



Supporting Information

Supplementary methods and results

**This appendix was part of the submitted manuscript and has been peer reviewed.
It is posted as supplied by the authors.**

Appendix to: Sweeny AL, Keijzers GB, Palipana D, et al. Emergency department presentations in Queensland by First Nations people, remote residents, and young children during the COVID-19 pandemic, 2020: interrupted time series analysis. *Med J Aust* 2024; doi: 10.5694/mja2.52321.

1. Indigenous status determination in administrative datasets

The determination of First Nations status was based on the Aboriginal or Torres Strait Islander identification field from the Emergency Data Collection dataset used for this analysis. In our dataset, 52,621 of 7,079,196 records (0.74%) were missing a classification of Indigenous status and First Nations people represented 743,188 (10.5%) of emergency department visits to Queensland public hospitals between 2018 and 2021. This percent is reflective of census data from 2021 reporting 4.6% of Queenslanders are First Nations people¹ and the Australian Institute of Health and Welfare (AIHW), where it's indicated that Indigenous Australians presented to emergency departments 1.9 times more frequently than Non-Indigenous Australians in 2020-2021.² Therefore, the over-representation of Indigenous Australians in our database is compatible with AIHW and census data.

However, the issue of validity of determination of Indigenous status, i.e., if a person classified as First Nations is actually First Nations, was not ascertained. The AIHW include this disclaimer in presentations of First Nations' statistics:

“(a) The quality of the data reported for Indigenous status in emergency departments has not been formally assessed—therefore, caution should be exercised when interpreting these data. See the data quality summary for more information”²

One study using an Emergency Department data set from Cairns, Queensland in 2014 found a sensitivity of the Indigenous Status field of 85.7% (95% confidence interval: 78.1-91.5).³ Another found underreporting of Indigenous status in obstetrics, as well as minor over-reporting.⁴

References:

1. Australian Bureau of Statistics. Queensland 2021 Census Aboriginal and Torres Strait Islander people QuickStats. <https://www.abs.gov.au/census/find-census-data/quickstats/2021/IQS3> (viewed Sept 2023).
2. Australian Institute of Health and Welfare. Emergency department care 2020–21 data tables. <https://www.aihw.gov.au/reports-data/myhospitals/sectors/emergency-department-care> (viewed Sept 2023).
3. O'Loughlin M, Harriss L, Mills J, et al. Validating Indigenous status in a regional Queensland hospital emergency department dataset with patient-linked data. *Med J Aust* 2020; 212: 230-231.
4. McLardie-Hore FE, McLachlan HL, Newton MS, et.al. Accurate identification and documentation of First Nations women and babies attending maternity services: How can we 'close the gap' if we can't get this right? *Aust N Z J Obstet Gynaecol* 2023; 63: 234-240.

2. Change in emergency department presentations, by triage category

Methods

Methods were replicated as described elsewhere.¹ For people accessing the most remote emergency departments (ED), Australasian Triage Scale (ATS) categories 1 and 2 were combined due to small numbers in ATS 1. The numbers of observed and predicted cases by triage category represent the total (not daily) numbers for the period of initial Statewide lockdown in Queensland (March 11 – June 30, 2020). To determine the date of return to predicted numbers of cases by triage category, we took the first date after 11/3/2020 that was followed by at least ten consecutive days where the number of presentations fell within 10% of, or exceeded, predicted numbers. If there was no consecutive run of 10 days, we tallied observed and predicted numbers by week, and took the first date (if any) where 3 consecutive weeks occurred with observed numbers within 10% of predicted numbers.

Results

First Nations people and people accessing remote emergency departments

For First Nations people and people accessing the most remote EDs, the pattern of reduction in presentations by triage category was mostly in keeping with that reported for the overall population of presentations made to Queensland EDs.¹ The largest and longest reductions over predicted presentations were seen in triage category 4 for both groups and for the general population, with ATS 1 or 2 less affected (Table 1; Figures 1, 2, 3). Compared to the general population, who experienced a reduction over predicted presentations of 7.7% and 13.1% for ATS 1 and 2, respectively (Table 1), the percent reduction in ATS 1 or 2 presentations ranged between 8.6% to 15.1% for First Nations people and people accessing remote EDs (Table 1). Unlike the general population, however, who experienced a 17.8% reduction over predicted ATS 5 (least urgent) presentations, (Table 1), ATS 5 presentations for both First Nations people and people accessing remote EDs were the least affected, with drops of 5.7% and 8.5%, respectively (Table 1).

