



Changes in A & E attendances at Bradford Royal Infirmary in April, May and June 2020 compared to the same period in 2019

Date of analysis: July 2020

This report summarises the impact of the COVID-19 response on attendances at Bradford Royal Infirmary (BRI) A&E department by comparing A&E attendances in April, May and June 2020 to the same months in the previous year. It also suggests some of the implications for services.

Figure 1 shows the number of attendances by month between 1st January 2019 and 30th June 2020. In April 2020 there was a 54% decrease in non-COVID-19 related A&E attendances compared to April 2019; by May the decrease had attenuated to 35%, and by June it was 24% (Table 1). This trend suggests that although the number of attendances remains below the same time-period in 2019, patients are starting to access emergency clinics again. In April 2020, 518 persons attended with suspected COVID-19. This has fallen 330 in May and 129 in June.

Diagnosis and reasons for attendance

Table 2 summarises the reasons for attending A&E in 2019 and 2020 (using diagnostic codes assigned in A&E),¹ and shows the percent change between the two years. Several have small numbers and so percentage reductions are not reliable.

In April, the largest percentage reductions were (a) in patients who received no diagnosis or left before being seen or treated (because patients were seen more quickly) and (b) in strokes and TIAs and respiratory conditions. In May and June, patients attending with respiratory conditions remained lower than the previous year, but the number of patients attending with stroke, TIA and related syndromes in June increased by 64%: from 28 in 2019 to 46 in 2020. June also saw the number of patients attending with IHD, chest pain and heart failure return to the previous year's levels. The reduction was smaller for patients attending with mental/behavioural disorders in April 2020, possibly reflecting the increasing incidence and severity of these conditions, and by June the numbers were comparable to the previous year. Patients attending with injuries is slowly starting to return to normal, a

¹ A&E data include up to 12 diagnoses, and where a patient has more than one diagnosis code, some may relate to existing health conditions. Patients who had a code for emphysema/COPD, asthma or suspected COVID-19 were categorised as attending for these reasons if the relevant code was present in any of the diagnoses; all other patients were categorised using the first code only.

reflection that people are no longer isolating. The number of patients recorded as attending with asthma and COPD was surprisingly low in both years and probably reflects poor coding. The proportion of patients attending with suspected COVID-19 had decreased over each consecutive month, from 9% in April to 2% in June.

Triage

The categorisation of the acuity of patients attending A&E is shown in Table 3. Three categories were generated from the five assigned at triage as follows:

- High = 1 (in need of immediate treatment for preservation of life) or 2 (Seriously ill or injured patients whose lives are not in immediate danger)
- Medium = 3 (Patients with serious problems, but apparently stable condition)
- Low = 4 (standard A&E cases without immediate danger or distress) or 5 (patients whose conditions are not true accidents or emergencies)

Most patients were triaged as medium or low in 2019 and 2020, but in 2020 many patients were not triaged on arrival, probably resulting from changes to workflows in the department. In April, May and June 2020, ~15% of patients without suspected coronavirus were not recorded as triaged, and 89% of these were admitted². Only 15-20% of patients who were triaged were admitted. Of patients with suspected COVID-19, 30% were not recorded as triaged in April and May; 19% in June. 87% of non-triaged patients were admitted in April, whereas in May and June it was 98 and 100% respectively. Fewer triaged COVID-19 patients have been admitted during the observed time-period: 37% in April, 29% in May and 18% in June.

Age of patients

The largest percentage drop in A&E attendances in April, May and June 2020 compared to the previous year have occurred in those aged under 25, with reductions in injuries, respiratory conditions and no diagnosis/NAD/left before treatment accounting for a large proportion of this fall (Table 4). By June, the number of patients aged 55-64 were approaching those seen in the same month in 2019. Most patients attending with suspected COVID-19 were aged 65 and over.

Investigations

Despite there being an overall reduction of over 50% in A&E attendances in April 2020, there was only a 13% drop in the number of investigations carried out. This was mainly due

² This is being explored but currently thought to be mainly self-presenters who were streamed to the purple (Covid area)

to a huge increase in the number of blood tests, with over half of non-COVID-19 related attendances and 62% of those with suspected coronavirus receiving one (Table 5). By May, the number of blood tests being performed had increased by 280%, and June saw a 404% increase. This indicates possible over-testing of people with a cough, fatigue, or fever. There has been a consistently large decrease in the number of attendances that received no investigations.

