

# An Insight into Stroke Care during COVID-19

## SSNAP Update

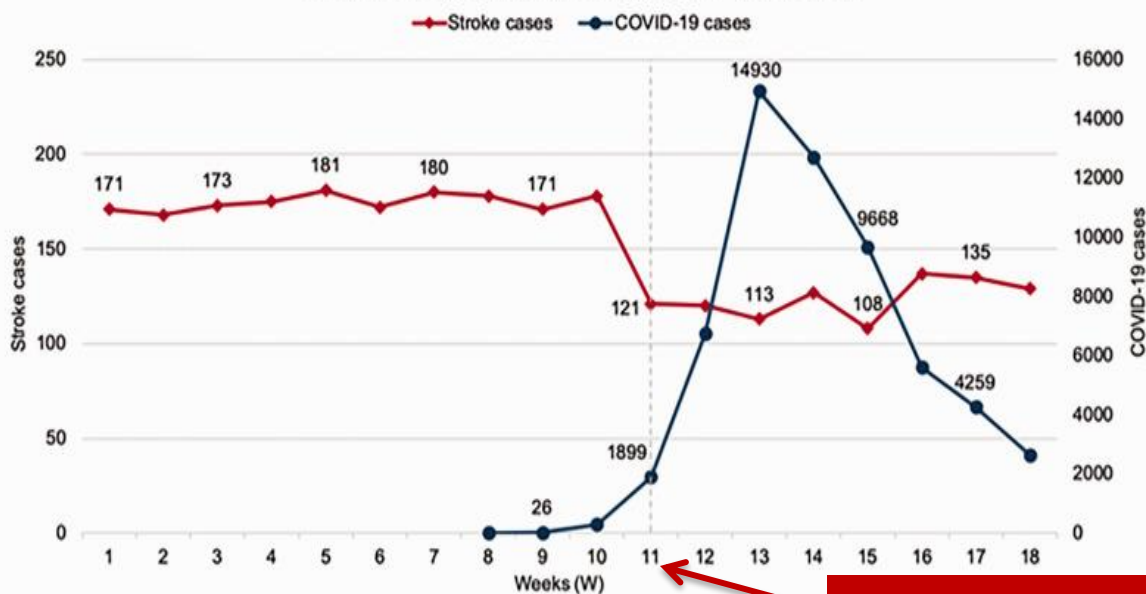
**Prof Martin James, Consultant Stroke Physician, Royal Devon & Exeter Hospital  
Clinical Director, Stroke Programme, King's College London**

# What happened in Europe?

## Stroke activity in Northern Spain, Jan-April 2020

- Regional Stroke Network with popn. 11.5M and approx. 9000 strokes/year
- Significant fall in stroke admissions from early March
- IVT (17%) and Thrombectomy (22%) maintained

Total case numbers pre- and during COVID-19 pandemic



- In-hospital mortality rose (6.5% to 9.9%)

Tejada Meza et al  
Int J Stroke  
June 26 online

April 2020 admissions  
be subj

Lockdown 14 March 2020

# Stroke and COVID-19: four questions

1. What has happened to **stroke admissions**?
2. What has happened to **reperfusion**?
3. What has happened to **clinical quality**?
4. What has happened to **mortality**?

*Please note these findings are from 'SSNAP COVID-19 Portfolio for 23 March - 30 April 2020 admissions' and 'SSNAP COVID-19 Portfolio for May 2020 admissions' that has not yet published and therefore these results may be subject to change and are not for onward sharing*

# Stroke and COVID-19

## What happened to stroke after lockdown?

- 'COVID period': UK lockdown (23 March) to end May
- **128 of 159 teams** registered **over 50%** of expected admissions during this period, most using full dataset
- **23 Mar-April (6/52): 7090 admissions; 6028 discharges**  
**May (4/52): 5498 admissions; 4121 discharges (75%)**
- **85% white; 6.2% non-white; 8.7% unknown**
- **NB: interim analysis of monthly data**