Children under 5 years of age

Compared to the general population, presentations for children aged under 5 years decreased to a greater extent for all triage categories, including 1 and 2, during the period of initial Statewide lockdown (March 11 – Jun 30, 2020) (Table 1, Figure 4, Figure 5). The most urgent presentations (triage category 1) remained within the 95% confidence intervals of predicted presentations following the declaration of the pandemic (March 11, 2020), (Figure 4). However, presentations remained below predicted levels for more than 10 months, starting with the week of 16th March, 2020, with an observed number of cases during the 16 week lockdown period 40.5% lower than predicted (Table 1). Likewise, it was 10 months following pandemic declaration before a return to predicted numbers of ATS 2 presentations for children (compared to 2 months for the general population). The number of consecutive days where presentations fell below the 95% CI of predicted numbers was longer for ATS 2 and ATS 3 presentations to children (83 days and 131 days), compared to the general population (42 days and 90 days), (data not shown).

Table 1. Actual and predicted numbers of presentations to 108 public emergency department (ED) in Queensland during COVID-19 restrictions (11 March to 30 June 2020), by triage category

Triage Category	Actual number	Predicted number	Absolute difference	% Reduction (95% Confidence Interval)	Return to predicted level*
All emergency department presentations					
ATS 1	4475	5152	677	13.1% (12.3-14.1%)	5-Jul-20
ATS 2	87782	95128	7346	7.7% (7.6-7.9%)	11-May-20
ATS 3	220584	267821	47237	17.6% (17.5-17.8%)	11-Aug-20
ATS 4	167735	219098	51363	23.4% (23.3-23.6%)	15-Sep-20
ATS 5	55499	67490	11991	17.8% (17.5-18.1%)	Unknown†
First Nations people					
ATS 1	468	512	44	8.6% (6.5-11.3%)	18-Mar-20
ATS 2	7155	8215	1060	12.9% (12.2-13.7%)	26-Jul-20
ATS 3	20935	25169	4234	16.8% (16.4-17.3%)	8-Jun-20
ATS 4	19669	25374	5705	22.5% (22.0-23.0%)	25-Oct-20
ATS 5	9896	10498	602	5.7% (5.3-6.2%)	31-May-20
People accessing the most remote emergency departments					
ATS 1 or 2‡	1919	2260	341	15.1% (13.7-16.6%)	28-Jun-20
ATS 3	6411	7362	951	12.9% (12.2-13.7%)	6-Oct-20
ATS 4	11061	15079	4018	26.6% (26.0-27.4%)	3-Jan-21
ATS 5	11089	12114	1025	8.5% (8.0-9.0%)	10-Aug-20
Children aged under 5 years old					
ATS 1	172	289	117	40.5% (35.0-46.2%)	17-Jan-21
ATS 2	6326	10384	4058	39.1% (38.2-40.0%)	11-Jan-21
ATS 3	18876	30064	11188	37.2% (36.7-37.8%)	26-Oct-20
ATS 4	15444	22902	7458	32.6% (32.0-33.2%)	14-Nov-20
ATS 5	2803	3646	843	23.1% (21.8-24.5%)	20-Dec-20

* First date followed by ten consecutive days with the number of presentations falling within 10% of, or exceeding predicted numbers. This did not occur for the following sub-categories: ATS 5 for First Nations people, ATS 1 or 2 for remote, ATS 1 for children. For the latter groups, the first date marking three consecutive weeks falling within 10% of predicted numbers was used.

† A return to expected presentations did not occur before the end of the study period (June 30, 2021).

‡ Due to the small number of category 1 presentations (< 1 per day), predictions were not run for ATS 1 separately.

Figure 1. Daily triage category 1 observed (blue) and predicted (black) presentations of First Nations people to Queensland Emergency Departments Jan 1 2018- June 30 2021, with lower and upper 95% confidence intervals (grey) for predicted levels

