

Supplementary Material

10.1302/2633-1462.21.BJO2020-0183.R1

Supplementary Figures and Reported Outcomes

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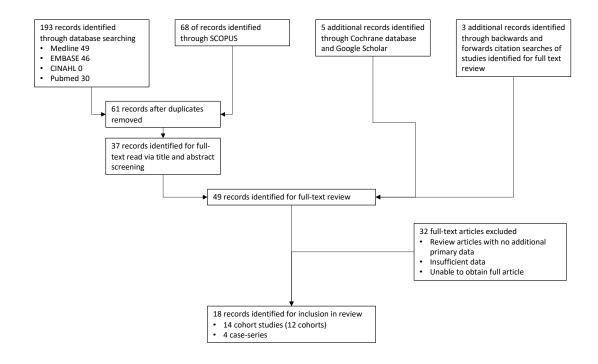
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PRISMA Study flow chart

Numbers of studies at each stage of the review process



For ease of reading, the analyses are presented in the same order for each outcome: full analysis of case-control data; case-control data with large studies only; summary of absolute values (including case-series data); absolute values with large studies only; additional analyses excluding studies as discussed in the main text.

Large studies are those with \ge 30 included participants in the non-COVID group or \ge 10 deaths in the COVID group.

Mortality

Risk Ratio for early mortality associated with SARS-CoV-2 infection in older people with fragility hip fracture: all studies

(Main paper)

Risk Ratio for early mortality associated with SARS-CoV-2 infection in older people with fragility hip fracture: large studies

	SARS-CoV-2	oositive S	ARS–CoV–2 r	negative				
Study	Deaths	Total	Deaths	Total	Risk Ratio	Risk Ratio	95% CI	Weight
Country: Italy								
Maniscalco	14	32	3	89		- 12.98	[3.99; 42.23]	5.8%
Subtotal		32		89		12.98	[3.99; 42.23]	5.8%
Heterogeneity: not applie	cable							
Country: UK								
Fadulelmola	10	20	4	55		6.88	[2.43; 19.46]	7.1%
Kayani	25	82	35	340	_	2.96	[1.88; 4.66]	22.1%
Narang	30	86	36	596		5.78	[3.76; 8.86]	23.3%
Rasidovic	37	114	21	290		4.48	[2.75; 7.31]	20.4%
Ward	17	46	9	86		3.53	[1.71; 7.29]	12.5%
Subtotal		348		1367	~	4.31	[3.21; 5.78]	85.4%
Heterogeneity: $I^2 = 28\%$	$t_{0}, \tau^{2} = 0.0306, p = 0$).24						
Country: US								
Egol Konda	11	31	6	107		6.33	[2.54; 15.73]	8.9%
Subtotal		31		107		6.33	[2.54; 15.73]	8.9%
Heterogeneity: not applie	cable							
Overall		411		1563		4.76	[3.51; 6.45]	100.0%
Heterogeneity: I ² = 35%	$\tau^2 = 0.0558, p = 0$	0.16			0.1 0.5 1 2 10			

Absolute risk for early mortality associated with SARS-CoV-2 infection in older people with fragility hip fracture: all studies

(Main paper)

Absolute risk for early mortality associated with SARS-CoV-2 infection in older people with fragility hip fracture: large studies

Study	Deaths	Total						Pr	oportion died	95% CI	Weight
Study type: Case s					_						
De UK	14	34			-				0.41	[0.25; 0.59]	36.9%
Dupley UK	21	64			+				0.33	[0.22; 0.46]	63.1%
Overall				-	\sim				0.36	[0.27; 0.46]	100.0%
Heterogeneity: $I^2 = 0\%$,	$\tau^2 = 0, p =$	= 0.41									
Study type: Cohort											
Egol Konda US	11	31			•	_			0.35	[0.19; 0.55]	7.7%
Fadulelmola UK	10	20		-		•	_		0.50	[0.27; 0.73]	5.4%
Kayani UK	25	82							0.30	[0.21; 0.42]	18.8%
Maniscalco Italy	14	32		_					0.44	[0.26; 0.62]	8.5%
Narang UK	30	86			-				0.35	[0.25; 0.46]	21.1%
Rasidovic UK	37	114			-				0.32	[0.24; 0.42]	27.0%
Ward UK	17	46			•	_			0.37	[0.23; 0.52]	11.6%
Overall					\diamond				0.35	[0.31; 0.40]	100.0%
Heterogeneity: $I^2 = 0\%$,	$\tau^2 = 0, p =$	0.66								-	
Heterogeneity: $I^2 = 0\%$,	$\tau^2 = 0, p =$	= 0.78			1	1					
			0	0.2	0.4	0.6	0.8	1			

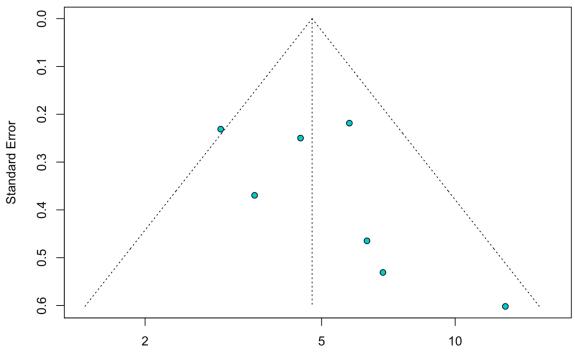
Absolute risk for early mortality associated with SARS-CoV-2 infection in older people with fragility hip fracture: 30-day mortality only

Study	Deaths	Total		Proportion died	95% CI	Weight
SARS-CoV-2 sta	tus: Negat	ive				
Arafa UK	7	78	_ 	0.09	[0.04; 0.18]	9.6%
Clement UK	28	307		0.09	[0.06; 0.13]	11.2%
Egol Konda US	6	107		0.06	[0.02; 0.12]	9.4%
Fadulelmola UK	4	55		0.07	[0.02; 0.18]	8.4%
Kayani UK	35	340		0.10	[0.07; 0.14]	11.3%
Macey UK	9	65		0.14	[0.07; 0.25]	9.9%
Narang UK	56	596	+	0.09	[0.07; 0.12]	11.5%
Rasidovic UK	21	290		0.07	[0.05; 0.11]	11.0%
Thrakar UK	3	31		0.10	[0.02; 0.26]	7.6%
Ward UK	9	86		0.10	[0.05; 0.19]	10.0%
Overall			<u> </u>	0.09	[0.08; 0.11]	100.0%
Heterogeneity: $I^2 = 0$	%, $\tau^2 = 0, p =$	= 0.62				
SARS-CoV-2 sta						
Arafa UK	7	19			[0.16; 0.62]	7.7%
Clement UK	9	47			[0.09; 0.33]	8.5%
De UK	14	34			[0.25; 0.59]	8.7%
Dupley UK	21	64			[0.22; 0.46]	9.3%
Egol Konda US	11	31			[0.19; 0.55]	8.5%
Fadulelmola UK	10	20			[0.27; 0.73]	7.9%
Kayani UK	25	82			[0.21; 0.42]	9.5%
Macey UK	2	10			[0.03; 0.56]	5.3%
Narang UK	30	86			[0.25; 0.46]	9.5%
Rasidovic UK	37	114			[0.24; 0.42]	9.7%
Thrakar UK	4	12			[0.10; 0.65]	6.6%
Ward UK	17	46		0.37	[0.23; 0.52]	9.0%
Overall Heterogeneity: $I^2 = 0$	% = ² = 0 p	- 0 70	<	0.33	[0.30; 0.37]	100.0%
SARS-CoV-2 sta)19			
Arafa UK	7	60			[0.05; 0.23]	29.0%
Egol Konda US	4	115	■		[0.01; 0.09]	25.9%
Macey UK	10	86			[0.06; 0.20]	30.8%
Thrakar UK	1	48			[0.00; 0.11]	14.2%
Overall			\diamond	0.07	[0.04; 0.14]	100.0%
Heterogeneity: $I^2 = 6$						
Heterogeneity: $I^2 = 8$	8%, τ ² = 0.66	604, <i>p</i> < 0				
			0 0.2 0.4 0.6 0.8	1		

Funnel plot of included studies for early mortality associated with SARS-CoV-2 infection in older people with fragility hip fracture: all studies

(Main paper)

Funnel plot of included studies for early mortality associated with SARS-CoV-2 infection in older people with fragility hip fracture: large studies



