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**Introduction**

Shortening of onset to needle times for thrombolysis is key to increasing the benefit for individuals and the population. This study of the impact of pre-hospital delays on onset to needle time uses linked data from the pre-hospital and in-hospital datasets within SSNAP.

**Methods**

SSNAP collects data on patients who present at hospital with the primary diagnosis of stroke coded as I61, I63 and I64. 54524 English patients with stroke onset between April 2019- December 2020 arriving by ambulance were extracted from SSNAP. There were 66950 patients added to SSNAP in this time period.

Median times from onset to thrombolysis in April-June 2019 and October - December 2020 were compared using the Mann Whitney U test. Median times for onset to thrombolysis, onset to arrival, wheel stop to thrombolysis and arrival to thrombolysis by ambulance trust in 2019 and 2020 were tabulated (Figure 1) . Median pre-hospital delays by quarter were displayed graphically (Figure 2).

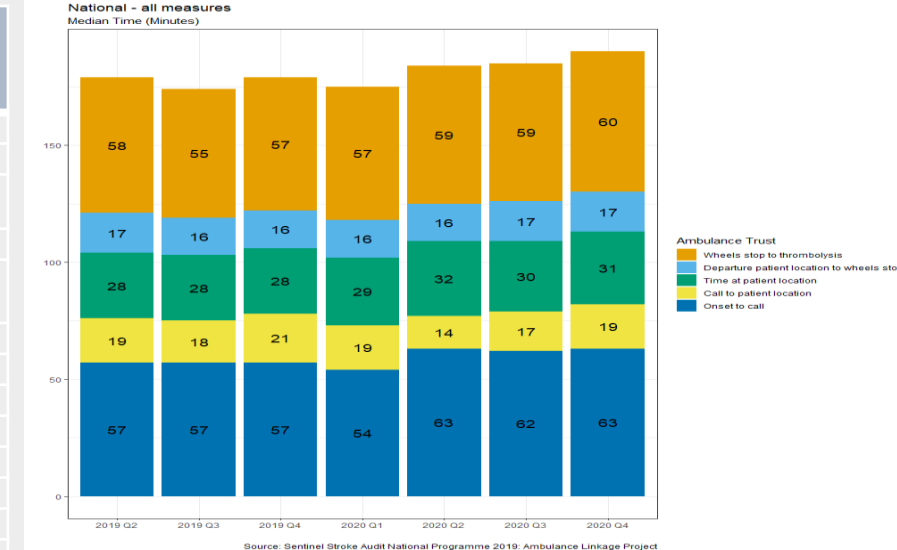
**Results**

Pre-hospital delays have increased significantly from April-June 2019 to October-December 2020 (P=0.0003 CI -11.00 -3.00) Figure 1 shows there has been increases across Ambulance Trusts in onset to call times from 2019 to 2020 and increases in times from wheel stop to thrombolysis. Figure 2 documents an increasing trend in pre-hospital delays by quarter from April 2019-December 2020.

Figure 1:Pre-hospital delays breakdown

Ambulance Trust	Year	Onset to call	Departure to patient location	Time at patient location	Departure patient location to wheels stop	Wheel stop to thrombolysis
National	2019	57	19	28	17	57
	2020	60	17	30	16	59
East Midlands	2019	55	22	30	18	59
	2020	65	18	33	18	62
East of England	2019	57	21	28	18	61
	2020	56	17	30	18	61
Isle of Wight	2019	33.5	23	26	18	98
	2020	54	17.5	27.5	17	110
London	2019	48	17	25	15	45
	2020	49	15	27	15	50
North East	2019	65	26	29	15	47
	2020	77	22	32	15	50
North West	2019	78.5	20	28	16	61
	2020	85	20	30	15	63
South Central	2019	53	14	27	17	48
	2020	49	12.5	30	18	46
South East Coast	2019	44	16	28	15	68
	2020	53	16	30	16	69
South Western	2019	58	26	30	19	58.5
	2020	57	21	32	18	60
West Midlands	2019	58	15	28	16	65.5
	2020	57	13	31	14	70
Yorkshire	2019	60	16	28	16	51
	2020	57	16	29	16	53.5

Figure 2: Pre-hospital delays by quarter (national median)



**Discussion**

There has been a significant increase in time from onset to thrombolysis between April 2019 and December 2020. We have documented an increase in onset to arrival time, this is likely predominately driven by the increase nationally in the onset to call time. There has also been an increase in wheel stop to thrombolysis time.

There is a clear need to carry out further research to understand the underlying causes behind both the pre-hospital delays and in-hospital care that has lead to the increase in stroke onset to thrombolysis time. This research will help to drive further quality improvement across the pathway and deliver greater benefits for patients.