Disposal

The majority of those attending A&E are discharged with no follow-up: ~53% in 2019 and ~67% in 2020 (Table 6). The proportion of non-COVID-19 patients admitted was around 26-30% over the same time-period in both years. The number of suspected COVID-19 patients being admitted has fallen from 51% in April and May to 34% in June. As anticipated, there was a large reduction in those who left before being seen or treated. However, there was an even greater percentage reduction in those transferred (referred) to another health care provider and this has not changed over the observed time-period. Whilst initially this was partly a result of changes in the types of attendance (e.g. reduction in injuries requiring fracture clinic), changes in approach with more 'see and treat' activity in A&E, a greater willingness to tolerate uncertainty (and not refer), or a lack of availability of other services, it is surprising that the number of referrals is not returning to normal levels in line with increasing A&E attendances and so (and more worryingly) increasing unmet need.

Implications

- Reductions in attendances for cerebrovascular and cardiovascular conditions are concerning as patients who experienced symptoms (and not assessed and treated) will be at raised risk of a further event and poor outcomes. Services should try to identify these patients and encourage them to attend for assessment. We should monitor to see if this is reflected in an increase in deaths from these causes (though difficult to detect).
- The smaller reduction in attendances seen for mental and behavioural disorders likely reflects the overall increase in prevalence and severity of these conditions in the population, reported in several studies of the impact of the pandemic and social isolation on mental health. Although evidence is sparse, there are concerns nationally that rates of self-harm and suicide may also be increasing. Indeed by June, the numbers attending with these disorders was comparable to the previous year. We need to monitor presentations in A&E and referrals to mental health services and increase efforts to encourage people to seek timely help for their mental health.
- Reductions in patients coded with respiratory conditions may reflect factors including: shielding of those at higher risk, social distancing reducing transmission of respiratory viruses, and lower incidence of exacerbations due to cleaner air. Efforts to maintain lower levels of pollution are an important part of recovery.

- Some reduction in A&E visits reflects 'unnecessary' attendance. We should experiment with ways of preventing rates returning to previous levels early in the recovery period.
- The reduction in the proportion of patients referred to other services may indicate unmet need and requires further investigation. If it results from more 'see and treat' activity in A&E (reducing the numbers needing admission or referral), the Trust should explore how this can be sustained when A&E numbers increase.
- Coding of conditions and triage in A&E needs to be more consistent and comprehensive to allow better analysis.

Figure 1: Number of A&E attendances at BRI between 1st January 2019 and 30th June 2020

