SWASFT activity analysis

An independent review of South Western Ambulance Services NHS Foundation Trust (SWASFT) activity and performance was commissioned as part of the Somerset hyperacute stroke services review. This work was undertaken by the Business Intelligence team from South, Central and West CSU (SCW).

The aim of this was to provide a true and reflective oversight through evidenced based data. It looks at ambulance conveyances only and excludes patients admitted by other routes. It includes the following data:

- Performance (Cat 2)[1]
- Demand (Cat 2)
- Ambulance conveyance
- Stroke / TIA to hospital to first handover

Three data sources were used:

- Monthly Ambulance Quality Indicators (AQIs) AQI Link
- Ambulance Quality Indicators: Clinical Outcomes Times Series (Stroke Data) Stroke Link
- Daily Computer Aided Dispatch (CAD) data

Consideration will be given due to the impact that coronavirus has had on the Trust, therefore data between 2020/21 may be excluded due to missing data or inconsistencies.

In 2017, following the largest clinical ambulance trials in the world, NHS England implemented new ambulance standards across the country, ensuring the sickest patients get the fastest response and that all patients get the right response first time[2].

- **Mean average times**: For all mean averages in the post-ARP AQI, Services should provide the total, denominator, and mean, so any mismatch with the mean calculated by NHS England can be resolved before publication.
- **Medians and centiles:**
  - A **median** call answer time of 7 seconds means that half the calls were answered in less than 7 seconds. The median is identical to the 50th centile.

[1] To note: Under the Ambulance Response Programme (ARP), Stroke / TIA can receive a Category of C2, C3, C4, C5 with the majority categorised under Category 2. Therefore the main focus will be positioned around C2.
[2] NHS England » Ambulance Response Programme

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- A **90th centile** incident response time of 13 minutes means that 9 out of 10 incidents were responded to in less than 13 minutes.

Response time standards[1]

Category	Mean average definition	Standard for mean	Standard for 90th centile
C1	A25 = A24 / A8	≤ 7 minutes	≤ 15 minutes
C1T	A28 = A27 / A9		
C2	A31 = A30 / A10	≤ 18 minutes	≤ 40 minutes
C3	A34 = A33 / A11		≤ 120 minutes
C4	A37 = A36 / A12		≤ 180 minutes

C1T does not have a formal standard but the mean and 90th centile will be collected and published. Ambulance services should aim for a 90th centile of 30 minutes.

Source: NHS England » Ambulance Response Programme

The summary includes ambulance conveyances into Musgrove Park Hospital, Taunton and Yeovil District Hospital using partial postcode analysis and through Geographic Information System (GIS) mapping.

Key findings:

- From April 2018 to March 2022 SWAFT conveyed a total of 4,128 patients with signs and symptoms of Stroke / TIA
    - 64.2% (2,650) were conveyed to Musgrove Park Hospital
    - 35.8% (1,478) were conveyed to Yeovil District Hospital
- There appears to be very little change in the proportion of patient's conveyed to either hospital within this time period
- 92.9% of all Stroke and TIA patients had been categorised as Category 2, in line with the ARP specification.
- 46.7% of all patients conveyed by SWAFT to Musgrove Park Hospital are between the ages of 75 to 89 of years