Risk Ratio

Length of stay

Mean difference (days) for length of stay associated with SARS-CoV-2 infection in older people with fragility hip fracture: all studies

	SARS-	CoV–2 p	ositive	SARS-Co	oV–2 n	egative				
Study	Mean	SD	Total	Mean	SD	Total	Mean Difference	MD	95% CI	Weight
Country: UK										
Arafa	17.0	18.4	19	10.5	6.0	78		6.5	[-1.9; 14.9]	5.0%
Kayani	13.8	4.6	82	6.7	2.5	340	_ 	7.1	[6.1; 8.1]	33.0%
Rasidovic	17.7	11.2	114	12.0	7.2	290		5.6	[3.4; 7.8]	25.2%
Overall			215			708	→	6.8	[5.9; 7.8]	63.2%
Heterogeneity: $I^2 = 0$	$0\%, \tau^2 = 0, p = 0$	0.49								
Country: US										
Egol Konda	8.5	5.5	31	5.0	2.6	107	÷	3.5	[1.5; 5.5]	26.7%
LeBrun	8.0	7.9	9	6.0	5.3	50		2.0	[-3.4; 7.4]	10.1%
Overall			40			157		3.3	[1.4; 5.2]	36.8%
Heterogeneity: $I^2 = 0$	$0\%, \tau^2 = 0, p = 0$	0.61								
Overall			255			865		5.2	[3.2; 7.2]	100.0%
Heterogeneity: $I^2 = 6$	68%, τ ² = 2.929	6, <i>p</i> = 0.0	1							
							-4 -2 0 2 4 6 8			

Mean difference (days) for length of stay associated with SARS-CoV-2 infection in older people with fragility hip fracture: large studies

	SARS-	CoV-2 p	ositive	SARS-Co	oV–2 n	egative										
Study	Mean	SD	Total	Mean	SD	Total			Me	an Diff	erence			MD	95% CI	Weight
Country: UK																
Kayani	13.8	4.6	82	6.7	2.5	340							•	7.1	[6.1; 8.1]	56.4%
Rasidovic	17.7	11.2	114	12.0	7.2	290								5.6	[3.4; 7.8]	43.6%
Overall			196			630								6.7	[5.4; 8.0]	100.0%
Heterogeneity: $I^2 = 29$	$0\%, \tau^2 = 0.322$	1, <i>p</i> = NA														
Country: US																
Egol Konda	8.5	5.5	31	5.0	2.6	107						_		3.5	[1.5; 5.5]	100.0%
Overall			31			107						_		3.5	[1.5; 5.5]	100.0%
Heterogeneity: not ap	plicable															
Heterogeneity: $I^2 = 80$	$1\%, \tau^2 = 3.106$	1, <i>p</i> < 0.0 ⁻	1					1		1	1	1				
							-4 ·	-2	0	2	4	6	8			

Age

Mean difference (years) for patient age associated with SARS-CoV-2 infection in older people with fragility hip fracture: all studies

Main paper

Mean difference (years) for patient age associated with SARS-CoV-2 infection in older people with fragility hip fracture: large studies

	SARS-Co	oV−2 p	ositive S	SARS-C	oV–2 ne	egative											
Study	Mean	SD	Total	Mean	SD	Total			N	lean D	ifferen	ce			MD	95% CI	Weight
Country: UK											-						
Kayani	71.9	9.5	82	72.7	6.7	340				•	÷				-0.8	[-3.0; 1.4]	22.5%
Narang	85.7	7.0	86	82.9	9.5	596						<u> </u>			2.8	[1.1; 4.5]	26.5%
Rasidovic	85.2	8.7	114	82.9	8.6	290				-					2.3	[0.4; 4.2]	24.9%
Ward	83.4	9.8	46	81.4	10.7	86			_		-				2.0	[-1.6; 5.6]	13.7%
Subtotal			328			1312						-			1.6	[-0.1; 3.3]	87.7%
Heterogeneity: $I^2 = \xi$	58%, τ ² = 1.64	72, p =	NA														
Country: US																	
Egol Konda	81.6	9.7	31	83.4	10.4	107					<u>.</u>				-1.8	[-5.7; 2.1]	12.3%
Subtotal			31			107					-				-1.8	[-5.7; 2.1]	12.3%
Heterogeneity: not a	pplicable																
Overall			359			1419				+					1.2	[-0.5; 2.9]	100.0%
Heterogeneity: $I^2 = 6$	$60\%, \tau^2 = 2.15$	91, p =	0.04						1	1	1		1			- / -	
· · ·							-6	-4	-2	0	2	4	6	8			

Absolute patient age (years) associated with SARS-CoV-2 infection in older people with fragility hip fracture: all studies

Study	Mean	SD	Total	Age	Mean age	95% CI	Weight
SARS-CoV-2 status:	Negative	e					
Arafa UK	83.0	7.6	78		83.0	[81.4; 84.7]	12.4%
Egol Konda US	83.4	10.4	107	— —	83.4	[81.4; 85.4]	12.3%
Hall UK	80.4	10.6	290		80.4	[79.2; 81.6]	12.6%
Kayani UK	72.7	6.7	340	+		[72.0; 73.4]	12.8%
LeBrun US	84.7	7.5	50	— —		[82.6; 86.8]	12.3%
Narang UK	82.9	9.5	596	-	82.9	[82.1; 83.7]	12.8%
Rasidovic UK	82.9	8.6	290			[81.9; 83.9]	12.7%
Ward UK	81.4	10.7	86	— —		[79.1; 83.7]	12.2%
Subtotal					81.4	[77.8; 85.0]	100.0%
Heterogeneity: $I^2 = 99\%$, τ^2	= 26.936	3, <i>p</i> <	0.01				
SARS-CoV-2 status:	Positive						
Arafa UK	86.2	7.7	19		86.2	[82.7; 89.7]	7.8%
Catellani Italy	83.7	4.3	16		83.7	[81.6; 85.8]	8.4%
De UK	85.9	7.7	34	_ 	85.9	[83.3; 88.5]	8.2%
Dupley UK	83.0	9.3	64		83.0	[80.7; 85.3]	8.3%
Egol Konda US	81.6	9.7	31		81.6	[78.2; 85.0]	7.8%
Hall UK	83.6	11.3	27		83.6	[79.3; 87.9]	7.3%
Kayani UK	71.9	9.5	82	_ 	71.9	[69.8; 74.0]	8.4%
LeBrun US	86.5	7.9	9		86.5	[81.3; 91.7]	6.8%
Morelli Italy	83.9	7.4	10		83.9	[79.3; 88.5]	7.1%
Narang UK	85.7	7.0	86		85.7	[84.2; 87.2]	8.6%
Rabie Iran	81.0	9.0	4		81.0	[72.2; 89.8]	4.7%
Rasidovic UK	85.2	8.7	114		85.2	[83.6; 86.8]	8.5%
Ward UK	83.4	9.8	46		83.4	[80.6; 86.2]	8.1%
Subtotal					83.2	[80.7; 85.7]	100.0%
Heterogeneity: $I^2 = 92\%$, τ^2	= 18.623	4, <i>p</i> <	0.01				
SARS-CoV-2 status:	Pre-CO	VID 20)19				
Arafa UK	83.3	8.3	60			[81.2; 85.4]	33.4%
Egol Konda US	81.5	10.5	115			[79.6; 83.4]	33.7%
Thrakar UK	84.0	8.7	48			[81.5; 86.5]	32.9%
Subtotal				\diamond	82.8	[81.3; 84.3]	100.0%
Heterogeneity: $I^2 = 31\%$, τ^2	= 0.5305	, <i>p</i> = 0	.24		_		
					1		
				65 70 75 80 85 90	95		

Absolute patient age (years) associated with SARS-CoV-2 infection in older people with fragility hip fracture: large studies