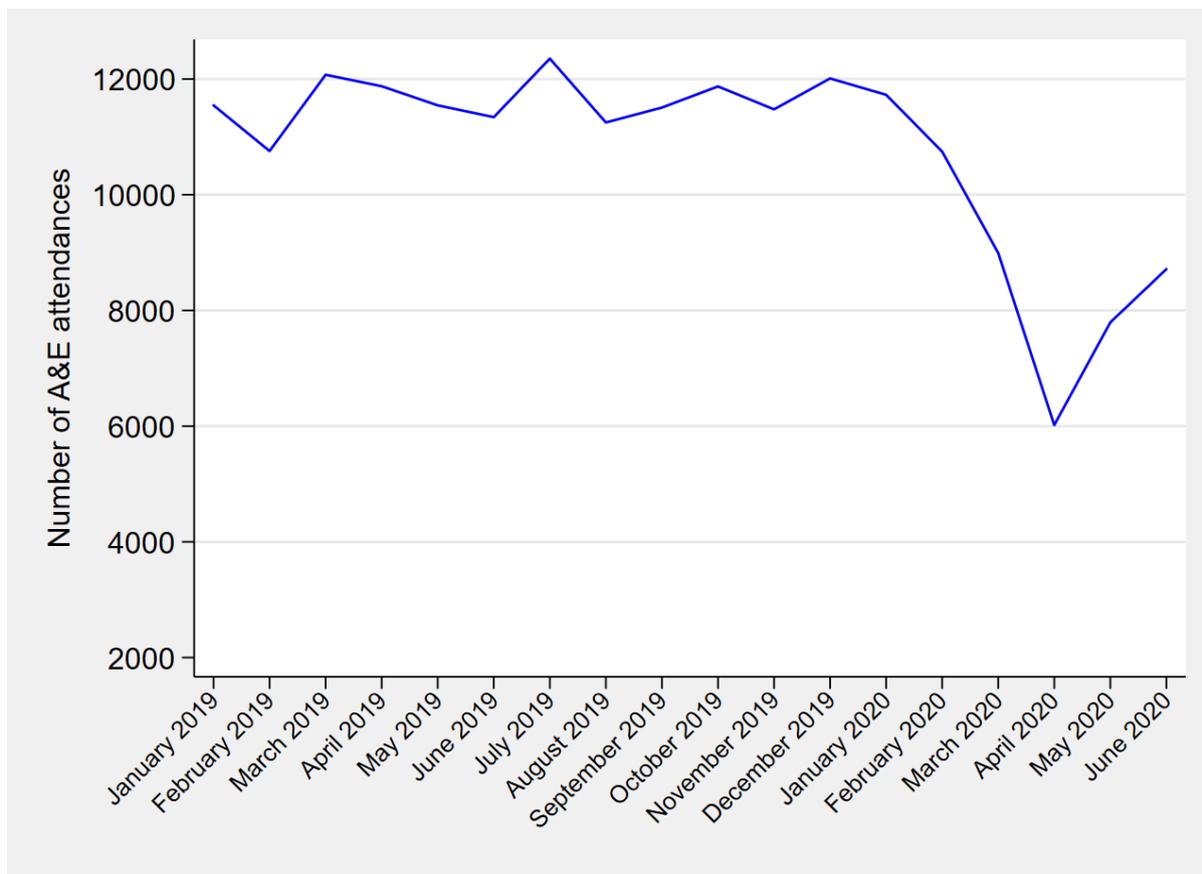


Table 1: Total number of A&E attendances for non-COVID-19 and suspected COVID-19 in April, May and June 2020 compared to the same time-period the previous year

Year	April		May		June	
	Non-COVID-19	COVID-19	Non-COVID-19	COVID-19	Non-COVID-19	COVID-19
2019	11,875	0	11,545	0	11,341	0
2020	5,501	518	7,464	330	8,585	129
% change	-53.7		-35.3		-24.3	

Table 2: A&E attendances in April, May and June 2020 compared to the same time-period the previous year for specific diagnoses. % change reflects the difference between 2019 and 2020. Column percentages are presented for 2019 and 2020.

Diagnosis/Reason for attending	April			May			June		
	2019	2020	% change	2019	2020	% change	2019	2020	% change
No diagnosis/NAD/Left	1,225 (10.3)	388 (6.5)	-68.3	1295 (11.2)	695 (8.9)	-46.3	1334 (11.8)	832 (9.5)	-37.6
Diabetes mellitus, type 1 and 2	16 (0.1)	7 (0.1)	-56.3	11 (0.1)	14 (0.2)	+27.3	13 (0.1)	13 (0.2)	0.0
Epilepsy	104 (0.9)	44 (0.7)	-57.7	101 (0.9)	72 (0.9)	-28.7	110 (1.0)	67 (0.8)	-39.1
Stroke, TIA and related syndromes	44 (0.4)	13 (0.2)	-70.5	34 (0.3)	33 (0.4)	-2.9	28 (0.3)	46 (0.5)	+64.3
IHD or chest pain or heart failure	226 (1.9)	143 (2.4)	-36.7	271 (2.4)	162 (2.1)	-40.2	211 (1.9)	190 (2.2)	-10.0
Acute upper respiratory infections, influenza, pneumonia, and bronchitis	678 (5.7)	209 (3.5)	-69.2	448 (3.9)	146 (1.9)	-67.4	368 (3.2)	133 (1.5)	-63.9
Other diseases of the upper respiratory tract*	218 (1.8)	40 (0.7)	-81.7	139 (1.2)	33 (0.4)	-76.3	123 (1.1)	38 (0.4)	-69.1
Emphysema/COPD	30 (0.3)	4 (0.1)	-86.7	30 (0.3)	17 (0.2)	-43.3	31 (0.3)	14 (0.2)	-54.8
Asthma	21 (0.2)	6 (0.1)	-71.4	19 (0.2)	10 (0.1)	-47.4	25 (0.2)	7 (0.1)	-72.0
Mental/behavioural disorder	343 (2.9)	241 (4.0)	-29.7	375 (3.3)	309 (4.0)	-17.6	360 (3.2)	346 (4.0)	-3.9
Injuries	2,928 (24.7)	1,302 (21.6)	-55.6	3032 (26.3)	2097 (26.9)	-30.8	3033 (26.7)	2392 (27.5)	-21.1
Accidents	65 (0.6)	38 (0.6)	-41.5	62 (0.5)	63 (0.8)	+1.6	58 (0.5)	58 (0.7)	0.0
Suspected coronavirus infection	0	517 (8.6)		0	330 (4.2)		0	129 (1.5)	
Other	5,977 (50.3)	3,104 (50.9)	-48.6	5728 (49.6)	3813 (48.9)	-33.4	5647 (49.8)	4449 (51.1)	-21.2