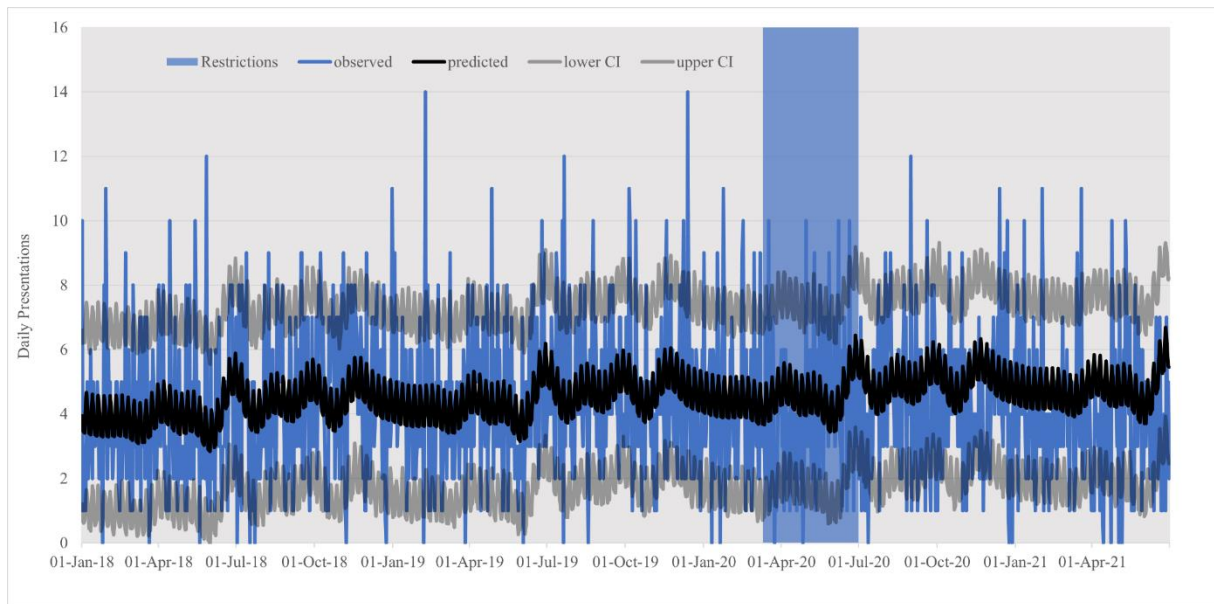
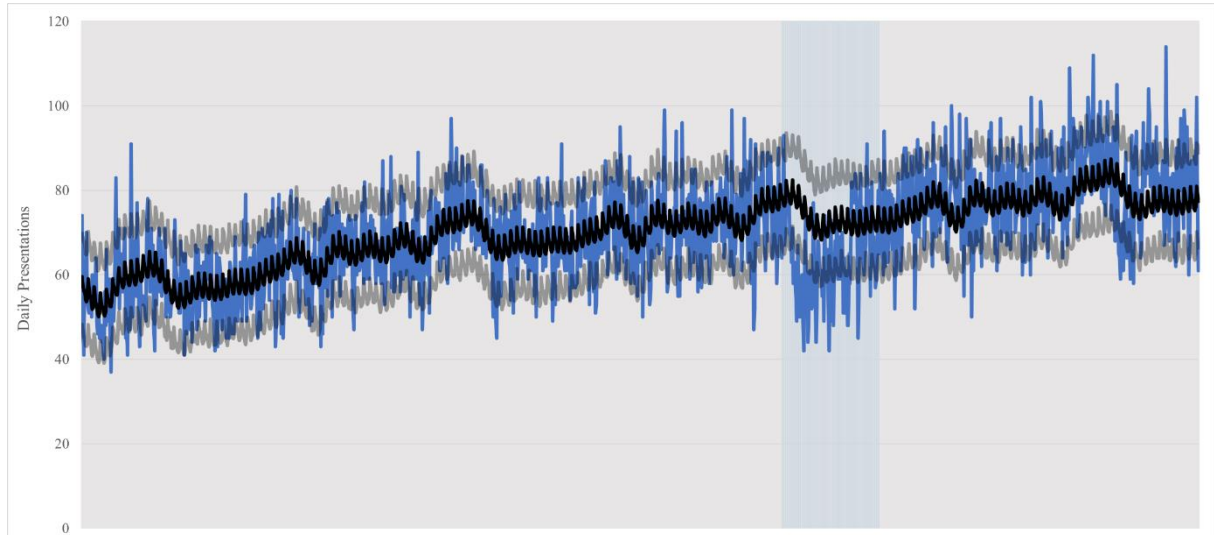
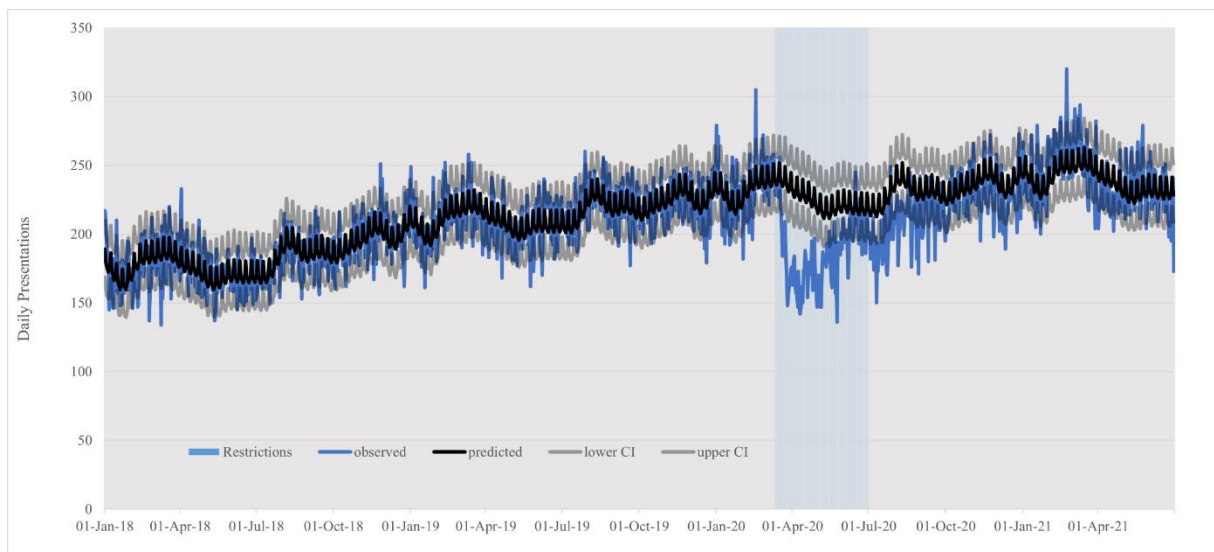