Study	Mean	SD	Total	Age	Mean age	95% CI	Weight
SARS-CoV-2 status: N	legative	÷					
Arafa UK	83.0	7.6	78		83.0	[81.4; 84.7]	12.4%
Egol Konda US	83.4	10.4	107		83.4	[81.4; 85.4]	12.3%
Hall UK	80.4	10.6	290		80.4	[79.2; 81.6]	12.6%
Kayani UK	72.7	6.7	340	+	72.7	[72.0; 73.4]	12.8%
LeBrun US	84.7	7.5	50	— —	84.7	[82.6; 86.8]	12.3%
Narang UK	82.9	9.5	596	-	82.9	[82.1; 83.7]	12.7%
Rasidovic UK	82.9	8.6	290	-#-	82.9	[81.9; 83.9]	12.7%
Ward UK	81.4	10.7	86		81.4	[79.1; 83.7]	12.2%
Subtotal					81.4	[77.8; 85.0]	100.0%
Heterogeneity: $I^2 = 99\%$, τ^2	= 26.936	3, <i>p</i> <	0.01				
SARS-CoV-2 status: P	ositive						
De UK	85.9	7.7	34	— —	85.9	[83.3; 88.5]	14.1%
Dupley UK	83.0	9.3	64		83.0	[80.7; 85.3]	14.4%
Egol Konda US	81.6	9.7	31		81.6	[78.2; 85.0]	13.5%
Kayani UK	71.9	9.5	82		71.9	[69.8; 74.0]	14.5%
Narang UK	85.7	7.0	86		85.7	[84.2; 87.2]	14.8%
Rasidovic UK	85.2	8.7	114		85.2	[83.6; 86.8]	14.8%
Ward UK	83.4	9.8	46		83.4	[80.6; 86.2]	14.0%
Subtotal					82.4	[78.5; 86.2]	100.0%
Heterogeneity: $I^2 = 96\%$, τ^2	= 25.656	6, <i>p</i> =	0.24				
SARS–CoV–2 status: P	re-CO\	/ID 20	19				
Arafa UK	83.3	8.3	60		83.3	[81.2; 85.4]	33.4%
Egol Konda US	81.5	10.5	115		81.5	[79.6; 83.4]	33.7%
Thrakar UK	84.0	8.7	48		84.0	[81.5; 86.5]	32.9%
Subtotal				\diamond	82.8	[81.3; 84.3]	100.0%
Heterogeneity: $I^2 = 31\%$, τ^2	= 0.5305	, <i>p</i> < 0	.01				
Heterogeneity: $I^2 = 98\%$, τ^2	= 24.687	4, <i>p</i> <	0.01	65 70 75 80 85 90	95		

Mean difference for patient age (years) associated with SARS-CoV-2 infection in older people with fragility hip fracture: excluding Kayani et al.

	SARS-C	oV–2 p	ositive S	SARS-C	oV–2 ne	gative				
Study	Mean	SD	Total	Mean	SD	Total	Mean Difference	MD	95% CI	Weight
Country: UK										
Arafa	86.2	7.7	19	83.0	7.6	78		3.2	[-0.7; 7.0]	7.2%
Hall	83.6	11.3	27	80.4	10.6	290		- 3.2	[-1.2; 7.6]	5.4%
Kayani	71.9	9.5	82	72.7	6.7	340		-0.8	[-3.0; 1.4]	0.0%
Narang	85.7	7.0	86	82.9	9.5	596		2.8	[1.1;4.5]	38.5%
Rasidovic	85.2	8.7	114	82.9	8.6	290		2.3	[0.4; 4.2]	30.4%
Ward	83.4	9.8	46	81.4	10.7	86		2.0	[-1.6; 5.6]	8.1%
Subtotal			374			1680		2.6	[1.5; 3.7]	89.7%
Heterogeneity: $I^2 =$	0%, $\tau^2 = 0$, $p =$	0.98								
Country: US										
Egol Konda	81.6	9.7	31	83.4	10.4	107		-1.8	[-5.7; 2.1]	6.9%
LeBrun	86.5	7.9	9	84.7	7.5	50		1.8	[-3.8; 7.4]	3.4%
Subtotal			40			157		-0.6	[-3.9; 2.8]	10.3%
Heterogeneity: $I^2 =$	7%, $\tau^2 = 0.427$	3, <i>p</i> = 0.	30							
Overall			414			1837		2.3	[1.2; 3.3]	100.0%
Heterogeneity: $I^2 =$	0%, $\tau^2 = 0$, $p =$	0.56							- / -	
- /							-6 -4 -2 0 2 4 6	8		

Sex

Risk ratio for female sex associated with SARS-CoV-2 infection in older people with fragility hip fracture: all studies

		Female		Male				
Study	SARS-CoV-2	Total	SARS-CoV-2	Total	Risk Ratio	Risk Ratio	95% CI	Weight
Country: UK					: [
Arafa	10	67	9	30		0.50	[0.23; 1.10]	7.0%
Fadulelmola	13	53	7	22		0.77	[0.36; 1.67]	7.3%
Hall	13	211	14	106		0.47	[0.23; 0.96]	8.1%
Kayani	51	255	31	167		1.08	[0.72; 1.61]	16.3%
Narang	53	477	32	201		0.70	[0.46; 1.05]	16.1%
Rasidovic	71	281	43	123		0.72	[0.53; 0.99]	19.8%
Ward	34	96	12	36		1.06	[0.62; 1.81]	12.0%
Subtotal		1440		685	<u>~</u>	0.77	[0.63; 0.95]	86.6%
Heterogeneity: $I^2 = 20\%$,	$\tau^2 = 0.0157, p = 0.28$							
Country: US								
Egol Konda	15	49	16	89		1.70	[0.92; 3.14]	10.1%
LeBrun	6	44	3	15 -	•	0.68	[0.19; 2.39]	3.2%
Subtotal		93		104		1.28	[0.56; 2.94]	13.4%
Heterogeneity: $I^2 = 39\%$,	$\tau^2 = 0.1651, p = 0.20$							
Overall		1533		789	\sim	0.83	[0.65; 1.05]	100.0%
Heterogeneity: I ² = 40%,	$\tau^2 = 0.0494, p = 0.10$							
				0	.2 0.5 1 2	5		

Risk ratio for female sex associated with SARS-CoV-2 infection in older people with fragility hip fracture: large studies

		Female		Male				
Study	SARS-CoV-2	Total	SARS-CoV-2	Total	Risk Ratio	Risk Ratio	95% CI	Weight
Country: UK					1			
Kayani	51	255	31	167		1.08	[0.72; 1.61]	21.8%
Narang	53	477	32	201		0.70	[0.46; 1.05]	21.6%
Rasidovic	71	281	43	123		0.72	[0.53; 0.99]	26.2%
Ward	34	96	12	36		1.06	[0.62; 1.81]	16.4%
Subtotal		1109		527		0.84	[0.67; 1.05]	86.1%
Heterogeneity: $I^2 = 23\%$,	$\tau^2 = 0.0125, p = NA$							
Country: US								
Egol Konda	15	49	16	89	÷ • •	- 1.70	[0.92; 3.14]	13.9%
Subtotal		49		89	1	1.70	[0.92; 3.14]	13.9%
Heterogeneity: not applica	able							
Overall	0	1158		616		0.94	[0.71; 1.25]	100.0%
Heterogeneity: $I^2 = 54\%$,	$\tau^{2} = 0.0562, p = 0.07$				0.5 1 2			

Absolute proportions of female sex associated with SARS-CoV-2 infection in older people with fragility hip fracture: all studies

