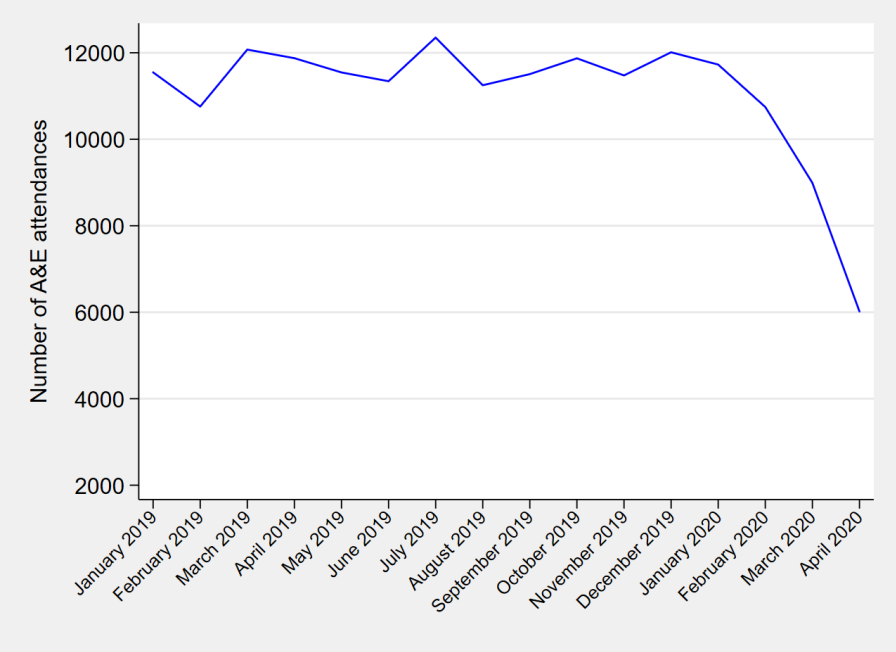
CSAG Briefing Paper

Changes in A & E attendances at Bradford Royal Infirmary in April 2020 compared to April 2019	Date of analysis: 4th June 2020

This report summarises the impact of the COVID-19 response on attendances at Bradford Royal Infirmary (BRI) A&E department and suggests some of the implications for services.

Figure 1 shows the number of attendances by month between 1st January 2019 and 30th April 2020. In April 2020 there was a 54% decrease in non-COVID-19 related A&E attendances compared to April 2019 (Table 1). This is a slightly greater fall than that reported for the NHS in England (48.2% decrease in type 1 A&E departments).[1]

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



In April 2020, 518 persons attended with suspected COVID-19.

Table 1: Total number of A&E attendances in April 2019 and 2020

Year	Non-COVID-19		Suspected COVID-19
	No. attendances	% change	No. attendances
2019	11,875		0
2020	5,501	-53.7%	518

[1] NHS England https://www.england.nhs.uk/statistics/wp-content/uploads/sites/2/2020/05/Statistical-commentary-April-2020-jf8hj.pdf

Diagnosis and reasons for attendance

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

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. The reduction was smaller for patients attending with heart-related diagnoses and mental/behavioural disorders possibly reflecting the increasing incidence and severity of these conditions. The number of patients recorded as attending with asthma and COPD was surprisingly low in both years and probably reflects poor coding.

A total of 518 patients had suspected coronavirus infection, though suspected coronavirus was not the first diagnostic code in 286 (55%). Of these, the most common presentations were sepsis (80) and respiratory conditions (58).

Table 2: A&E attendances in April 2019 and 2020 for specific diagnoses. % change reflects the difference between 2019 and 2020. Column percentages are presented for 2019 and 2020.

Diagnosis/Reason for attending	**April 2019**	**April 2020**	**% change**
No diagnosis/NAD/Left	1,225 (10.3)	388 (6.5)	-68.3
Diabetes mellitus, type 1 and 2	16 (0.1)	7 (0.1)	-56.3
Epilepsy	104 (0.9)	44 (0.7)	-57.7
Stroke, TIA and related syndromes	44 (0.4)	13 (0.2)	-70.5
IHD or chest pain or heart failure	226 (1.9)	143 (2.4)	-36.7
Acute upper respiratory infections, influenza, pneumonia, and bronchitis	678 (5.7)	209 (3.5)	-69.2
Other diseases of the upper respiratory tract*	218 (1.8)	40 (0.7)	-81.7
Emphysema/COPD	30 (0.3)	4 (0.1)	-86.7
Asthma	21 (0.2)	6 (0.1)	-71.4
Mental/behavioural disorder	343 (2.9)	241 (4.0)	-29.7
Injuries	2,928 (24.7)	1,302 (21.6)	-55.5
Suspected coronavirus infection	0	518 (8.6)	
Other**	6,042 (50.9)	3,104 (51.6)	-48.6

*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. NAD=nothing abnormal detected.
** this includes a lot of trauma which has reduced dye to lockdown.