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# Stroke and COVID-19

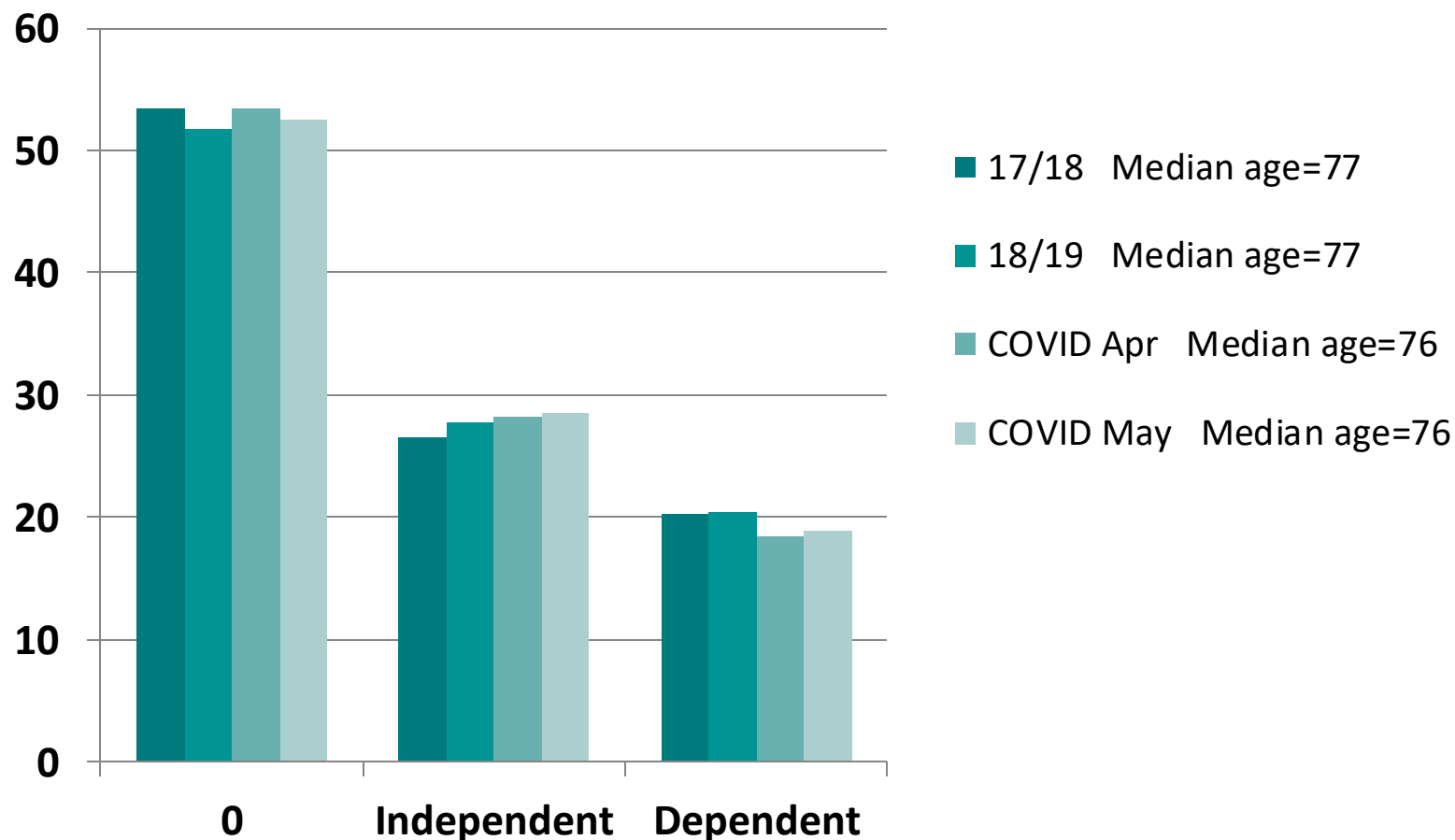
## COVID status

	Confirmed	Suspected	Negative	Unknown
n	261	439	2331	9198
23 March – 30 April	3%	4%	18%	75%
1 May -31 May	1%	3%	20%	76%

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# What happened to stroke admissions?