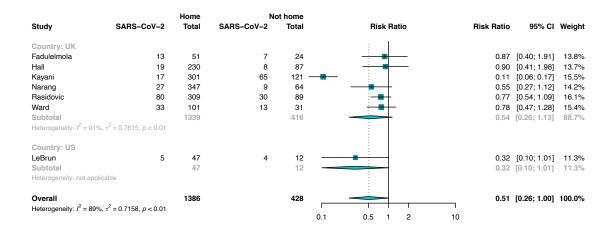
Study	Deaths	Total	Proportion female	95% CI	Weight
SARS-CoV-2 state	us: Negat	ive			
Arafa UK	57	78	0.73	[0.62; 0.82]	9.8%
Egol Konda US	34	107		[0.23; 0.41]	11.0%
Fadulelmola UK	40	55	0.73	[0.59; 0.84]	8.7%
Hall UK	198	290		[0.63; 0.74]	12.9%
Kayani UK	204	340	0.60	[0.55; 0.65]	13.2%
LeBrun US	38	50	0.76	[0.62; 0.87]	8.0%
Narang UK	424	596	0.71	[0.67; 0.75]	13.5%
Rasidovic UK	210	290	0.72	[0.67; 0.77]	12.8%
Ward UK	62	86	0.72	[0.61; 0.81]	10.2%
Subtotal				[0.59; 0.73]	100.0%
Heterogeneity: $I^2 = 89^\circ$	%, τ ² = 0.19	47, p = 0.2			
SARS-CoV-2 state	us: Positi	ve			
Arafa UK	10	19	0.53	[0.29; 0.76]	6.0%
Catellani Italy	6	16	0.38		5.2%
De UK	22	34	0.65	[0.46; 0.80]	7.9%
Dupley UK	35	64		[0.42; 0.67]	10.4%
Egol Konda US	15	31		[0.30; 0.67]	7.9%
Fadulelmola UK	13	20	0.65	[0.41; 0.85]	5.9%
Hall UK	13	27	0.48	[0.29; 0.68]	7.3%
Kayani UK	51	82		[0.51; 0.73]	11.0%
LeBrun US	6	9	• 0.67	[0.30; 0.93]	3.3%
Morelli Italy	8	10		[0.44; 0.97]	2.8%
Narang UK	53	86	0.62	[0.51; 0.72]	11.2%
Rabie Iran	4	4		[0.40; 1.00]	0.9%
Rasidovic UK	71	114	0.62	[0.53; 0.71]	11.9%
Ward UK	34	46		[0.59; 0.86]	8.4%
Subtotal Heterogeneity: $I^2 = 15^{\circ}$	-2 0.00	00 - 00		[0.55; 0.65]	100.0%
Heterogeneity: $T = 15^{\circ}$	%, τ = 0.02	:03, <i>p</i> < 0.0			
SARS-CoV-2 state				10 FF 0 CF	00 70
Arafa UK	41	60	0.68	. , .	32.7%
Egol Konda US	81	115		. , .	39.0%
Thrakar UK	36	48	0.75	[0.60; 0.86]	28.3%
Subtotal	0		● 0.71	[0.64; 0.76]	100.0%
Heterogeneity: $I^2 = 0\%$					
Heterogeneity: $I^2 = 749$	%, τ ² = 0.14	05, <i>p</i> < 0.0			
			0 0.2 0.4 0.6 0.8 1		

Absolute proportions of female sex associated with SARS-CoV-2 infection in older people with fragility hip fracture: large studies

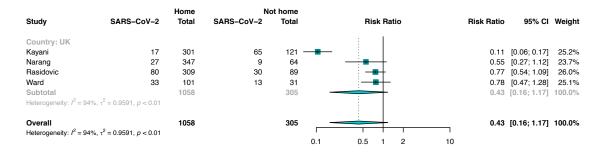
Study	Deaths	Total		Proportion female	95% CI	Weight
SARS-CoV-2 state	us: Negat	ive				
Arafa UK	57	78		0.73	[0.62; 0.82]	9.8%
Egol Konda US	34	107		0.32	[0.23; 0.41]	11.0%
Fadulelmola UK	40	55		0.73	[0.59; 0.84]	8.6%
Hall UK	198	290		0.68	[0.63; 0.74]	12.9%
Kayani UK	204	340		0.60	[0.55; 0.65]	13.2%
LeBrun US	38	50		0.76	[0.62; 0.87]	8.0%
Narang UK	424	596		0.71	[0.67; 0.75]	13.6%
Rasidovic UK	210	290		0.72	[0.67; 0.77]	12.8%
Ward UK	62	86	_	0.72	[0.61; 0.81]	10.1%
Subtotal			\diamond	0.67	[0.59; 0.73]	100.0%
Heterogeneity: $I^2 = 89^{\circ}$	%, τ ² = 0.19	947, <i>p</i> < 0.01				
SARS-CoV-2 state	us: Positi	ve				
De UK	22	34	-	0.65	[0.46; 0.80]	11.4%
Dupley UK	35	64		0.55	[0.42; 0.67]	15.2%
Egol Konda US	15	31	_	0.48	[0.30; 0.67]	11.4%
Kayani UK	51	82		0.62	[0.51; 0.73]	16.1%
Narang UK	53	86		0.62	[0.51; 0.72]	16.3%
Rasidovic UK	71	114		0.62	[0.53; 0.71]	17.4%
Ward UK	34	46		0.74	[0.59; 0.86]	12.2%
Subtotal			<	0.61	[0.56; 0.66]	100.0%
Heterogeneity: $I^2 = 8\%$	$t_{\rm b}, \tau^2 = 0.006$	62, <i>p</i> = 0.74				
SARS-CoV-2 state	us: Pre–C	OVID 2019				
Arafa UK	41	60	_	0.68	[0.55; 0.80]	32.7%
Egol Konda US	81	115		0.70	[0.61; 0.79]	39.1%
Thrakar UK	36	48	_	0.75	[0.60; 0.86]	28.2%
Subtotal			\sim		[0.64; 0.76]	100.0%
Heterogeneity: $I^2 = 0\%$	$t_{0}^{2} = 0, p =$	= 0.36				
Heterogeneity: $I^2 = 79^{\circ}$						
• •		0	0.2 0.4 0.6 0.8	1		

Source of admission

Risk ratio for admission from home associated with SARS-CoV-2 infection in older people with fragility hip fracture: all studies



Risk ratio for admission from home associated with SARS-CoV-2 infection in older people with fragility hip fracture: large studies



Absolute proportions of admission from home associated with SARS-CoV-2 infection in older people with fragility hip fracture: all studies

Study	Admit from home	Total		Proportion admitted from home	95% CI	Weight
SARS-CoV-2 stat	us: Negative					
Fadulelmola UK	38	55		0.69	[0.55; 0.81]	13.6%
Hall UK	211	290		0.73	[0.67; 0.78]	15.0%
Kayani UK	284	340		0.84	[0.79; 0.87]	14.9%
LeBrun US	42	50		0.84	[0.71; 0.93]	12.4%
Narang UK	320	596	-	0.54	[0.50; 0.58]	15.3%
Rasidovic UK	229	290		0.79	[0.74; 0.84]	14.9%
Ward UK	68	86		0.79	[0.69; 0.87]	13.9%
Overall				0.75	[0.64; 0.84]	100.0%
Heterogeneity: $I^2 = 95$	5%, $\tau^2 = 0.4633$, $p < 0.01$					
SARS-CoV-2 stat	tus: Positive					
Fadulelmola UK	13	20		0.65	[0.41; 0.85]	12.9%
Hall UK	19	27		0.70	[0.50; 0.86]	13.6%
Kayani UK	17	82	—	0.21	[0.13; 0.31]	15.7%
LeBrun US	5	9		0.56	[0.21; 0.86]	10.1%
Narang UK	27	86		0.31	[0.22; 0.42]	16.2%
Rasidovic UK	80	114		0.70	[0.61; 0.78]	16.5%
Ward UK	33	46	_	0.72	[0.57; 0.84]	15.0%
Overall						100.0%
Heterogeneity: $l^2 = 91$	%, $\tau^2 = 0.9882$, $p < 0.01$				L ,	
	$1\%, \tau^2 = 0.6108, p < 0.01$			1		
	, · · · · · · · · · · · · · · · · · ·		0 0.2 0.4 0.6 0.8	1		

Absolute proportions of admission from home associated with SARS-CoV-2 infection in older people with fragility hip fracture: large studies

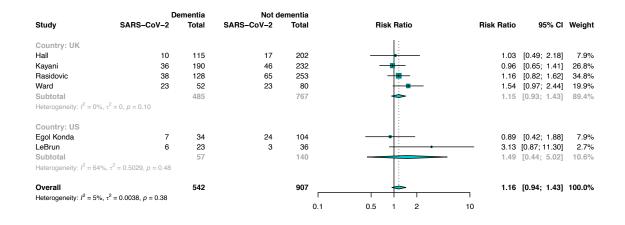
Study	Admit from home	Total		Proportion admitted from home	95% CI	Weight
SARS-CoV-2 st	atus: Negative					
Fadulelmola UK	38	55	_	0.69	[0.55; 0.81]	13.6%
Hall UK	211	290		0.73	[0.67; 0.78]	15.0%
Kayani UK	284	340		0.84	[0.79; 0.87]	14.9%
LeBrun US	42	50		0.84	[0.71; 0.93]	12.5%
Narang UK	320	596	-	0.54	[0.50; 0.58]	15.2%
Rasidovic UK	229	290		0.79	[0.74; 0.84]	14.9%
Ward UK	68	86		0.79	[0.69; 0.87]	13.9%
Overall				0.75	[0.64; 0.84]	100.0%
Heterogeneity: $I^2 = $	95%, $\tau^2 = 0.4633$, $p < 0.01$					
SARS-CoV-2 st	atus: Positive					
Kayani UK	17	82	—	0.21	[0.13; 0.31]	24.8%
Narang UK	27	86	—	0.31	[0.22; 0.42]	25.5%
Rasidovic UK	80	114		0.70	[0.61; 0.78]	26.0%
Ward UK	33	46		0.72	[0.57; 0.84]	23.7%
Overall				0.48	[0.23; 0.74]	100.0%
Heterogeneity: $I^2 = 1$	95%, $\tau^2 = 1.2310$, $p < 0.01$					
Heterogeneity: $I^2 = 1$	95%, $\tau^2 = 0.6460$, $p < 0.01$					
	,		0 0.2 0.4 0.6 0.8	1		

Risk ratio for admission from home associated with SARS-CoV-2 infection in older people with fragility hip fracture: excluding Kayani et al.