[2] 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.

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. In 2020, 995 (17%) of those without suspected coronavirus were not recorded as triaged, 89% of these were admitted[3]. Only 20% of patients who were triaged were admitted. It appears the missing triage data may result from changes to workflows in the department.

143 (28%) of patients with suspected COVID-19 were also not recorded as triaged, 87% of whom were admitted; 37% of triaged patients with suspected COVID-19 were admitted.

Table 3: Triage category of A&E attendees. Column percentages are presented for 2019 and 2020 (where applicable); % change reflects the difference between 2019 and 2020 for non-COVID-19 cases.

Acuity	**Non-COVID-19**			**Suspected COVID-19**
	2019	**2020**	**% change**	**2020**
High	768 (6.5)	371 (8.2)	-51.7	68 (13.1)
Medium	6,358 (53.5)	1,854 (40.8)	-70.9	202 (39.0)
Low	4,749 (40.0)	2,322 (51.1)	-51.1	105 (20.3)

Age of patients

The largest percentage drop in A&E attendances in 2020 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). The majority of patients attending with suspected COVID-19 were aged 65 and over.

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

Table 4: Number of A&E attendees by age group. % change reflects the difference between 2019 and 2020 for non-COVID-19 cases.

Age group	Non-COVID-19			Suspected COVID-19
	2019	2020	% change	2020
<16	2,724 (22.9)	740 (13.5)	-72.8	7 (1.4)
16-24	1,723 (14.5)	667 (12.1)	-61.3	26 (5.0)
25-34	1,712 (14.4)	949 (17.3)	-44.6	61 (11.8)
35-44	1,406 (11.8)	743 (13.5)	-47.2	81 (15.6)
45-54	1,280 (10.8)	726 (13.2)	-43.3	80 (15.4)
55-64	974 (8.2)	570 (10.4)	-41.5	93 (18.0)
65+	2,056 (17.3)	1,106 (20.1)	-46.2	170 (32.8)

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 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). This indicates possible over-testing of people with a cough, fatigue or fever. There was a 70% decrease in the number of attendances that received no investigations.

Table 5: Number of investigations conducted in April 2019 and 2020 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	Non-COVID-19			Suspected COVID-19
	2019	2020	% change	2020
Radiology*	5,725 (23.5)	3,216 (15.2)	-43.8	334 (12.2)
ECG	2,770 (11.4)	1,546 (7.3)	-44.2	207 (7.6)
Blood tests**	4,589 (18.8)	11,316 (53.6)	+146.6	1,686 (61.7)
Other***	4,630 (19.0)	3,019 (14.3)	-34.8	365 (13.4)
None	6,675 (27.4)	2,016 (9.6)	-69.8	139 (5.1)
Total	24,389 (100)	21,113 (100)	-13.4	2,731 (100)

*X-ray, CT, MRI, ultrasound; genito-urinary contract 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.

Disposal

The majority of those attending A&E were discharged with no follow-up: 53% in 2019 and 65% in 2020 (Table 6). The proportion of non-COVID-19 patients admitted was around 30% in both years, and half of suspected COVID-19 patients were admitted. 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. This is 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 and so (and more worryingly) increasing unmet need.

Table 6: Method of disposal from A&E April 2019 and 2020; % change reflects the difference between 2019 and 2020 for non-COVID-19 cases.

Disposal from A&E	**Non-COVID-19**			**Suspected COVID-19**
	2019	**2020**	**% change**	**2020**
Admitted	3623 (30.5)	1773 (32.2)	-51.1	264 (51.0)
Discharge, no follow-up	6246 (52.6)	3600 (65.4)	-42.4	251 (48.5)
Transfer to other healthcare provider*	1185 (10.0)	22 (0.4)	-98.1	1 (0.2)
Left before treatment/refused treatment	815 (6.9)	101 (1.8)	-87.6	1 (0.2)
Other[2]	6 (0.1)	5 (0.1)	-16.7	1 (0.2)

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

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. 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.