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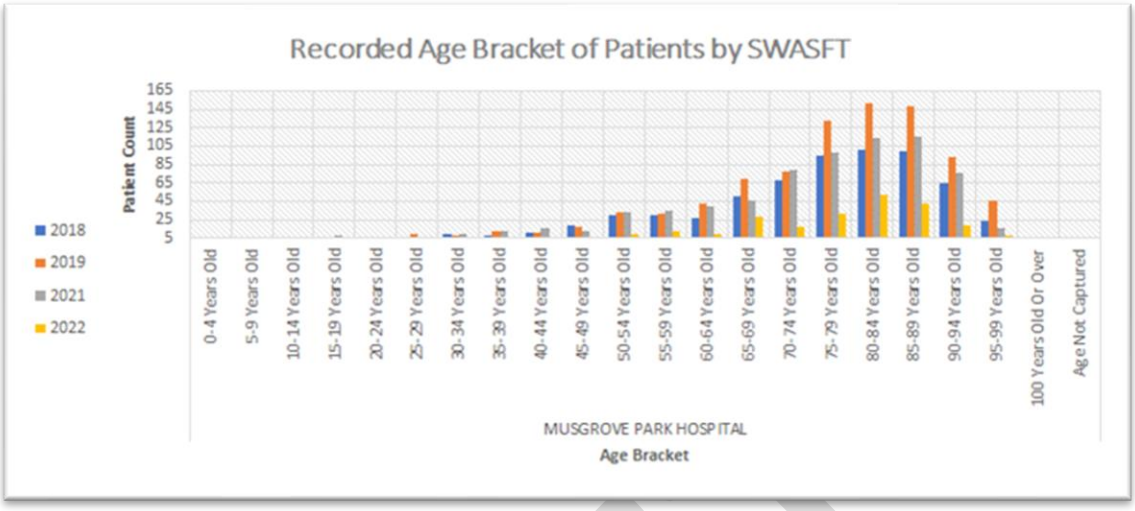
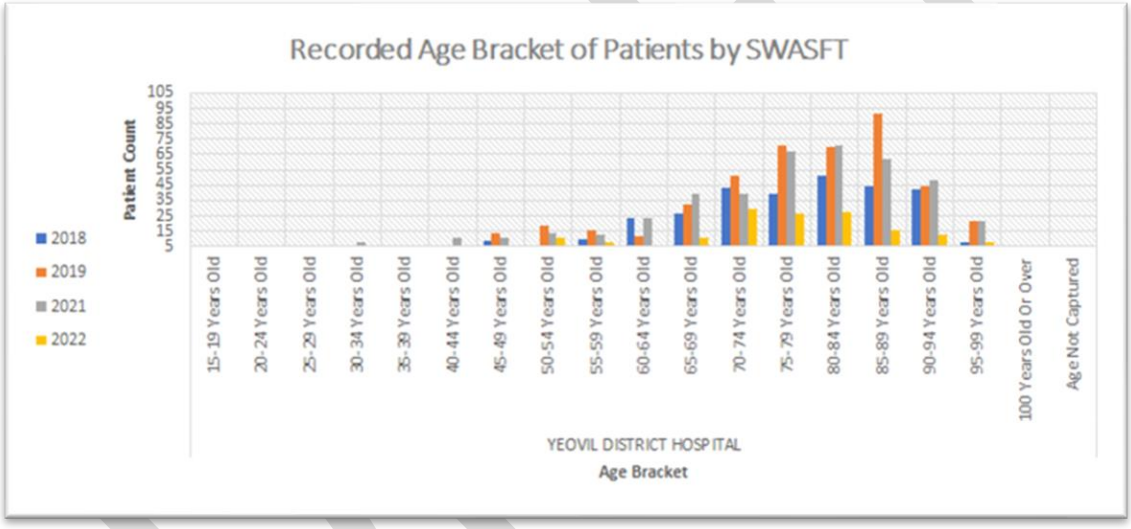


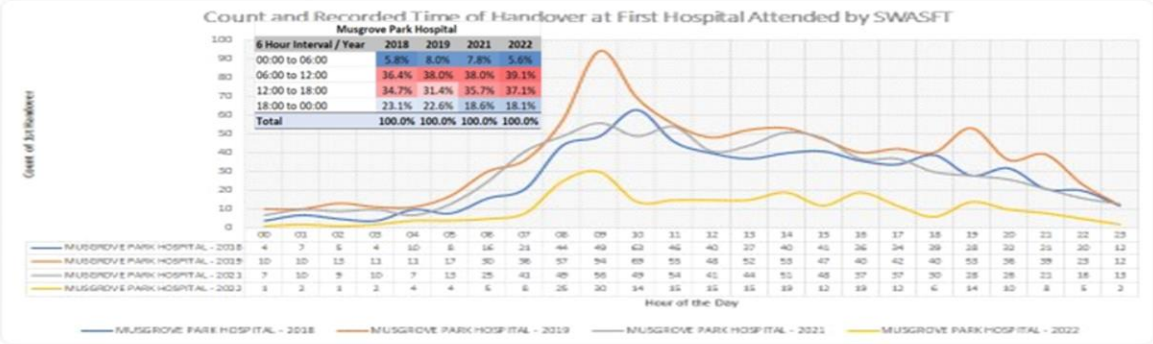
- 45.6% of all patients conveyed by SWAFT to Yeovil District Hospital are between the ages of 75 to 89 of years



