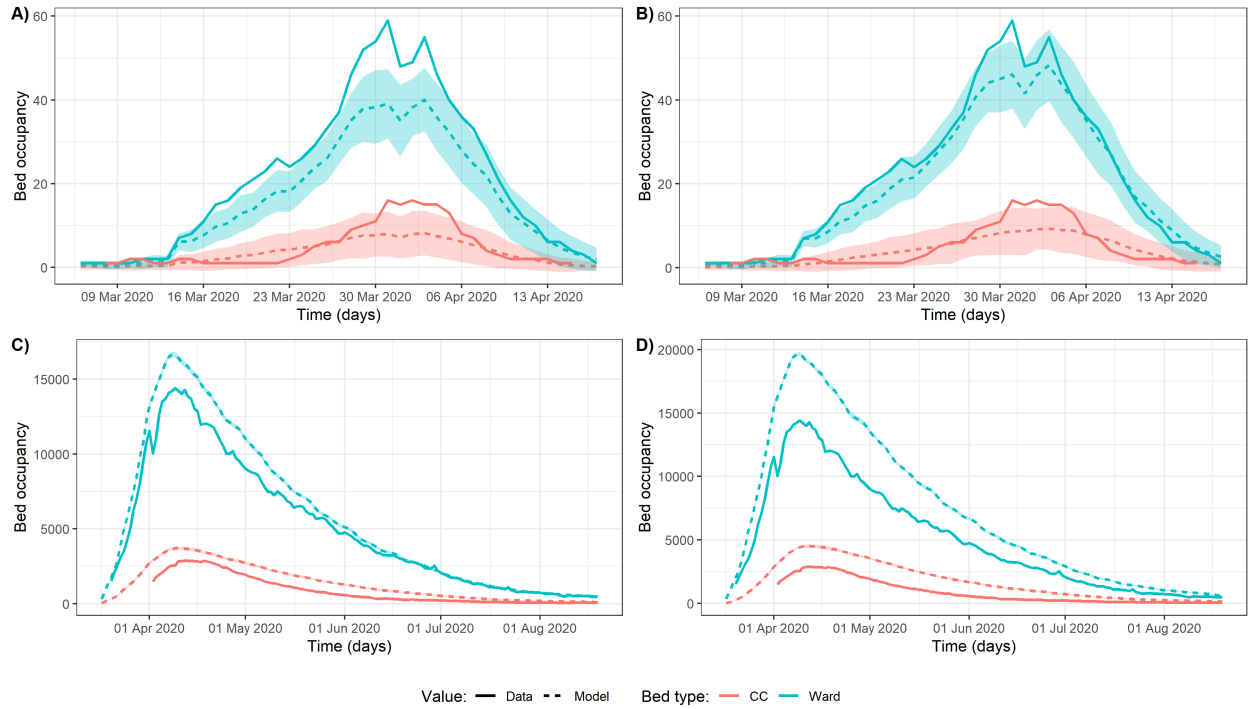


Table 2: Summary bed occupancy for the 2 models and the data. CC: critical care (ICU or HDU).