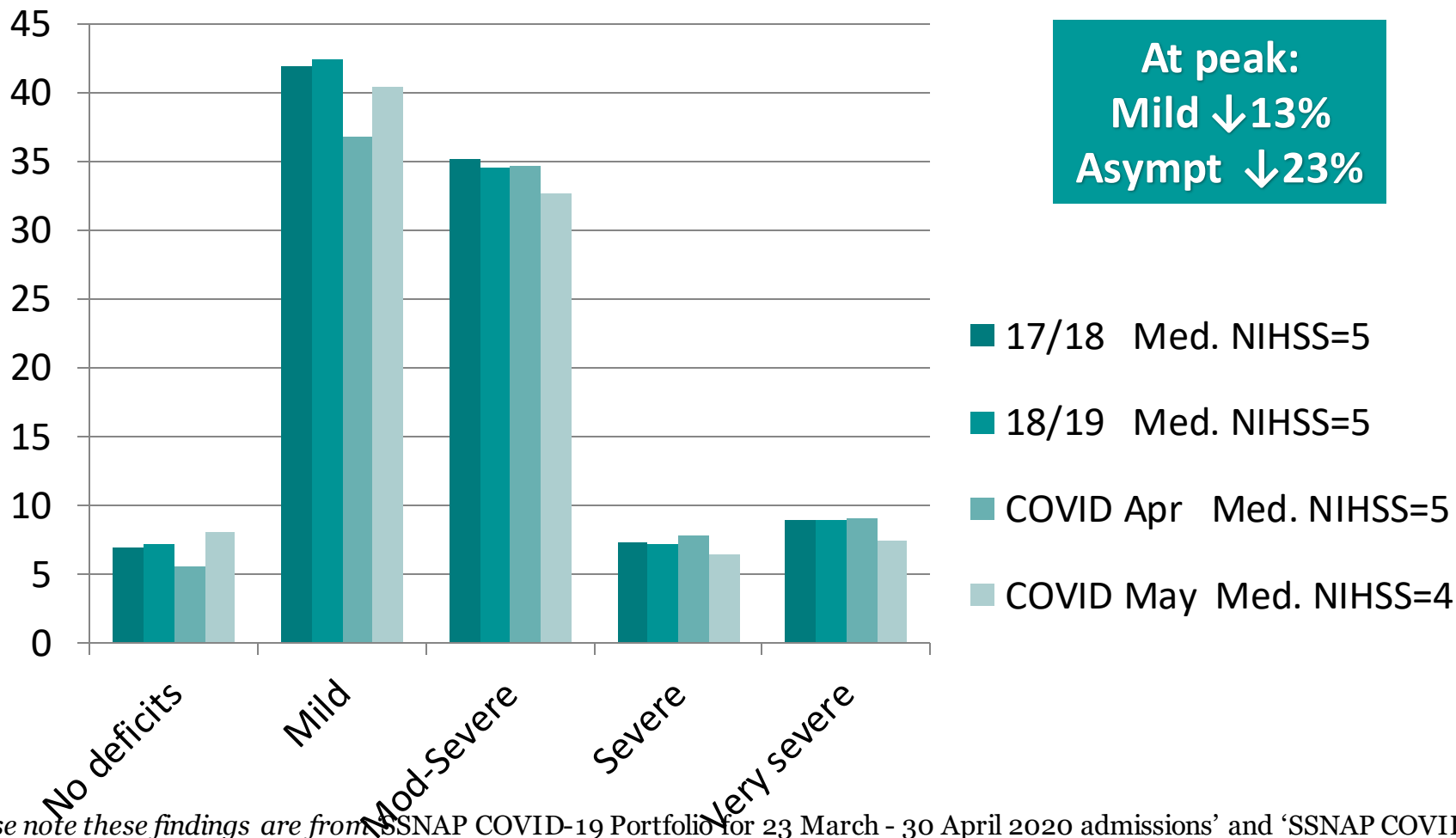
## Pre-stroke disability



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