Figure 2. Daily observed (blue) and predicted (black) presentations of First Nations people to Queensland Emergency Departments by triage category, Jan 1 2018- Jun 30 2021, with 95% confidence intervals (grey) for the predicted values, with the period of initial restrictions (grey rectangle).

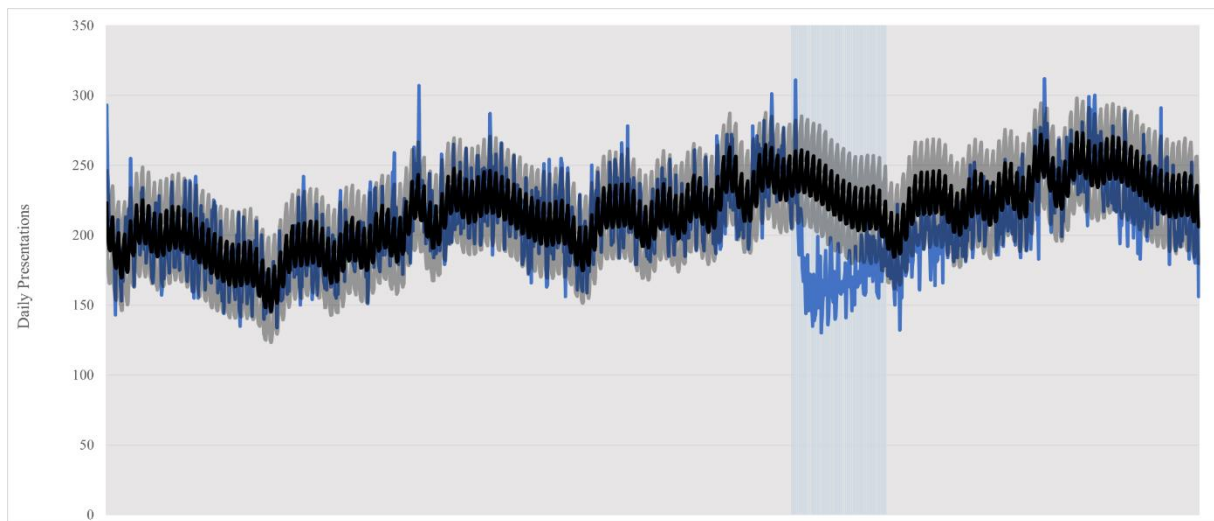
A. Triage category 2



B. Triage category 3



C. Triage category 4



D. Triage category 5