		Home	No	ot home				
Study	SARS-CoV-2	Total	SARS-CoV-2	Total	Risk Ratio	Risk Ratio	95% Cl	Weight
Country: UK					÷ [
Fadulelmola	13	51	7	24		0.87	[0.40; 1.91]	9.0%
Hall	19	230	8	87		0.90	[0.41; 1.98]	8.8%
Kayani	17	301	65	121		0.11	[0.06; 0.17]	0.0%
Narang	27	347	9	64		0.55	[0.27; 1.12]	11.0%
Rasidovic	80	309	30	89		0.77	[0.54; 1.09]	45.3%
Ward	33	101	13	31		0.78	[0.47; 1.28]	21.8%
Subtotal		1339		416	~	0.76	[0.60; 0.97]	95.9%
Heterogeneity: $l^2 = 0\%$, $\tau^2 = 0\%$	0, <i>p</i> = 0.90							
Country: US								
LeBrun	5	47	4	12		0.32	[0.10; 1.01]	4.1%
Subtotal		47		12		0.32	[0.10; 1.01]	4.1%
Heterogeneity: not applicable	e							
Overall		1386		428	~	0.74	[0.58; 0.93]	100.0%
Heterogeneity: $I^2 = 0\%$, $\tau^2 = 0\%$	0, <i>p</i> = 0.67							
					0.1 0.5 1 2	10		

Dementia

Risk ratio for presence of dementia associated with SARS-CoV-2 infection in older people with fragility hip fracture: all studies



Risk ratio for presence of dementia associated with SARS-CoV-2 infection in older people with fragility hip fracture: large studies

	De	ementia	Not de	ementia				
Study	SARS-CoV-2	Total	SARS-CoV-2	Total	Risk Ratio	Risk Ratio	95% CI	Weight
Country: UK					:			
Kayani	36	190	46	232		0.96	[0.65; 1.41]	30.0%
Rasidovic	38	128	65	253		1.16	[0.82; 1.62]	40.0%
Ward	23	52	23	80		<u> </u>	[0.97; 2.44]	21.7%
Subtotal		370		565		1.17	[0.91; 1.49]	91.8%
Heterogeneity: $I^2 = 17\%$, τ	$t^2 = 0.0082, p = NA$							
Country: US								
Egol Konda	7	34	24	104		0.89	[0.42; 1.88]	8.2%
Subtotal		34		104		0.89	[0.42; 1.88]	8.2%
Heterogeneity: not applica	able							
Overall		404		669		1.14	[0.92; 1.41]	100.0%
Heterogeneity: $I^2 = 0\%$, τ^2	$p^2 = 0, p = 0.42$						- / -	
,	.,				0.5 1 2			

Absolute proportions of people with dementia associated with SARS-CoV-2 infection in older people with fragility hip fracture: large studies

Study	Deaths	Total							Proportion with dementia	95% CI	Weight
SARS-CoV-2 statu	is: Negative										
Egol Konda US	27	107							0.25	[0.17; 0.35]	14.3%
Hall UK	105	290							0.36	[0.31; 0.42]	20.1%
Kayani UK	154	340				-			0.45	[0.40; 0.51]	20.9%
LeBrun US	17	50							0.34	[0.21; 0.49]	10.8%
Rasidovic UK	90	290		_	-				0.31	[0.26; 0.37]	19.9%
Ward UK	29	86			•				0.34	[0.24; 0.45]	14.0%
Subtotal					\diamond				0.35	[0.29; 0.41]	100.0%
Heterogeneity: $I^2 = 76\%$	$\%, \tau^2 = 0.0797, \mu$	0.09									
SARS-CoV-2 statu	is: Positive										
Dupley UK	27	64							0.42	[0.30; 0.55]	18.0%
Egol Konda US	7	31							0.23	[0.10; 0.41]	9.5%
Hall UK	10	27							0.37	[0.19; 0.58]	10.6%
Kayani UK	36	82				_			0.44	[0.33; 0.55]	20.2%
LeBrun US	6	9						_	0.67	[0.30; 0.93]	4.3%
Rasidovic UK	38	114		_	•				0.33	[0.25; 0.43]	22.0%
Ward UK	23	46				+			0.50	[0.35; 0.65]	15.4%
Subtotal					\diamond				0.40	[0.33; 0.48]	100.0%
Heterogeneity: $I^2 = 45\%$	$6, \tau^2 = 0.0701, \mu$	0 < 0.01									
Heterogeneity: $I^2 = 64\%$	$/6$, $τ^2 = 0.0705$, μ	0 < 0.01		1	1	1	1				
			0	0.2	0.4	0.6	0.8	1			

Absolute proportions of people with dementia associated with SARS-CoV-2 infection in older people with fragility hip fracture: large studies

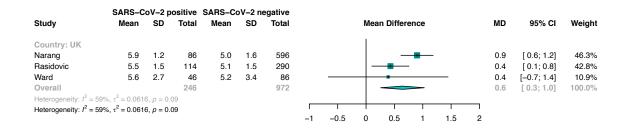
Study	Deaths	Total					Pr	oportion with dementia	95% CI	Weight
SARS-CoV-2 sta	atus: Negative									
Egol Konda US	27	107						0.2	5 [0.17; 0.35]	14.3%
Hall UK	105	290						0.30	6 [0.31; 0.42]	20.2%
Kayani UK	154	340			-			0.4	5 [0.40; 0.51]	20.9%
LeBrun US	17	50			-			0.34	[0.21; 0.49]	10.7%
Rasidovic UK	90	290	-	-				0.3	[0.26; 0.37]	19.9%
Ward UK	29	86	_	-				0.34	[0.24; 0.45]	14.0%
Subtotal				\diamond				0.3	[0.29; 0.41]	100.0%
Heterogeneity: $I^2 = 7$	′6%, τ ² = 0.0797, μ	0.08								
SARS-CoV-2 sta	atus: Positive									
Dupley UK	27	64						0.42	2 [0.30; 0.55]	21.2%
Egol Konda US	7	31						0.23	8 [0.10; 0.41]	11.1%
Kayani UK	36	82						0.44	[0.33; 0.55]	23.7%
Rasidovic UK	38	114	-	+				0.33	8 [0.25; 0.43]	25.9%
Ward UK	23	46			•			0.50	0 [0.35; 0.65]	18.1%
Subtotal				\diamond				0.3	[0.32; 0.47]	100.0%
Heterogeneity: $I^2 = 5$	$52\%, \tau^2 = 0.0717, \mu$	0 < 0.01								
Heterogeneity: $I^2 = 6$	$57\%, \tau^2 = 0.0695, \mu$	0 < 0.01			T	1	1			
			0 0.2	0.4	0.6	0.8	1			

Nottingham Hip Fracture Score

Mean difference for Nottingham Hip Fracture Score (points) associated with SARS-CoV-2 infection in older people with fragility hip fracture: all studies

(Main paper)

Mean difference for Nottingham Hip Fracture Score (points) associated with SARS-CoV-2 infection in older people with fragility hip fracture: large studies



Absolute Nottingham Hip Fracture Score (points) associated with SARS-CoV-2 infection in older people with fragility hip fracture: all studies