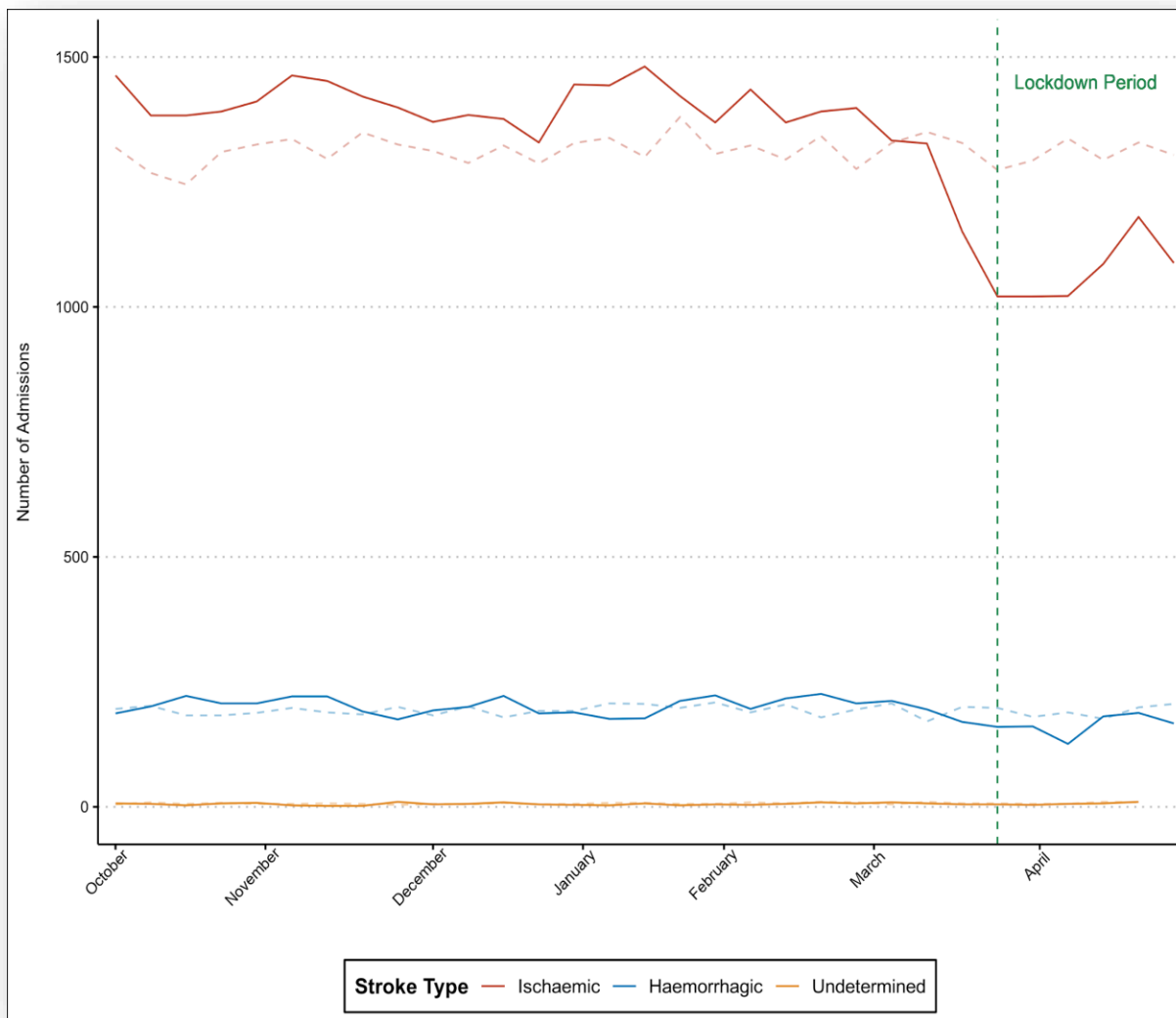
# What happened to stroke admissions?