- The national response standard for category 2 **mean is 18 minutes or less**
- The national response standard for category 2 **90th centile is 40 minutes or less**
- SWASFT achieved both the mean and 90th response standard in April and May 2020/21, since then neither target has been achieved
- In 2021/22 both the mean and 90th centile response times deteriorated
    - **from September 2021 the mean response time was over an hour**
    - **from March 2021 the 90th centile response time was over 4 hours**

SWASFT recorded Ambulance Conveyance to Musgrove Park Hospital

Graph 3 Data source SWASFT CAD data – Conveyances



6 Hour Interval / Year	2018	2019	2021	2022
00:00 to 06:00	5.8%	8.0%	7.8%	5.6%
06:00 to 12:00	36.4%	38.0%	38.0%	39.1%
12:00 to 18:00	34.7%	31.4%	35.7%	37.1%
18:00 to 00:00	23.1%	22.6%	18.6%	18.1%
Total	100.0%	100.0%	100.0%	100.0%

The above graph has been developed to display by hour of day the yearly cumulative handover that occurs during the 24 hour period

The above area graph displays by hour of day the highs and lows of any patients with signs and symptoms of a TIA / Stroke recorded at the first hospital attend

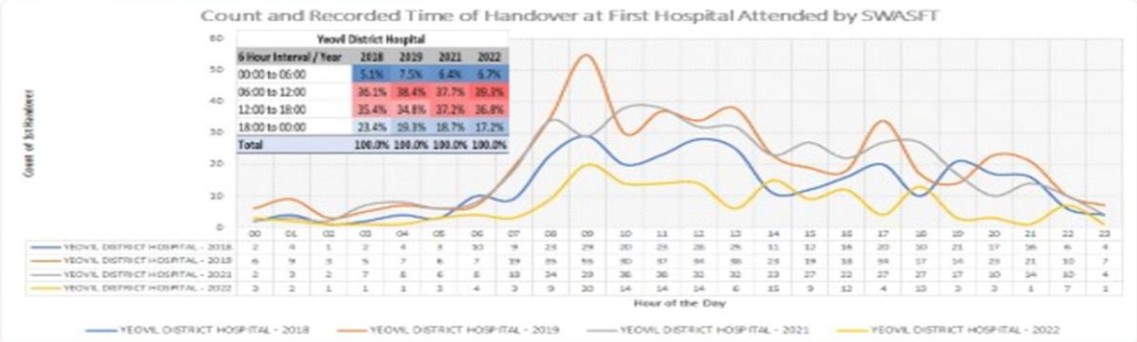
Reviewing and segmenting the data into 6 hour intervals the data indicates that 71.7% of handovers occur between 06:00 to 18:00 hours, with the remaining 28.3% happening between 18:00 and 06:00 hours

There are a number of peak hours that stand out, these being 09:00– 10:00 and 18:00 and 19:00 hours

Since April 2018 SWASFT has conveyed a total of 2,525 patients to Musgrove Park Hospital

SWASFT recorded Ambulance Conveyance to Yeovil District Hospital

Graph 3 Data source SWASFT CAD data – Conveyances



6 Hour Interval / Year	2018	2019	2021	2022
00:00 to 06:00	5.1%	7.5%	6.4%	6.7%
06:00 to 12:00	36.1%	38.4%	37.7%	39.3%
12:00 to 18:00	35.4%	34.8%	37.2%	36.8%
18:00 to 00:00	23.4%	19.3%	18.7%	17.2%
Total	100.0%	100.0%	100.0%	100.0%