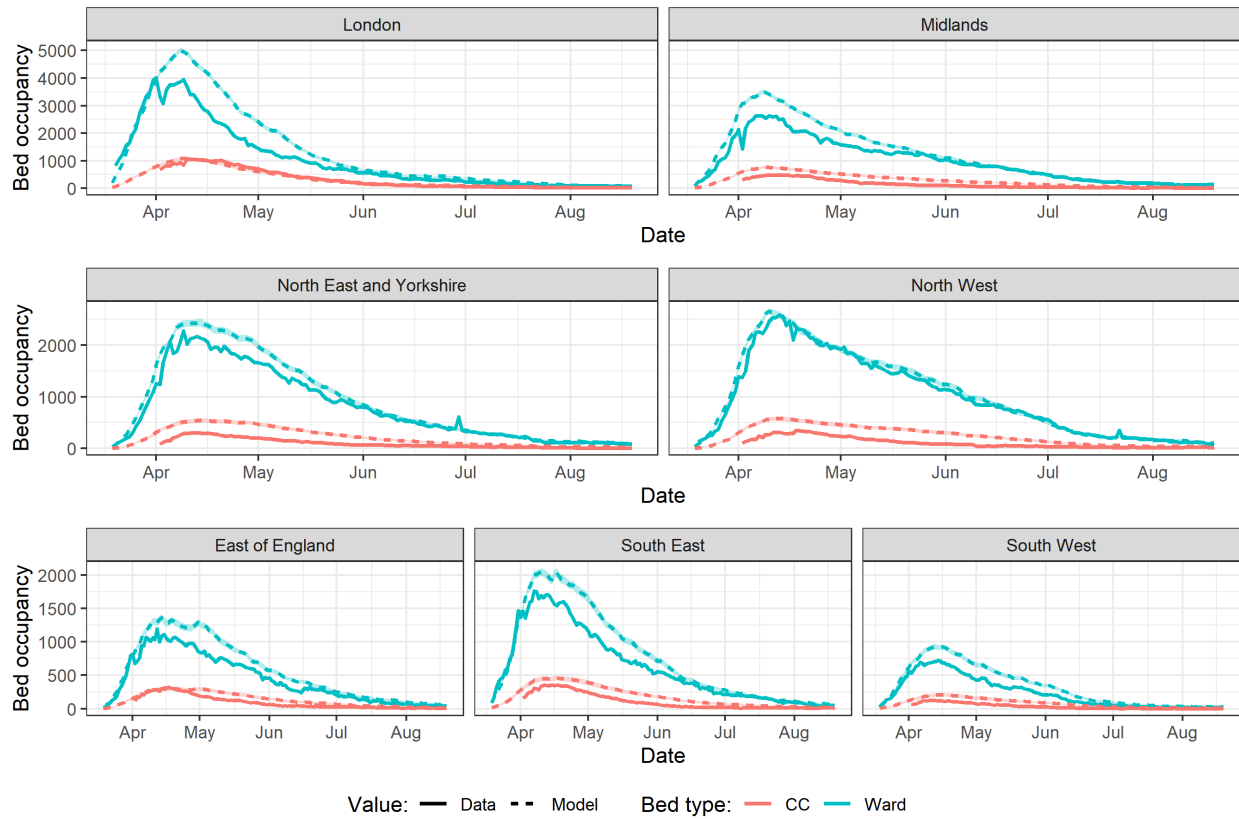
Dataset	LoS used	Ward peak bed occupancy					CC peak bed occupancy				
		Peak time	Peak IQR1	Peak IQR2	Mean beds	SD	Peak time	Peak IQR1	Peak IQR2	Mean beds	SD
UCLH	Average LoS	2020-03-31	2020-03-30	2020-04-03	45.92	3.506646	2020-03-31	2020-03-30	2020-04-03	10.88	2.123842
UCLH	Full pathways	2020-04-03	2020-03-31	2020-04-03	54.39	4.059893	2020-04-02	2020-03-31	2020-04-04	12.73	2.505973
UCLH	Data	2020-03-31	NA	NA	59.00	NA	2020-03-31	NA	NA	16.00	NA
COCIN	Average LoS	2020-04-09	2020-04-09	2020-04-10	17630.66	101.616055	2020-04-11	2020-04-10	2020-04-11	3853.76	62.362596
COCIN	Full pathways	2020-04-10	2020-04-10	2020-04-10	19657.06	92.419205	2020-04-14	2020-04-13	2020-04-14	4523.73	71.315752
COCIN	Data	2020-04-09	NA	NA	14406.00	NA	2020-04-12	NA	NA	2881.00	NA