## Stroke Severity (NIHSS categories)



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# What happened to stroke admissions?



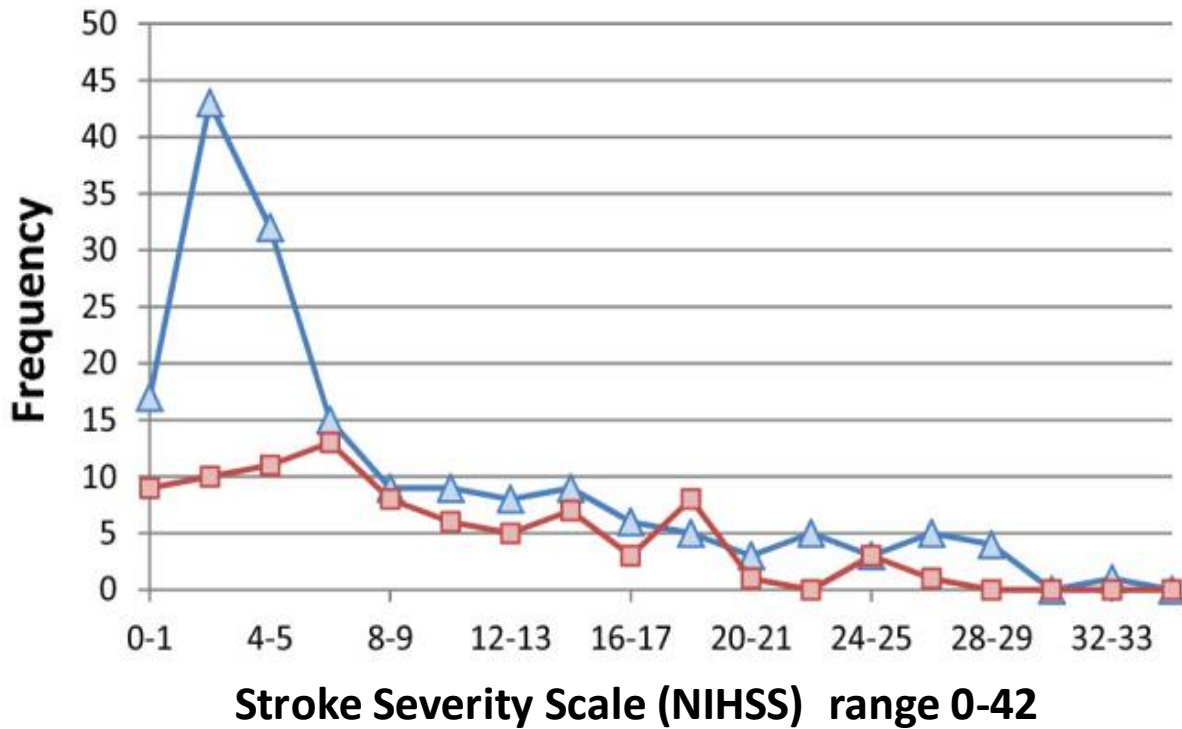
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# What happened to stroke admissions?