The above graph has been developed to display by hour of day the yearly cumulative handover that occurs during the 24-hour period

Due to the global pandemic data for 2020 has been excluded

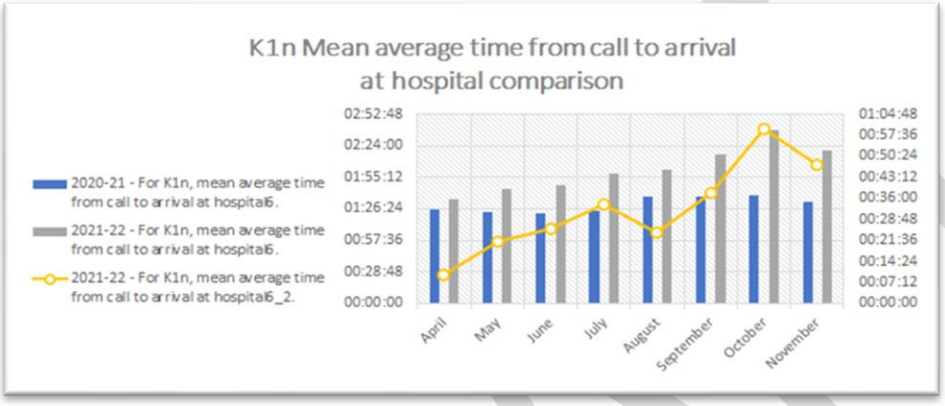
The area graph shows the similar peaks as Musgrove Park Hospital at 08:00, 09:00 and 18:00 hours, with less ambulance conveyances occurring after midnight until we start to see an increase in the early morning

The majority of ambulance conveyances like Musgrove Park Hospital receive 73.7% of ambulance conveyances between 06:00 to 18:00 hours, reducing to c6% between 00:00 and 06:00 hours

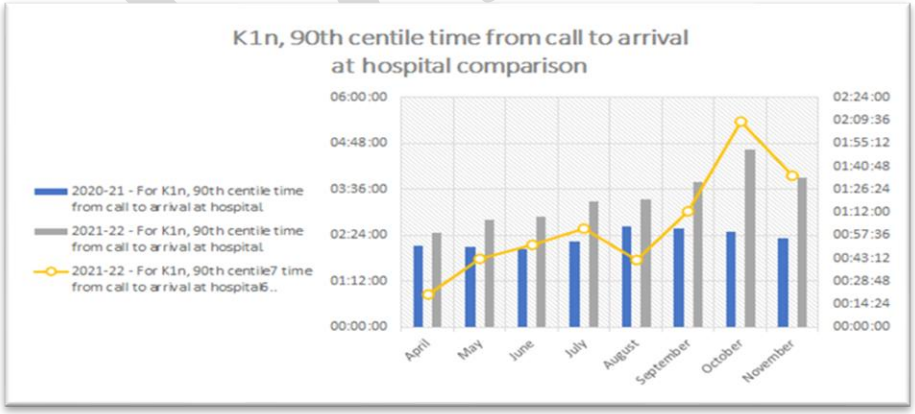
The table in the top righthand corner demonstrates the percentage of ambulance conveyance to Yeovil Park Hospital between the 6hour segmented window

- The **mean average time measures** from call to arrival at hospital, there has been some significant increases within this measure when comparing the months against the previous years measures

- In April 2021/22 the mean average time was recorded at 1 hour, 35 minutes and 12 seconds, adding an additional 9 minutes and 48 seconds when compared to April 2020/21
- In the month of July this measure increased by a further 24 minutes and 12 seconds when compared to April 2021/22
- In the month of October the mean average time increased by just under an hour taking the average mean time 02:38:06 sec against October 2020/21 which was recorded at 01:38:24 seconds
- **As an average the mean average time has increased by c32 minutes compared to the previous year**