5.3 Supplementary - Massive figure for both datasets, round instead of ceiling

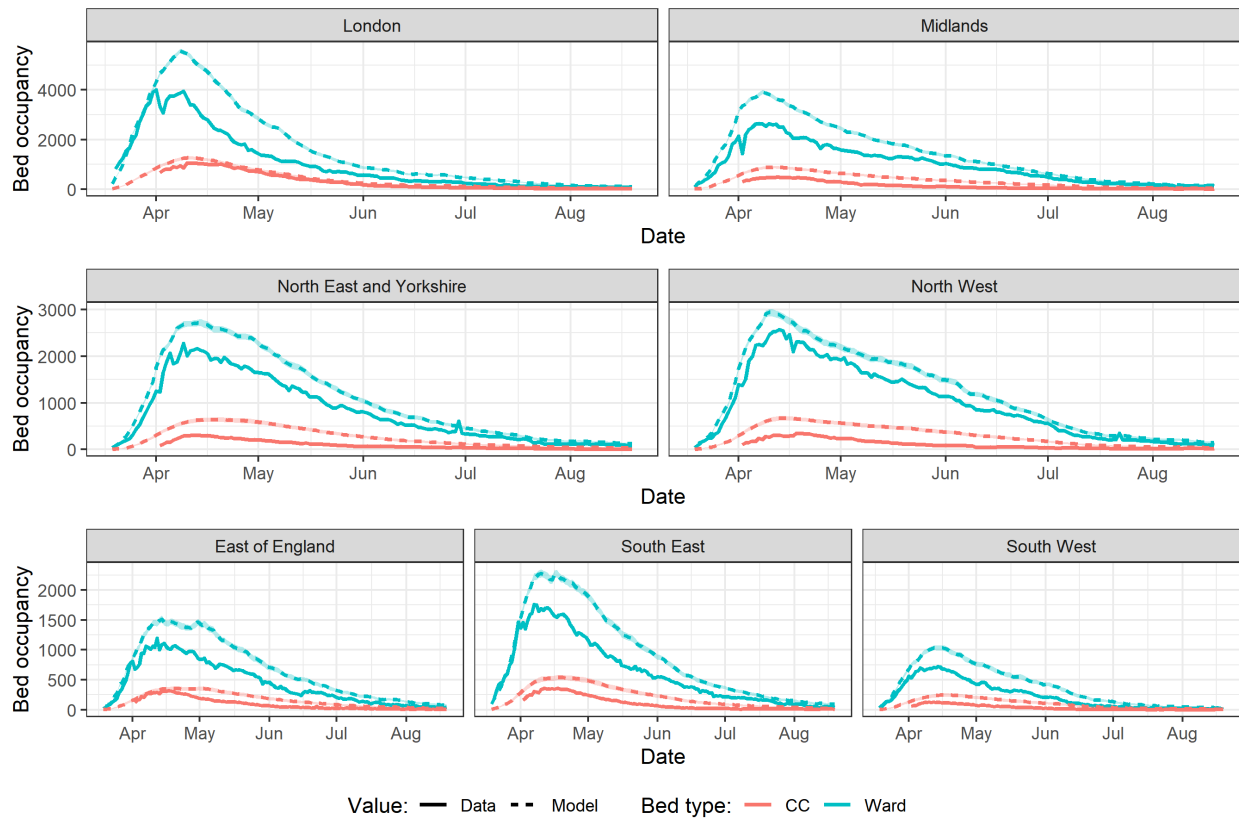


5.4 Summary table of peaks

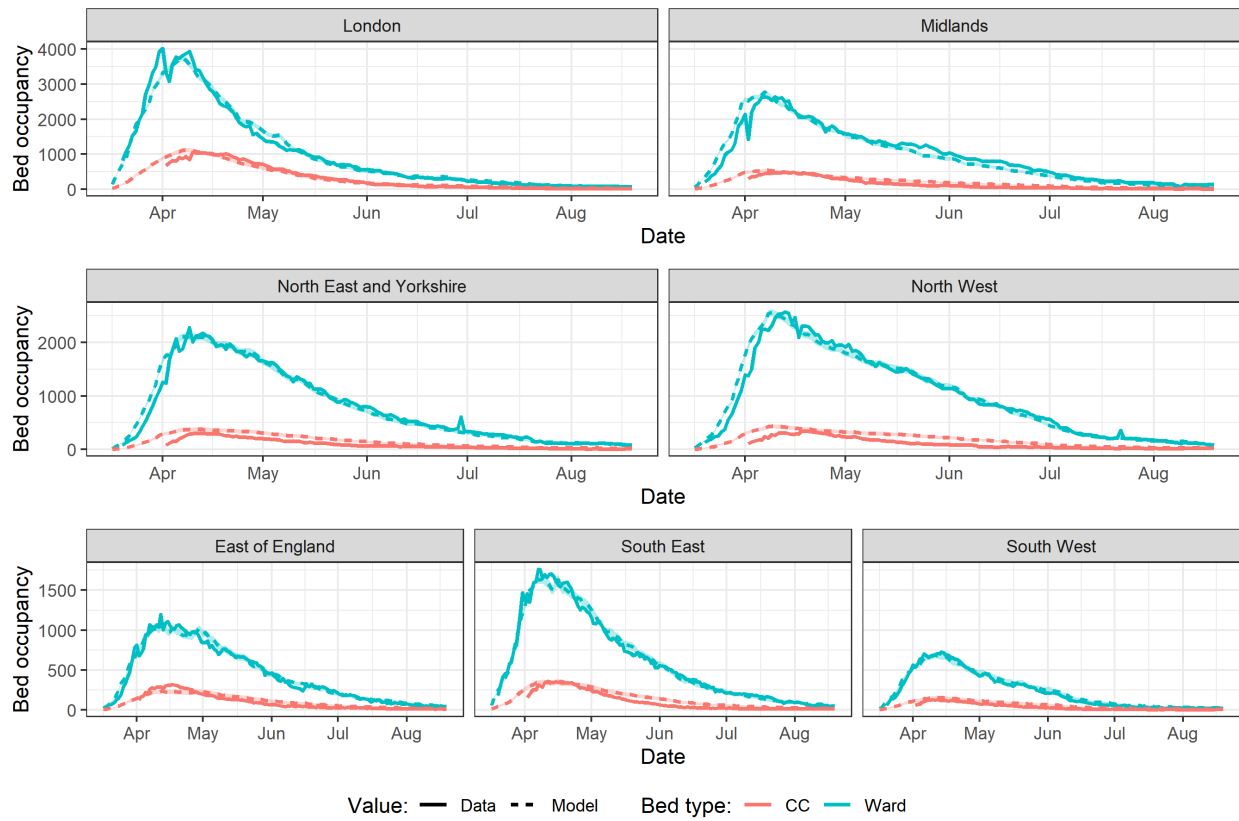
5.5 By region



5.6 By region (full pathways)



5.7 Plot fit by region



5.8 Plot fit by region (proba)