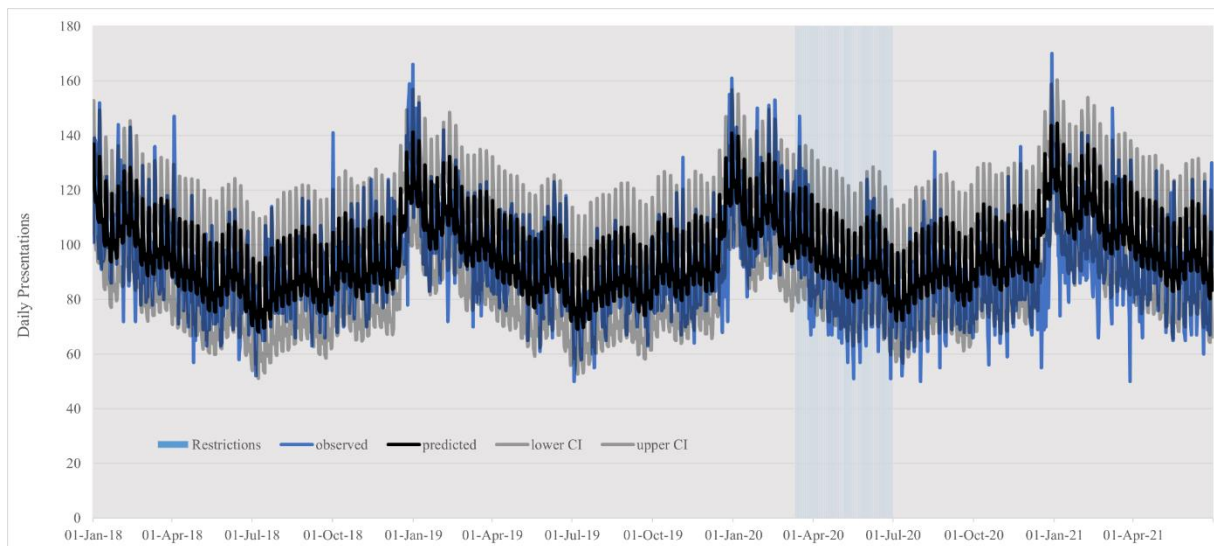
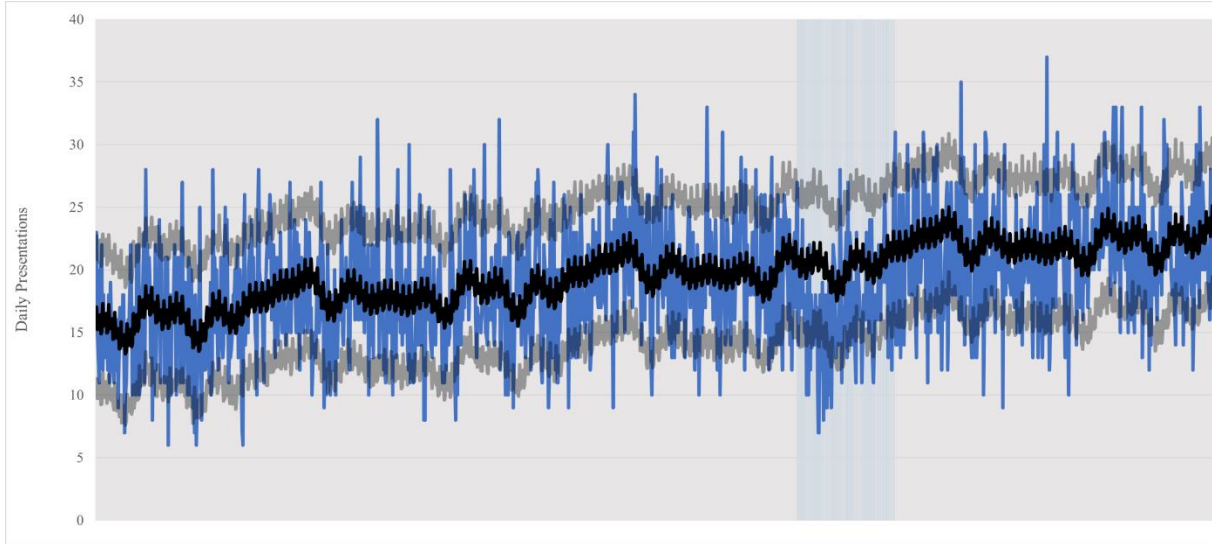
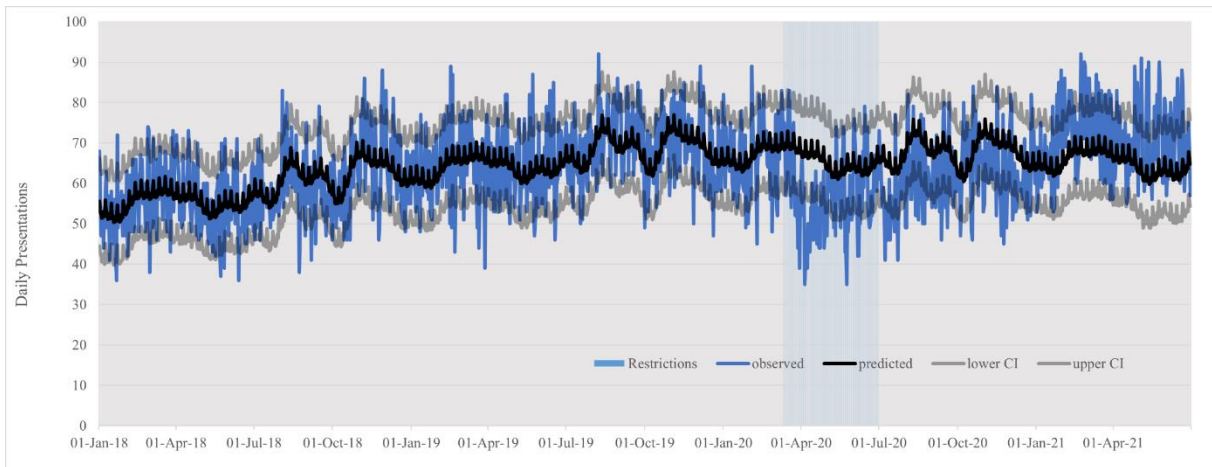


Figure 3. Daily observed (blue) and predicted (black) presentations of people to Queensland's most remote Emergency Departments by triage category, Jan 1 2018- Jun 30 2021, with 95% confidence intervals (grey) for the predicted values, displaying the period of initial restrictions (grey rectangle).