- In April 2021/22 the 90th centile was recorded at 2 hours, 27 minutes and 30 seconds, this is an increase of c20 minutes compared to the previous April
- In October the 90th centile increased by over 2 hours when compared to October 2020/21 with the recorded 90th centile time recorded at 4 hours and 38 minutes compared to 2 hours and 29 minutes the previous year
- **From April to November the trust has seen the 90th centile increase by just over an hour compared to 2020/21**



- The mean average time from **arrival to hospital to thrombolysis** has remained stable across the majority of the months

The image below shows the variation in activity for SWASFT first handovers across the week at both Musgrove Park and Yeovil, in 2019. The peak activity is centred around the early part of the morning, with much less activity overnight. There is minimal variation across the days of the week, indicating the need for consistent 24/7 services.

SWASFT Patient at First Hospital Handover by Hour of Day and Day of Week in 2019 (168 Table)

Table 1 - Musgrove Park Hospital — Data source SWASFT CAD data – Conveyances *(24 hours per day x 7 days in a week = 168 Hours in a week)*

Count of CCG / Row Labels	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Grand Total
⊟ 2019	10	10	13	11	11	17	30	36	57	94	69	55	48	52	53	47	40	42	40	53	36	39	23	12	898
Mon	0	1	1	1	2	2	6	8	6	12	11	2	8	6	7	8	3	3	5	9	9	3	1	0	114
Tue	2	1	1	2	2	1	1	6	10	13	10	8	7	8	6	7	6	4	7	8	5	7	4	1	127
Wed	0	0	1	2	2	1	7	7	11	18	10	10	5	14	8	3	8	5	5	6	6	8	4	2	143
Thu	1	3	2	1	0	2	7	3	9	16	11	9	7	5	9	12	10	8	8	12	5	7	4	3	154
Fri	1	2	4	0	1	6	3	3	6	19	12	10	7	5	8	8	5	7	4	7	4	6	1	3	132
Sat	2	2	4	2	2	2	2	6	7	6	6	7	9	6	6	7	6	5	7	7	4	3	5	3	116
Sun	4	1	0	3	2	3	4	3	8	10	9	9	5	8	9	2	2	10	4	4	3	5	4	0	112

Table 2 – Yeovil District Hospital

Count of CCG / Row Labels	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Grand Total
⊟ 2019	6	9	3	5	7	6	7	19	35	55	30	37	34	38	23	19	18	34	17	14	23	21	10	7	477
Mon	1	1	0	1	1	0	0	1	8	12	5	4	4	4	3	6	2	6	2	6	4	3	1	0	75
Tue	0	4	0	0	0	0	2	4	6	7	8	3	3	6	1	3	2	8	1	0	4	3	1	1	67
Wed	0	0	2	0	1	0	1	4	6	9	6	5	4	10	5	2	3	3	2	0	2	4	1	1	71
Thu	1	2	0	0	1	1	1	2	1	4	1	8	5	3	1	1	5	4	3	3	2	3	4	0	56
Fri	1	0	0	0	2	1	0	3	4	5	6	6	8	7	5	4	3	5	1	4	2	3	0	1	71
Sat	2	0	1	0	1	1	1	2	1	11	2	4	6	5	4	1	1	5	5	0	6	3	0	1	63
Sun	1	2	0	4	1	3	2	3	9	7	2	7	4	3	4	2	2	3	3	1	3	2	3	3	74

- The above tables display first hospital handover by hour of day and by day of week
- The embedded tables display total Stroke / TIA patients at first hospital handover in 2019 at both hospitals
- When viewing and analysing the data caution needs to be applied due to the potential impact that of the global pandemic

Joining the dots across health and care

The objective is for stroke patients in Somerset to receive rapid assessment, diagnosis, and determination of appropriate care pathways, regardless of where they live. One of the first requirements within the Somerset Stroke Service Reconfiguration document is to "*ensure all patients can reach a HASU by ambulance within 45 minutes*".

SWAFT category 2 performance continues to remain a challenge for both their mean, and 90th centile performance, although the challenge appears to be nationally replicated. As such, is the 45-minute call to hospital times be achievable?