NAD=nothing abnormal detected. *Includes vasomotor and allergic rhinitis; chronic rhinitis, nasopharyngitis and pharyngitis; chronic sinusitis; nasal polyp; other disorders of nose and nasal sinuses; chronic disease of tonsils and adenoids; peritonsillar abscess; chronic laryngitis and laryngotracheitis; diseases of vocal cords and larynx nec; other diseases of the upper respiratory tract.

Table 3: Triage category of A&E attendees. Column percentages are presented for April, May and June 2020 compared to the same time-period the previous year (where applicable); % change reflects the difference between 2019 and 2020 for non-COVID-19 cases.

Acuity	April				May				June			
	Non-COVID-19			COVID-19	Non-COVID-19			COVID-19	Non-COVID-19			COVID-19
	2019	2020	% change	2020	2019	2020	% change	2020	2019	2020	% change	2020
High	768 (6.5)	371 (8.2)	-51.7	67 (17.9)	684 (5.9)	371 (5.8)	-45.8	35 (15.6)	763 (6.7)	448 (6.1)	-41.3	14 (13.5)
Medium	6,358 (53.5)	1,852 (40.8)	-70.9	202 (54.0)	6057 (52.5)	2600 (40.8)	-57.1	130 (58.0)	5765 (50.9)	3053 (41.4)	-47.0	55 (52.9)
Low	4,749 (40.0)	2,322 (51.1)	-51.1	105 (28.1)	4804 (41.6)	3398 (53.4)	-29.3	5959 (26.3)	4809 (42.4)	3877 (52.6)	-19.4	35 (33.7)

Table 4: Number of A&E attendees by age group. % change reflects the difference between April, May and June 2020 compared to the same time-period the previous year for non-COVID-19 cases.

Age group	April				May				June			
	Non-COVID-19			Suspected COVID-19	Non-COVID-19			Suspected COVID-19	Non-COVID-19			Suspected COVID-19
	2019	2020	% change	2020	2019	2020	% change	2020	2019	2020	% change	2020
<16	2,724 (22.9)	740 (13.5)	-72.8	7 (1.4)	2447 (21.2)	1019 (13.7)	-58.4	7 (2.1)	2402 (21.2)	1256 (14.6)	-47.7	7 (5.4)
16-24	1,723 (14.5)	667 (12.1)	-61.3	26 (5.0)	1656 (14.3)	956 (12.8)	-42.3	22 (6.7)	1620 (14.3)	1180 (13.7)	-27.2	12 (9.3)
25-34	1,712 (14.4)	949 (17.3)	-44.6	61 (11.8)	1715 (14.9)	1256 (16.8)	-26.8	40 (12.1)	1666 (14.7)	1442 (16.8)	-13.4	23 (17.1)
35-44	1,406 (11.8)	743 (13.5)	-47.2	81 (15.6)	1495 (13.0)	1047 (14.0)	-30.0	59 (17.9)	1457 (12.9)	1193 (13.9)	-18.1	22 (17.1)
45-54	1,280 (10.8)	726 (13.2)	-43.3	80 (15.4)	1199 (10.4)	941 (12.6)	-21.5	53 (16.1)	1235 (10.9)	1026 (12.0)	-16.9	15 (11.6)
55-64	974 (8.2)	570 (10.4)	-41.5	93 (18.0)	1013 (8.8)	742 (9.9)	-26.8	45 (13.6)	942 (8.3)	880 (10.3)	-6.6	13 (10.1)
65+	2,056 (17.3)	1,106 (20.1)	-46.2	170 (32.8)	2020 (17.5)	1503 (20.1)	-25.6	104 (31.5)	2019 (17.8)	1608 (18.7)	-20.4	37 (28.7)

Table 5: Number of investigations conducted in April, May and June 2020 compared to the same time period the previous year for non-COVID-19 attendances, and April 2020 for suspected coronavirus infections. % change reflects the difference between 2019 and 2020 for non-COVID-19 cases. Many patients had multiple investigations, which is reflected in the column total count.