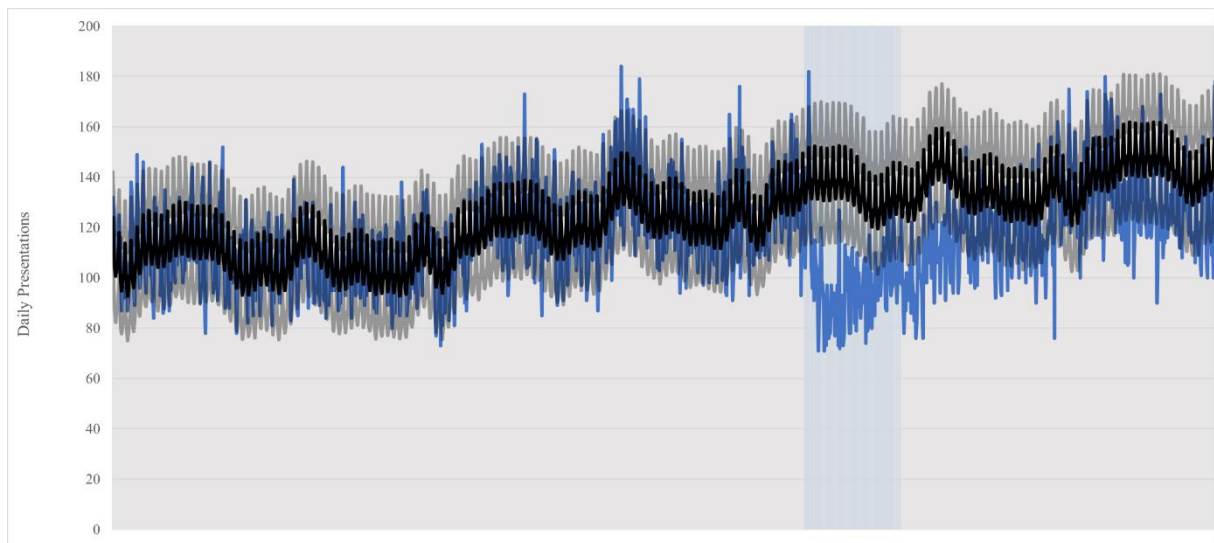
A. Triage category 1 or 2



B. Triage category 3



C. Triage category 4



D. Triage category 5

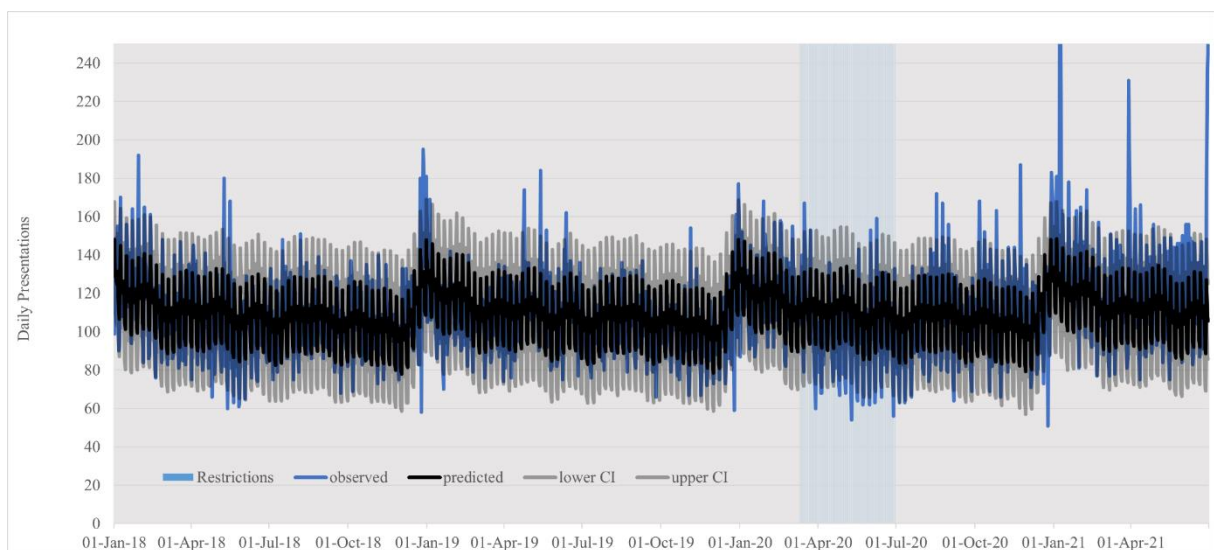


Figure 4. Weekly triage category 1 observed (blue) and predicted (black) presentations of children under 5 years of age to Queensland Emergency Departments Jan 1 2018- Jun 30 2021, with lower and upper 95% confidence intervals (grey) for predicted levels