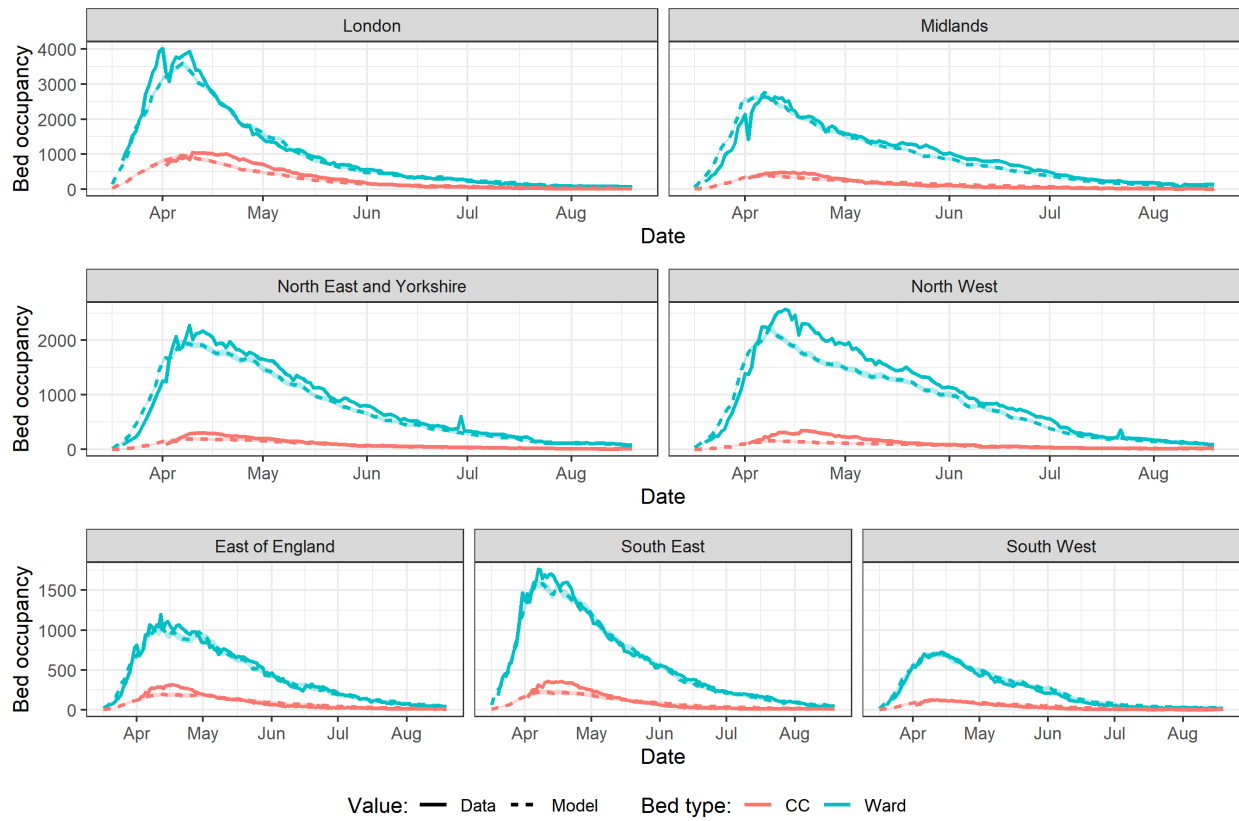
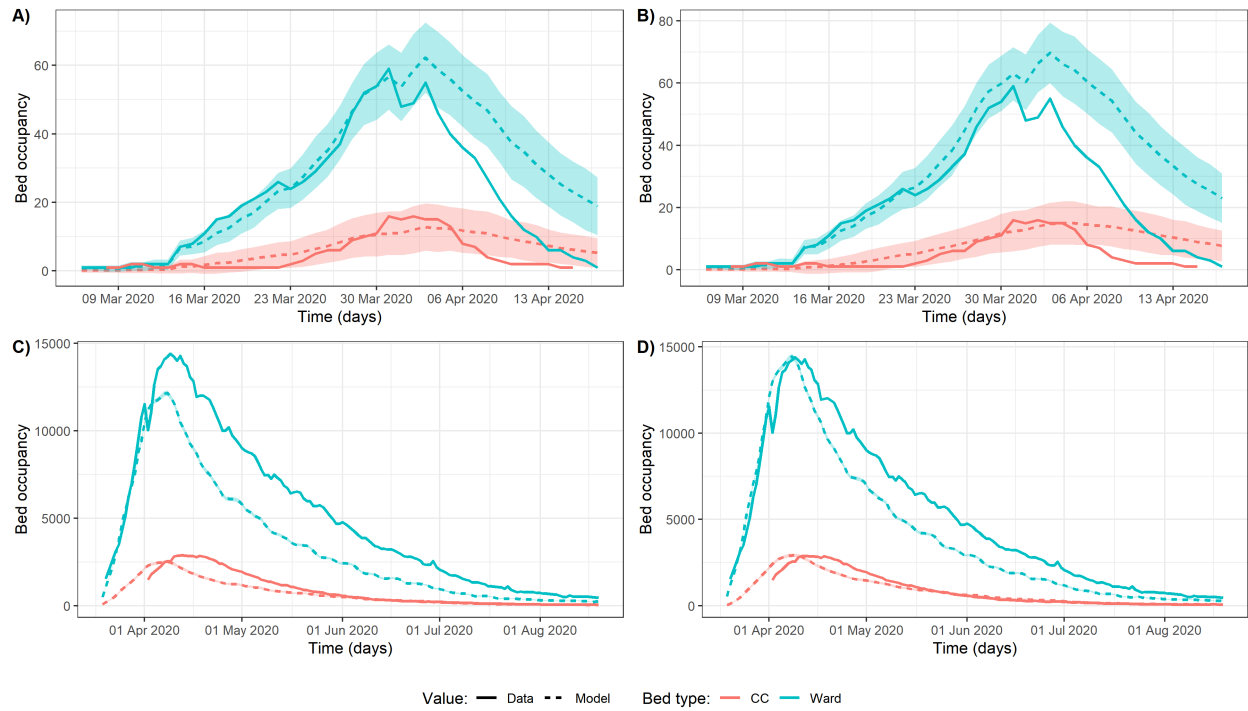


Table 3: Squared difference between model predicted occupancy and data. CC: critical care (ICU or HDU).

NHS region	Average LoS	Full pathways	Best fit LoS	Best fit prop to CC
East of England	49.90	130.05	7.67	8.43
London	500.89	1102.26	116.72	133.17
Midlands	257.29	619.93	31.73	28.63
North East and Yorkshire	89.50	265.33	13.50	15.79
North West	59.24	194.36	19.85	68.53
South East	90.81	245.54	17.39	16.60
South West	29.04	66.89	3.22	2.83

5.9 Massive figure for both datasets, LoS flipped between datasets



5.10 Supplementary table - sq diff