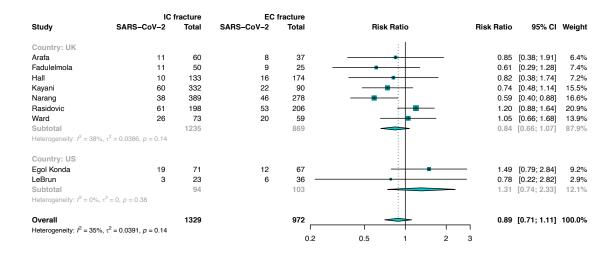
Study	Mean	SD	Total			N	HFS		N	lean NHFS	95% CI	Weight
SARS-CoV-2 status =	Negativ	/e										
Arafa UK	5.1	1.5	78				-			5.1	[4.8; 5.4]	19.8%
Hall UK	4.7	1.7	290							4.7	[4.5; 4.9]	22.1%
Narang UK	5.0	1.6	596			-				5.0	[4.9; 5.1]	22.9%
Rasidovic UK	5.1	1.5	290							5.1	[4.9; 5.3]	22.4%
Ward UK	5.2	3.4	86		-					5.2	[4.5; 5.9]	12.8%
Subtotal						\diamond				5.0	[4.8; 5.1]	100.0%
Heterogeneity: $I^2 = 60\%$, $\tau^2 =$	= 0.0177	, p = (0.15									
SARS-CoV-2 status =	Positiv	е										
Arafa UK	5.8	1.1	19			-				5.8	[5.3; 6.3]	16.3%
De UK	6.0	1.1	34							6.0	[5.6; 6.4]	18.4%
Hall UK	5.3	1.7	27							5.3	[4.7; 5.9]	13.5%
Narang UK	5.9	1.2	86							5.9	[5.6; 6.2]	20.4%
Rasidovic UK	5.5	1.5	114				-			5.5	[5.2; 5.8]	20.1%
Ward UK	5.6	2.7	46							5.6	[4.8; 6.4]	11.3%
Subtotal							\diamond			5.7	[5.5; 5.9]	100.0%
Heterogeneity: $I^2 = 38\%$, $\tau^2 = 10\%$	= 0.0244	, p = (0.04									
					1	1	1	1				
				3	4	5	6	7	8			

Absolute Nottingham Hip Fracture Score (points) associated with SARS-CoV-2 infection in older people with fragility hip fracture: large studies

Study	Mean	SD	Total			NH	IFS		Меа	n NHFS	95% CI	Weight
SARS-CoV-2 status =	Negativ	ve										
Arafa UK	5.1	1.5	78							5.1	[4.8; 5.4]	19.8%
Hall UK	4.7	1.7	290							4.7	[4.5; 4.9]	22.1%
Narang UK	5.0	1.6	596			-				5.0	[4.9; 5.1]	22.9%
Rasidovic UK	5.1	1.5	290			-				5.1	[4.9; 5.3]	22.4%
Ward UK	5.2	3.4	86							5.2	[4.5; 5.9]	12.8%
Subtotal						~				5.0	[4.8; 5.1]	100.0%
Heterogeneity: $I^2 = 60\%$, τ^2	= 0.0177	", p =	0.04									
SARS-CoV-2 status =	Positiv	е										
De UK	6.0	1.1	34							6.0	[5.6; 6.4]	26.3%
Narang UK	5.9	1.2	86							5.9	[5.6; 6.2]	29.1%
Rasidovic UK	5.5	1.5	114			-	-			5.5	[5.2; 5.8]	28.6%
Ward UK	5.6	2.7	46				•			5.6	[4.8; 6.4]	16.1%
Subtotal							\diamond			5.8	[5.5; 6.0]	100.0%
Heterogeneity: $I^2 = 51\%$, τ^2	= 0.0326	в, <i>р</i> =	0.10									
							1	I				
				3	4	5	6	7	8			

Fracture type

Risk ratio for intracapsular fracture associated with SARS-CoV-2 infection in older people with fragility hip fracture: all studies



Risk ratio for intracapsular fracture associated with SARS-CoV-2 infection in older people with fragility hip fracture: large studies

	IC 1	racture	EC	fracture				
Study	SARS-CoV-2	Total	SARS-CoV-2	Total	Risk Ratio	Risk Ratio	95% CI	Weight
Country: UK					:1			
Kayani	60	332	22	90		0.74	[0.48; 1.14]	20.5%
Narang	38	389	46	278		0.59	[0.40; 0.88]	21.5%
Rasidovic	61	198	53	206	÷	1.20	[0.88; 1.64]	24.8%
Ward	26	73	20	59		1.05	[0.66; 1.68]	19.1%
Subtotal		992		633		0.87	[0.62; 1.22]	85.9%
Heterogeneity: $I^2 = 66\%$, τ^2	$^{2} = 0.0782, p = NA$							
Country: US								
Egol Konda	19	71	12	67		- 1.49	[0.79; 2.84]	14.1%
Subtotal		71		67		1.49	[0.79; 2.84]	14.1%
Heterogeneity: not applical	ble							
Overall		1063		700	<u> </u>	0.94	[0.68; 1.29]	100.0%
Heterogeneity: $I^2 = 63\%$, τ^2	$^{2} = 0.0823, p = 0.03$							
				0.2	0.5 1 2	3		

Absolute proportions of intracapsular fracture associated with SARS-CoV-2 infection in older people with fragility hip fracture: all studies

Study	IC fracture	Total		Proportion with IC fracture	95% CI	Weight
SARS-CoV-2 sta	tus: Negative					
Arafa UK	49	78		0.63	[0.51; 0.74]	10.5%
Egol Konda US	52	107		0.49	[0.39; 0.58]	11.1%
Fadulelmola UK	39	55	- _	0.71	[0.57; 0.82]	9.6%
Hall UK	121	290		0.42	[0.36; 0.48]	12.0%
Kayani UK	272	340		0.80	[0.75; 0.84]	11.8%
LeBrun US	20	50		0.40	[0.26; 0.55]	9.7%
Narang UK	351	596		0.59	[0.55; 0.63]	12.3%
Rasidovic UK	137	290	_ 	0.47	[0.41; 0.53]	12.0%
Ward UK	47	86		0.55	[0.44; 0.65]	10.8%
Overall				0.57	[0.47; 0.66]	100.0%
Heterogeneity: $I^2 = 93$	3%, $\tau^2 = 0.3192$,	<i>p</i> < 0.01				
SARS-CoV-2 sta	tus: Positive					
Arafa UK	11	19		0.58	[0.33; 0.80]	6.6%
Catellani Italy	3	16		0.19	[0.04; 0.46]	4.7%
De UK	18	34	-	0.53	[0.35; 0.70]	8.2%
Dupley UK	36	64	-	0.56	[0.43; 0.69]	9.5%
Egol Konda US	19	31		0.61	[0.42; 0.78]	7.9%
Fadulelmola UK	11	20		0.55	[0.32; 0.77]	6.8%
Hall UK	10	27	+	0.37	[0.19; 0.58]	7.5%
Kayani UK	60	82	- _	0.73	[0.62; 0.82]	9.6%
LeBrun US	3	9		0.33	[0.07; 0.70]	4.2%
Morelli Italy	2	10		0.20	[0.03; 0.56]	3.6%
Narang UK	38	86		0.44	[0.33; 0.55]	10.0%
Rabie Iran	1	4		0.25	[0.01; 0.81]	2.0%
Rasidovic UK	61	114	_ 	0.54	[0.44; 0.63]	10.4%
Ward UK	26	46	.	0.57	[0.41; 0.71]	8.9%
Overall				0.51	[0.44; 0.58]	100.0%
Heterogeneity: $I^2 = 59$	9%, $\tau^2 = 0.1618$,	p < 0.01				
SARS-CoV-2 sta	tus: Pre-COV	ID 2019				
Arafa UK	43	60		0.72	[0.59; 0.83]	46.7%
Egol Konda US	43	115	— <u>—</u>	0.37	[0.29; 0.47]	53.3%
Overall				0.55	[0.23; 0.83]	100.0%
Heterogeneity: $I^2 = 9$	4%, $\tau^2 = 0.9822$,	p < 0.01			-	
			0 0.2 0.4 0.6 0.8	1		

Absolute proportions of intracapsular fracture associated with SARS-CoV-2 infection in older people with fragility hip fracture: large studies