Fig. 1

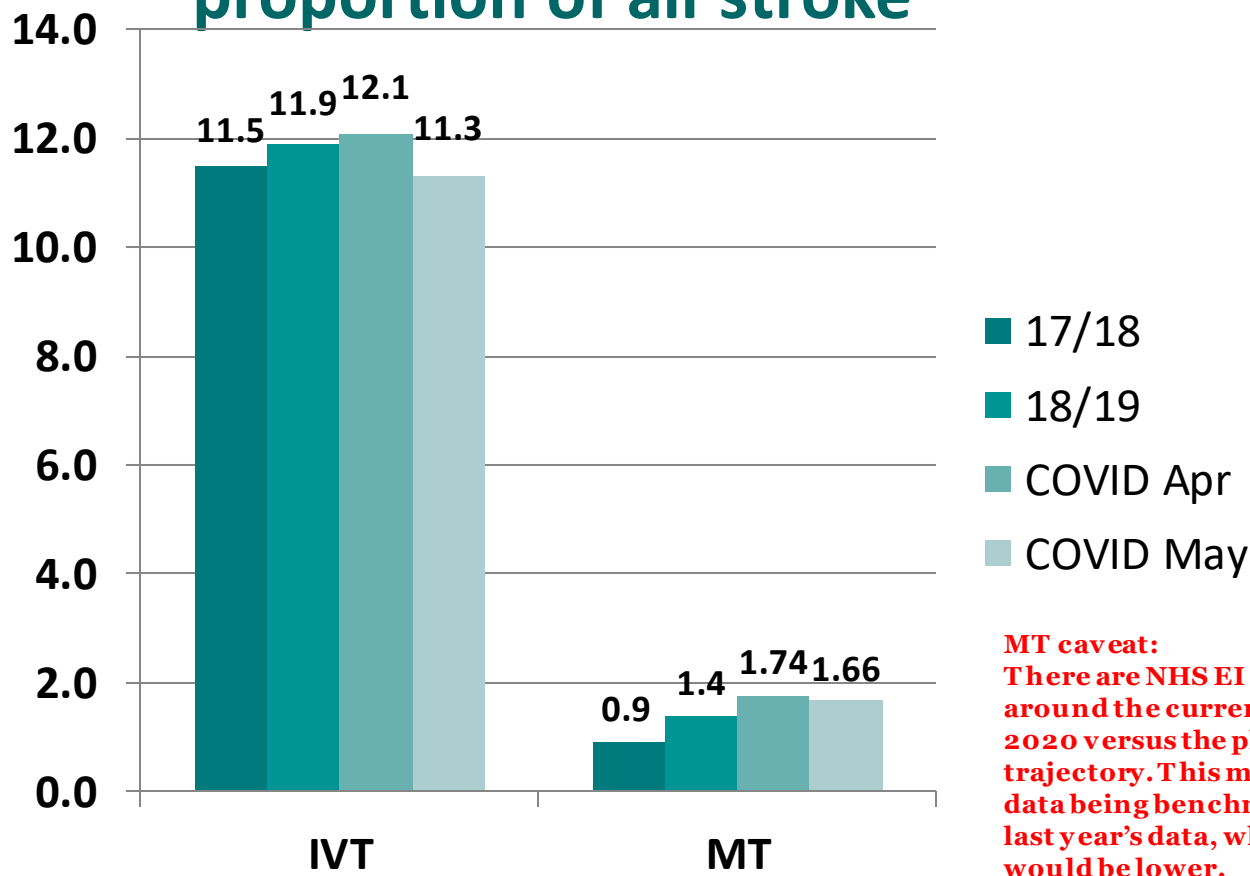
London (UCL): Feb 2020 v April 2020



Distribution of National Institutes of Health Stroke Scale (NIHSS) for patients presenting in the 40 days from 1st February 2020 (blue triangles, total 175 patients) and for those presenting during the 40 days from 1st April (red circles, total 84 patients). The NIHSS is a score between 0 and 42 representing the degree of neurological impairment, higher scores representing more severe strokes. Bin width = 2

# What happened to reperfusion?

## Reperfusion treatment as a proportion of all stroke



**MT caveat:**  
There are NHS EI concerns around the current activity for 2020 versus the planned trajectory. This may be due to this data being benchmarked against last year's data, which naturally would be lower.

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# What happened to Clinical Quality?