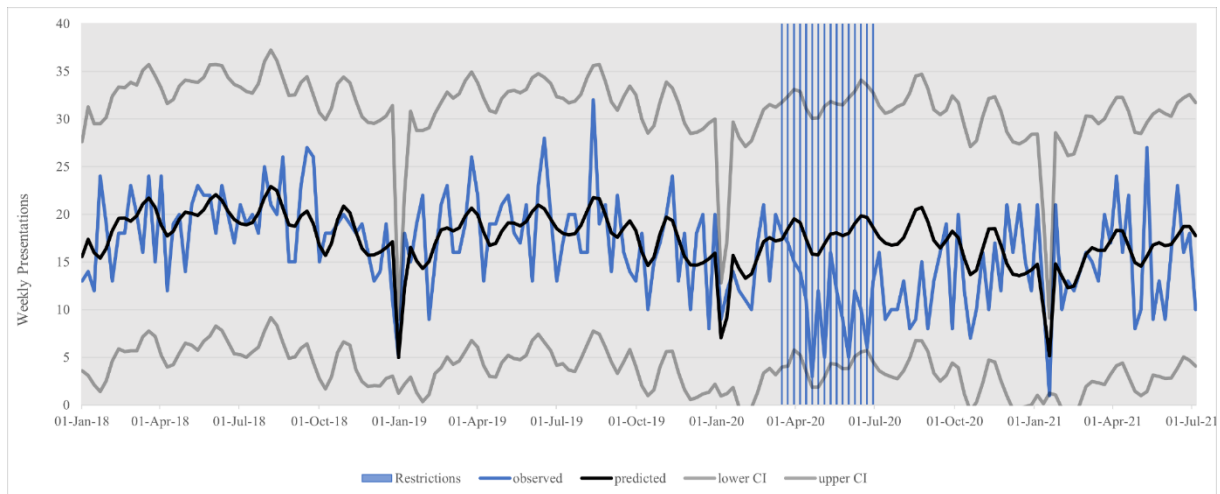
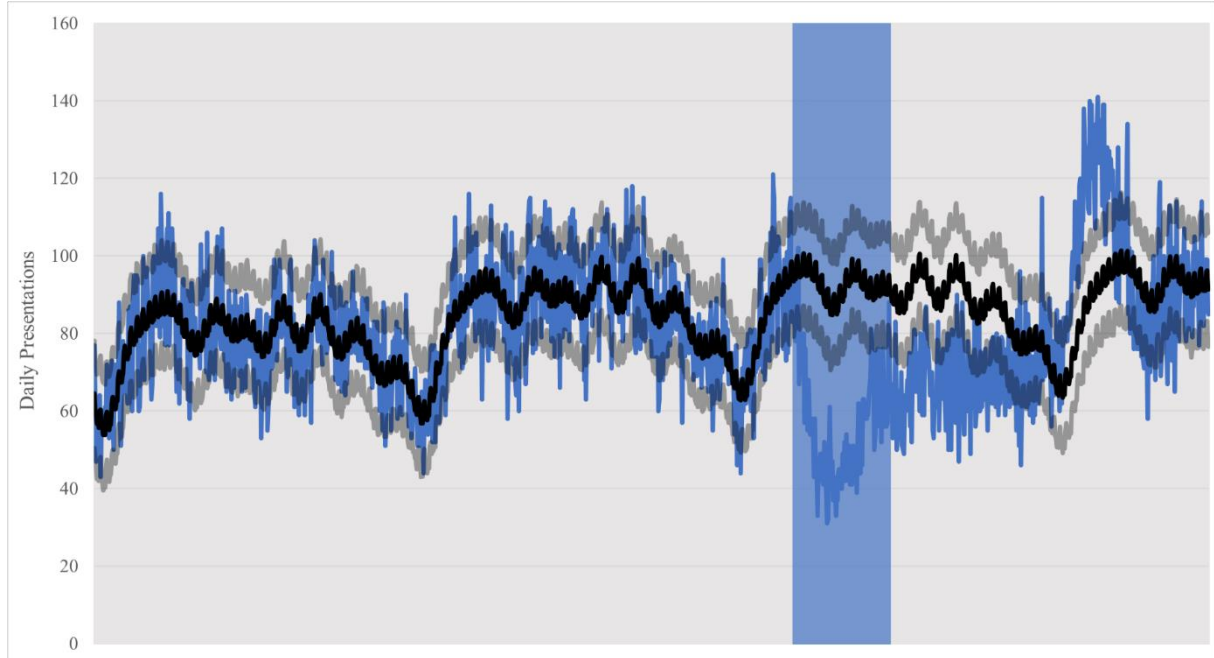
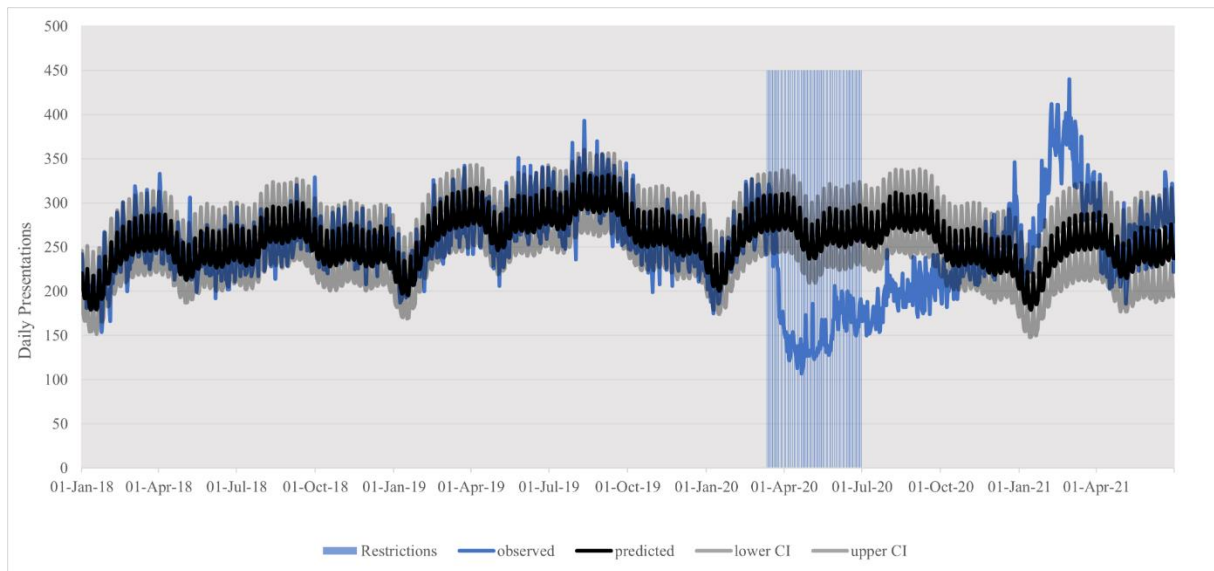