Study	IC fracture	Total		Proportion with IC fracture	95% CI Weigh
SARS-CoV-2 sta	atus: Negative				
Arafa UK	49	78	_ 	0.63	[0.51; 0.74] 10.5%
Egol Konda US	52	107	_ -	0.49	[0.39; 0.58] 11.1%
Fadulelmola UK	39	55		- 0.71	[0.57; 0.82] 9.6%
Hall UK	121	290		0.42	[0.36; 0.48] 12.0%
Kayani UK	272	340		⊢ 0.80	[0.75; 0.84] 11.9%
LeBrun US	20	50		0.40	[0.26; 0.55] 9.7%
Narang UK	351	596		0.59	[0.55; 0.63] 12.4%
Rasidovic UK	137	290		0.47	[0.41; 0.53] 12.1%
Ward UK	47	86		0.55	[0.44; 0.65] 10.8%
Overall				0.57	[0.47; 0.66] 100.0%
Heterogeneity: $I^2 = 9$	$3\%, \tau^2 = 0.3192,$	<i>p</i> < 0.01			
SARS-CoV-2 sta	atus: Positive				
De UK	18	34		0.53	[0.35; 0.70] 12.7%
Dupley UK	36	64		0.56	[0.43; 0.69] 14.8%
Egol Konda US	19	31		0.61	[0.42; 0.78] 12.2%
Kayani UK	60	82		- 0.73	[0.62; 0.82] 14.9%
Narang UK	38	86		0.44	[0.33; 0.55] 15.6%
Rasidovic UK	61	114		0.54	[0.44; 0.63] 16.2%
Ward UK	26	46		0.57	[0.41; 0.71] 13.8%
Overall			\sim	0.57	[0.49; 0.64] 100.0%
Heterogeneity: $I^2 = 6$	$50\%, \tau^2 = 0.0989,$	<i>p</i> < 0.01			
SARS-CoV-2 sta	atus: Pre–COV	ID 2019			
Arafa UK	43	60		- 0.72	[0.59; 0.83] 46.6%
Egol Konda US	43	115	—	0.37	[0.29; 0.47] 53.4%
Overall				- 0.55	[0.23; 0.83] 100.0%
Heterogeneity: $I^2 = 9$	94%, $\tau^2 = 0.9822$,	p = 0.02			
			0 0.2 0.4 0.6 0.4	8 1	

SARS-CoV-2 prevalence Proportions of cohorts with SARS-CoV-2 infection: all studies

Study SARS-CoV-2 posi	itive .	Total cohort	Proportion SARS-CoV-2 positive	95% CI	Weight
Country: Italy					
Maniscalco	32	121		[0.19; 0.35]	7.0%
Subtotal		121	0.26	[0.19; 0.35]	7.0%
Heterogeneity: not applicable					
Country: Spain					
Munoz Vives	23	136	0.17	[0.11; 0.24]	6.8%
Subtotal		136	0.17	[0.12; 0.24]	6.8%
Heterogeneity: not applicable					
Country: UK					
Arafa	19	97	0.20	[0.12; 0.29]	6.5%
Clement	47	354	0.13	[0.10; 0.17]	7.5%
Fadulelmola	20	75	0.27	[0.17; 0.38]	6.4%
Hall	27	317	0.09	[0.06; 0.12]	7.0%
Kayani	82	422		[0.16; 0.24]	7.7%
Macey	10	75		[0.07; 0.23]	5.6%
Narang	86	682		[0.10; 0.15]	7.8%
	114	404		[0.24; 0.33]	7.8%
Sobti	6	94		[0.02; 0.13]	4.7%
Thrakar	12	43		[0.15; 0.44]	5.6%
Ward	46	132		[0.27; 0.44]	7.2%
Subtotal Heterogeneity: $I^2 = 90\%$, $\tau^2 = 0.2957$, $p = NA$		2695	0.18	[0.13; 0.24]	73.9%
Helelogeneity. 7 = 50%, t = 0.2557, p = 144					
Country: US					
Egol Konda	31	138		[0.16; 0.30]	7.0%
LeBrun	9	59	0.15	[0.07; 0.27]	5.3%
Subtotal		197	0.20	[0.14; 0.28]	12.4%
Heterogeneity: $I^2 = 24\%$, $\tau^2 = 0.0269$, $p = NA$					
Overall		3149	.18	[0.15; 0.23]	100.0%
Heterogeneity: $l^2 = 87\%$, $\tau^2 = 0.2420$, $p < 0.01$			0 0.1 0.2 0.3 0.4 0.5		

Proportions of cohorts with SARS-CoV-2 infection: large studies

Study	SARS-CoV-2 positive	Total cohort	Proportion SARS-CoV-2 positive	95% CI	Weight
Country: Italy Maniscalco	32	121		[0.19; 0.35]	13.4%
Subtotal Heterogeneity: not ap	plicable	121	0.26	[0.19; 0.35]	13.4%
Country: UK Clement	47	354		[0.10; 0.17]	14.3%
Kayani	82	422		[0.16; 0.24]	14.9%
Narang	86	682		[0.10; 0.15]	15.0%
Rasidovic	114	404	0.28	[0.24; 0.33]	15.1%
Ward	46	132		[0.27; 0.44]	13.9%
Subtotal Heterogeneity: <i>I</i> ² = 94	4%, τ ² = 0.2745, <i>p</i> = NA	1994	0.20	[0.14; 0.29]	73.2%
Country: US					
Egol Konda Subtotal Heterogeneity: not ap	31 plicable	138 138		[0.16; 0.30] [0.16; 0.30]	13.4% 13.4%
Overall Heterogeneity: $I^2 = 91$	1%, $\tau^2 = 0.2277$, $p < 0.01$	2253	0.21 0 0.1 0.2 0.3 0.4 0.5	[0.16; 0.28]	100.0%

ICU Admissions

Five studies reported outcome data for intensive care unit (ICU) admissions in SARS-COV-2 hip fracture patients. Egol et al. ¹ reported 8/31 patients (5 confirmed 3 strongly suspected) with SARS-COV-2 admitted to ICU compared to 18/107 non-infected patients. They also reported 13/111 matched hip fracture patients admitted to the ICU in 2019. Kayani et al. ² reported 8/82 patients with SARS-CoV-2 admitted to ICU compared to 3/340 non-infected patients; 42/82 SARS-CoV-2 patients were admitted to High Dependency Units (HDU) compared with 59/340 non-infected. LeBrun et al. ³ reported 3/9 patients with SARS-COV-2 admitted to ICU compared 0/10 patients with SARS-COV-2 were admitted to Intensive care compared to 0/66 non-infected patients and 1/76 matched hip fracture patients from 2019. In a case series, Rabie et al. [12] reported 3/4 hip fracture patients with SARS-COV-2 were admitted to a Respiratory Intensive Care Unit.

Non-operative management

Seven studies reported outcome data for surgical/conservative management in SARS-COV-2 hip fracture patients. Egol et al. ¹ reported that 23/31 patients with SARS-COV-2 underwent surgical fixation compared to 107/107 non-infected patients. Egol et al. ¹ also reported on matched hip fracture patients from 2019. In this group, 111/115 patients underwent surgical fixation. LeBrun et al. ³ reported that 2/9 patients with SARS-COV-2 died before surgery whilst 50/50 non-infected patients had surgery. Catellani et al. ⁴ reported that 3 out of 16 SARS-CoV-2 patients died before surgery. Dupley et al. ⁵ reported that all 58 SARS-COV-2 patients had surgical fixation (37 of whom were operated on within 36 hours). Hall et al. ⁶ reported that 75/78 patients with SARS-CoV-2 had surgical fixation compared to 739/755 non-infected patients (when adjusted for 30-day COVID status, data obtained from authors). FaduleImola et al. ⁷ reported that 19/20 patients with SARS-COV-2 underwent surgical fixation compared to 53/55 non-infected patients. Arafa et al. ⁸ also reported on matched hip fracture patients from 2019 in whom 57/60 patients underwent surgical fixation.