## Mar-April 2020: Comparison with equivalent period 2017-19

	unadjRR	adjRR*	p (adj)
Brain scan <1 hr	<b>1.09</b> [1.07,1.12]	<b>1.07</b> [1.05,1.10]	<0.001
Intravenous thrombolysis	<b>1.05</b> [0.97,1.12]	<b>1</b> [0.93,1.07]	0.97
Direct admission to SU <4 hrs	<b>1.16</b> [1.14,1.18]	<b>1.15</b> [1.13,1.17]	<0.001
Swallow screen <4 hrs	<b>1.04</b> [1.03,1.06]	<b>1.03</b> [1.02,1.05]	<0.001
Stroke specialist assessment <24 hrs	<b>1.07</b> [1.06,1.08]	<b>1.06</b> [1.05,1.07]	<0.001
Stroke nurse assessment <24 hrs	<b>1.02</b> [1.02,1.03]	<b>1.02</b> [1.01,1.03]	<0.001
Physiotherapy assessment <72 hrs	<b>1.02</b> [1.01,1.02]	<b>1.01</b> [1.01,1.02]	<0.001
OT assessment <72 hrs	<b>1.03</b> [1.02,1.04]	<b>1.03</b> [1.02,1.03]	<0.001
Swallow assessment <72 hrs	<b>1.04</b> [1.03,1.05]	<b>1.03</b> [1.02,1.04]	<0.001
Communication assessment <72 hrs	<b>1.04</b> [1.03,1.06]	<b>1.04</b> [1.03,1.05]	<0.001
At least 90% stay in stroke unit	<b>1</b> [0.98,1.02]	<b>1</b> [0.98,1.02]	0.97
*Adjusted for Age and NIHSS at Arrival			

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# What happened to early mortality?

## SSNAP Mortality rates by COVID status

	Confirmed	Suspected	Negative	Unknown	p
n	199	351	1878	7043	
7-day in-hospital mortality	22.1%	21.4%	14.1%	6.0%	<0.001
Mortality by discharge*	54.8%	45.6%	21.0%	10.4%	<0.001