Investigation	April				May				June			
	Non-COVID-19			Suspected COVID-19	Non-COVID-19			Suspected COVID-19	Non-COVID-19			Suspected COVID-19
	2019	2020	% change	2020	2019	2020	% change	2020	2019	2020	% change	2020
Radiology*	5,725 (23.5)	3,216 (15.2)	-43.8	334 (12.2)	5751 (24.9)	4615 (16.6)	-19.8	259 (11.8)	5736 (25.6)	4799 (15.4)	-16.3	72 (10.2)
ECG	2,770 (11.4)	1,546 (7.3)	-44.2	207 (7.6)	2695 (11.7)	1903 (6.8)	-29.4	198 (9.1)	2612 (11.7)	2379 (7.6)	-8.9	75 (10.6)
Blood tests**	4,589 (18.8)	11,316 (53.6)	+146.6	1,686 (61.7)	3980 (17.3)	15096 (54.2)	+279.3	1446 (66.1)	3419 (15.3)	17243 (55.4)	+404.3	466 (65.8)
Other***	4,630 (19.0)	3,019 (14.3)	-34.8	365 (13.4)	4552 (19.7)	3623 (13.0)	-20.4	239 (10.9)	4433 (19.8)	3817 (12.3)	-13.9	70 (9.9)
None	6,675 (27.4)	2,016 (9.6)	-69.8	139 (5.1)	6087 (26.4)	2625 (9.4)	-56.9	47 (2.2)	6189 (27.6)	2912 (9.4)	-52.9	25 (3.5)
Total	24,389	21,113	-13.4	2,731	5751	4615	-19.8	259	5736	4799	-16.3	708

*X-ray, CT, MRI, ultrasound; genito-urinary contrast examination/tomography, **Haematology, cross-match, biochemistry, clotting studies, cardiac enzymes, blood culture, serology, blood gas, toxicology; ***Urinalysis, bacteriology, histology, immunology, pregnancy test, dental investigation, orthoptic tests and other.

Table 6: Method of disposal from A&E April, May and June 2020 compared to the same time period the previous year; % change reflects the difference between 2019 and 2020 for non-COVID-19 cases.

Disposal from A&E	April				May				June			
	Non-COVID-19			Suspected COVID-19	Non-COVID-19			Suspected COVID-19	Non-COVID-19			Suspected COVID-19
	2019	2020	% change	2020	2019	2020	% change	2020	2019	2020	% change	2020
Admitted	3623 (30.5)	1773 (32.2)	-51.1	264 (51.0)	3471 (30.1)	1983 (26.6)	-42.9	168 (50.9)	3338 (29.4)	2238 (26.1)	-33.0	44 (34.1)
Discharge, no follow-up	6246 (52.6)	3600 (65.4)	-42.4	251 (48.5)	6309 (54.7)	5251 (70.4)	-16.8	156 (47.3)	6291 (55.5)	6031 (70.3)	-4.1	83 (64.3)
Transfer to other healthcare provider*	1185 (10.0)	22 (0.4)	-98.1	1 (0.2)	1082 (9.4)	12 (0.2)	-98.9	0	914 (8.1)	22 (0.3)	-97.6	0
Left before treatment/refused treatment	815 (6.9)	101 (1.8)	-87.6	1 (0.2)	680 (5.9)	212 (2.8)	-68.8	4 (1.2)	789 (7.0)	285 (3.3)	-63.9	0
Other ²	6 (0.1)	5 (0.1)	-16.7	1 (0.2)	3 (0.0)	6 (0.1)	100.0	2 (0.6)	9 (0.1)	9 (0.1)	0.0	2 (1.6)

*includes internal referrals within the hospital e.g. fracture clinic, oncology; ² Discharged to GP, referral to A&E clinic, died in A&E