Time to surgery

Egol et al. ¹ reported a mean (SD) time to surgery from admission was 65 (94) hours in the SARS-CoV-2 confirmed group, 50 (50) hours in the COVID suspected group, and 26 (14) hours in the non-SARS-CoV-2 group. A matched group from 2019 had surgery 34 (19) hours after admission. LeBrun et al. ³ reported median [IQR] time to surgery of 29.9 [17.0 – 49.4] hours in SARS-CoV-2 positive patients and 21.5 [17.1 – 26.2] hours in the non-SARS-CoV-2 positive patients. Catellani et al. ⁴ reported that 10 of 13 operated SARS-CoV-2 positive patients had surgery 12-24 hours from admission; 3 were delayed for reversal of direct thrombin inhibitors. Dupley et al. ⁵ reported that 37 of 58 SARS-CoV-2 positive patients were operated on within 36 hours from admission. Hall et al. ⁶ reported that 57/78 SARS-CoV-2 positive patients. Fadulelmola et al. ⁷ reported mean time to surgery was 37.4 hours in SARS-CoV-2 positive patients, and 39.8 hours in the non-SARS-CoV-2 positive patients. Arafa et al. ⁸ reported a mean time to surgery was 28.6 (10.2) hours in the SARS-CoV-2 group (median [IQR] 26 [22 – 35] hours) and 29.0 (47.9) hours in the non-SARS-CoV-2 group (median [IQR] time 20 [16-24] hours). They also reported on matched hip fracture patients from 2019 with a mean time to surgery of 24.96 (15.3) (19.1 [13.0 – 35.1]) hours from admission.

Table: Time to surgery metrics

Study	SARS-CoV (hours)	SARS-CoV-2 (other details)	Non-SARS-CoV (hours)	Non-SARS-CoV-2 (other details)	2019 cohort (hours)
Egol	65 (94)		26 (14)		34 (19)
LeBrun	29.9 [17.0 – 49.4]		21.5 [17.1 – 26.2]		
Catellani		10/13 12-24 hours			
Dupley		37/58 within 36 hours			
Hall		57/78 within 36 hours		550/739 within 36 hours	
Fadulelmola	37.4		39.8		
Arafa	28.6 (10.2)		29.0 (47.9)		25.0 (15.4)
	26 [22 – 35]		20 [16 – 24]		19 [13 – 35]

Data are reported as mean (SD) or median [interquartile range]

Readmission rates

Only Egol et al. ¹ reported on readmission rates. 3/31 SARS-CoV-2 patients were readmitted to hospital compared to 3/107 without SARS-CoV-2.

Re-operation rates

Two studies reported reoperation rates. Arafa et al.⁸ reported 0/19 COVID patients were reported on compared to 2/78 non-COVID patients and 1/60 matched hip fracture patients from 2019. Mansicalco et al.⁹ reported that 0/32 SARS-CoV-2 patients underwent reoperation compared with 2/89 non-SARS-CoV-2 patients and 1/169 matched hip fracture patients from 2019.

Discharge destination

Discharge destination was reported differently between studies and it was not often specified what was meant by rehabilitation or the causes for it. We present general themes from studies that gave mention to this outcome. Egol et al. ¹ reported that 20/31 SARS-CoV-2 patients were discharged to rehab services compared to 83/107 non-SARS-CoV-2 patients. Kayani et al. ² reported that 30/82 SARS-CoV-2 patients experienced a "decline in setup" at discharge compared to 62/340 non-SARS-CoV-2 patients. LeBrun et al. ³ reported that 3/9 SARS-CoV-2 patients were discharged to a nursing home and 1/9 to a hospice, compared to 15/50 and 1/50 non- SARS-CoV-2 patients respectively. Catellani et al. ⁴ reported out of 16 COVID positive cases (9 survivors) 2 were discharged to rehabilitation services. Finally, Morelli et al. ¹⁰ reported that out of 10 SARS-CoV-2 cases, all 8 survivors were discharged to rehabilitation service

Respiratory Complications

Hypoxia/respiratory failure

Five studies made a comment on hypoxia. Egol et al. ¹ reported that 11/31 SARS-CoV-2 patients (7 confirmed 4 suspected) had acute respiratory failure compared to 2/107 non-COVID patients. In this study 4/31 patients from the SARS-CoV-2 group received oxygen therapy via invasive ventilation compared with 1/107 patients in the non-SARS-CoV-2 group. Kayani et al. ² reported 8/82 SARS-CoV-2 patients suffered from acute respiratory distress syndrome. LeBrun et al. ³ reported that 5/9 SARS-CoV-2 patients suffered from hypoxia compared to 13/50 non-SARS-CoV-2 patients. In this study 4/9 of the SARS-CoV-2 patients received supplemental oxygen therapy (2 of whom underwent invasive ventilation) compared with 13/50 non-SARS-CoV-2 patients. Catellani et al. ⁴ reported that 4/13 patients suffered respiratory failure and died as a result. All 16 patients with SARS-CoV-2 received supplemental oxygen therapy. Fadulelmola et al. ⁷ did not report outcomes between different groups but reported that all 10/20 SARS-CoV-2 patients who died suffered from hypoxia. All 20 SARS-CoV-2 patients received supplemental oxygen therapy. Morelli et al. ¹⁰ reported that 9/10 SARS-CoV-2 patients required supplemental oxygen therapy.

Pneumonia

Four studies reported on secondary pneumonia though studies are at risk of investigation bias. Egol et al. ¹ reported 7/31 SARS-CoV-2 patients with pneumonia compared to 1/107 non-SARS-CoV-2 patients. Kayani et al. ² reported 11/82 SARS-CoV-2 patients suffered from respiratory infection. LeBrun et al. ³ reported 2/9 SARS-CoV-2 patients suffered from pneumonia compared with 3/50 non-SARS-CoV-2 patients. Arafa et al. ⁸ reported 0 cases of pneumonia in the SARS-CoV-2 patients (7/19 had SARS-CoV-2-related pneumonitis), compared to 3 cases with bacterial pneumonia and 2/78 with imaging of pneumonitis suspicious of SARS-CoV-2 despite a negative test. There were 0/60 cases of pneumonia for matched 2019 patients in this study.

Pulmonary embolism (PE) /Venous thromboembolism (VTE)

Three studies reported outcomes for PE/VTE though studies are at risk of investigation bias due to the emerging understanding of higher thrombotic events in patients with SARS-CoV-2. Egol et al. ¹ reported 2/31 SARS-CoV-2 patients suffered with VTE/PE compared to 3/107 non- SARS-CoV-2 patients. Kayani et al. ² reported that 11/82 SARS-CoV-2 patients suffered from VTE. Macey et al. ¹¹ reported 0/10 VTE events in COVID patients compared with 1/76 matched hip fracture patients in 2019.

Cardiovascular Complications

Myocardial infarction (MI)

Three studies reported outcomes for myocardial infarction though criteria for diagnosis were unclear. Egol et al. ¹ reported 2/31 SARS-CoV-2 patients suffered an MI compared to 3/107 non-SARS-CoV-2 patients. Kayani et al. ² reported 2/82 SARS-CoV-2 patients suffered an MI. Arafa et al. ⁸ reported 0/19 SARS-CoV-2 patients suffered an MI compared to 1/78 non-COVID patients. They also reported 4/60 matched hip fracture patients suffered and MI in 2019.

Stroke/Cerebrovascular accident

One study reported outcomes with respect to stroke. Egol et al. ¹ reported that 0/31 SARS-CoV-2 patients suffered a stroke compared to 2/107 non-SARS-CoV-2 patients.

Acute Kidney Injury (AKI)

Three studies reported outcomes for AKI though criteria for diagnosis were unclear. Egol et al. ¹ reported 4/31 SARS-CoV-2 patients suffered from an AKI compared to 8/107 non-SARS-CoV-2 patients. Kayani et al. ² reported 10/82 SARS-CoV-2 patients suffered from an AKI. Mansicalco et al. ⁹ reported that 1/32 SARS-CoV-2 patients experienced an AKI; they also commented that 3/32 patients died of multi-organ failure.

Sepsis

Four studies reported outcomes for sepsis though criteria for diagnosis were unclear. Egol et al. ¹ reported 4/31 SARS-CoV-2 patients suffered from sepsis compared to 2/107 non-SARS-CoV-2 patients. Kayani et al. ² reported 9/82 SARS-CoV-2 patients suffered from sepsis. Arafa et al.⁸ reported 0/19 SARS-CoV-2 patients suffered from sepsis compared to 1/78 non-SARS-CoV-2 patients. They also reported 3/60 matched hip fracture patients suffered from sepsis in 2019. Maniscalco et al. ⁹ reported 2/32 SARS-CoV-2 patients suffered from sepsis.

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References for data in the forest plots are in the main paper.

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