Figure 5. Daily observed (blue) and predicted (black) presentations of children under 5 years of age to Queensland Emergency Departments by triage category, Jan 1 2018- Jun 30 2021, with 95% confidence intervals (grey) for the predicted values, displaying the period of initial restrictions (grey rectangle).

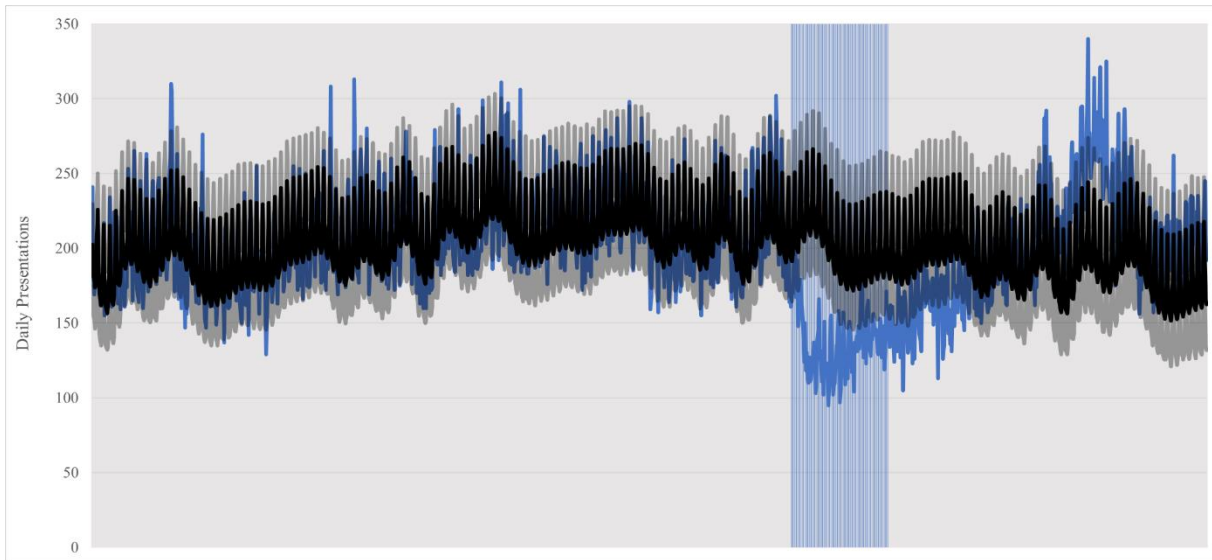
A. Triage Category 2



B. Triage category 3



C. Triage Category 4



D. Triage Category 5