\*Underestimated by early analysis

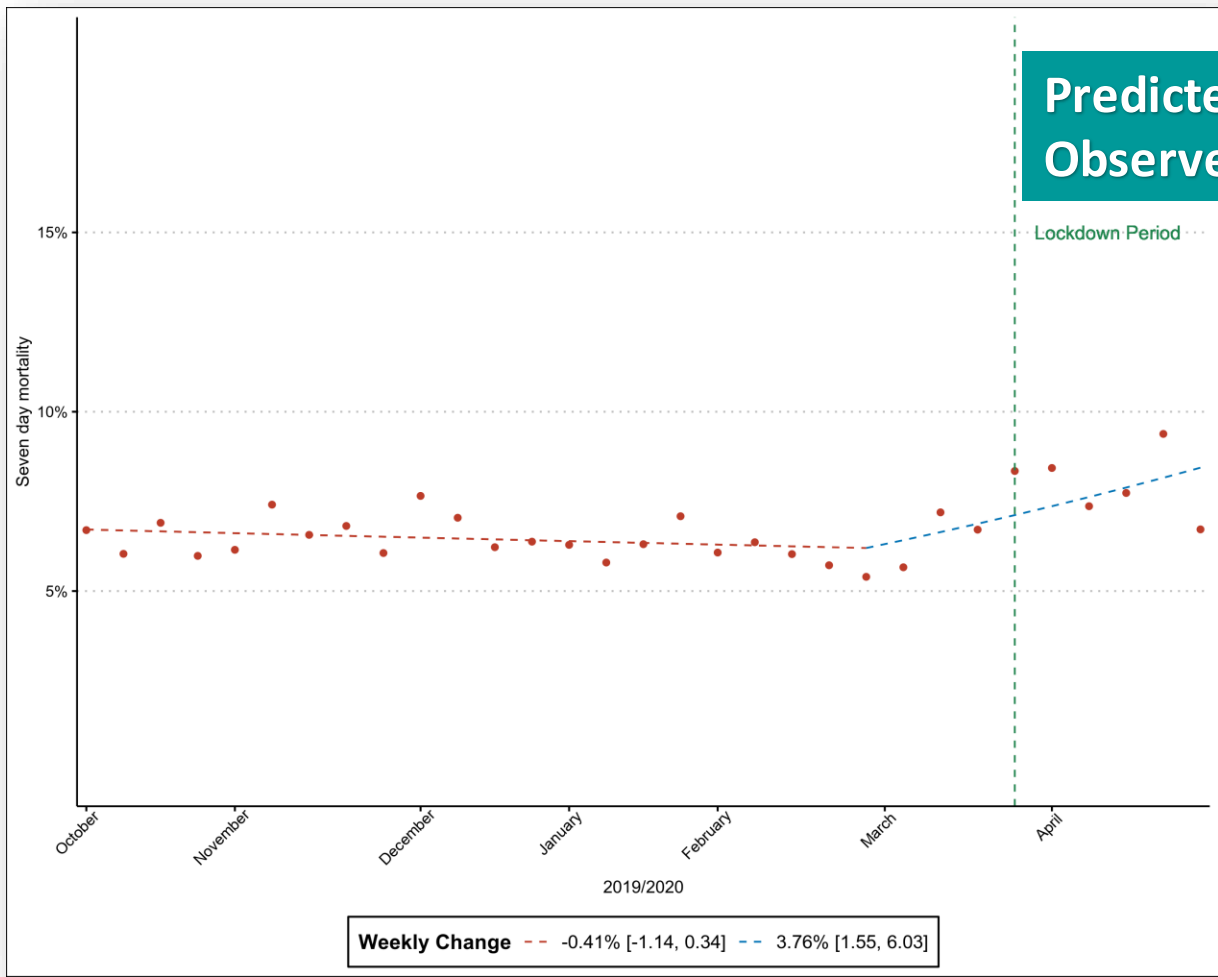
For March-April admissions	unadjRR	adjRR*	p (adj)
<b>7-day in-hospital mortality</b>	<b>2.58</b> [2.10, 3.17]	<b>1.41</b> [1.11, 1.80]	0.006
<b>In-hospital mortality</b>	<b>3.62</b> [3.22, 4.07]	<b>2.15</b> [1.84, 2.51]	<0.001

\*Adjusted for age and stroke severity

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# What happened to Mortality?

## SSNAP 7-day crude mortality rate



Overall adj.  
risk of  
mortality  
↑ 12%

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# Stroke and COVID-19: four answers

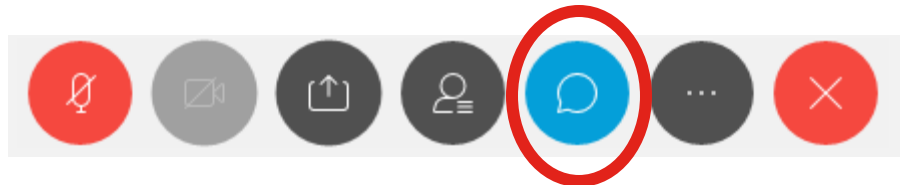
1. What has happened to stroke admissions?  
- **fell overall by about 13%; fewer milder strokes**
2. What has happened to reperfusion?  
- **seemed to hold up pretty well**
3. What has happened to clinical quality?  
- **improved thanks to fewer admissions and more beds**
4. What has happened to mortality?  
- **increased significantly, and dramatically so if your patient had stroke + COVID-19**

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# QUESTIONS AND ANSWERS

Please remember to keep yourself muted during the Q&A session.

If you would like to ask any questions, please use the **chat function** (you can find it at the bottom of your screen).



# Thank you for attending An Insight into Stroke Care during COVID-19

If you would like to send us any comments remember you can do it  
by email to [ssnap@kcl.ac.uk](mailto:ssnap@kcl.ac.uk)

Remember you can find SSNAP Helpline notes and guidance going to  
<https://ssnap.zendesk.com/>



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