

1 **Supplementary Material**

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5 **Table S1. Baseline characteristics (sex, age, ASA grade, cardiac risk, time of diagnosis, method of diagnosis and month study participant**
 6 **recruited) of the full study population (n = 1063), and died (n = 313) and alive (n =746) groups; p-values are for Fisher's exact tests**
 7 **comparing groups for each characteristic.**

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Characteristic	Full (n = 1063)	Alive (n = 746)	Died (n = 313)	Died (%)
<i>Sex (p-value = <0.001 ***)</i>				
Female	696 (65.5%)	526	168	24.2
Male	367 (34.5%)	220	145	39.7
Missing	0 (0.0%)	0	0	0.0
<i>Age (p-value = 0.001 **)</i>				
20-29 years	3 (0.3%)	3	0	0.0
30-39 years	2 (0.2%)	1	1	50.0
40-49 years	4 (0.4%)	3	1	25.0
50-59 years	24 (2.3%)	21	3	12.5
60-69 years	50 (4.7%)	39	11	22.0
70-79 years	189 (17.8%)	145	43	22.9
80-89 years	507 (47.7%)	360	144	28.6
90+ years	284 (26.7%)	174	110	38.7
Missing	0(0.0%)	0	0	0.0
<i>ASA (p-value = 0.001 **)</i>				
1-2	151 (14.2%)	123	28	18.5
3-5	899 (84.6%)	615	281	31.4
Missing	13(1.2%)	8	4	30.8

<i>Cardiac risk (p-value = <0.001 ***)</i>				
0	487 (45.8%)	372	114	23.5
1	349 (32.8%)	238	110	31.6
2	169 (15.9%)	106	61	36.5
3	44 (4.1%)	23	21	47.7
4	8 (0.8%)	5	3	37.5
5	1 (0.1%)	0	1	100.0
Missing	5 (0.47%)	2	3	60.0
<i>Time of diagnosis (p-value = 0.006 **)</i>				
Post-op	733 (69%)	499	231	31.6
Pre-op	266 (25%)	205	60	22.6
Missing	64 (6.0%)	42	22	34.4
<i>Diagnosis (p-value = 0.668)</i>				
Clinical	62 (5.8%)	42	20	32.3
Swab	992 (93.3%)	696	292	29.6
Missing				
<i>Month (p-value = 0.007 **)</i>				
February	26 (2.4%)	23	3	11.5
March	474 (44.6%)	313	159	33.7
April	558 (52.5%)	406	150	27.0
Missing	1(0.09%)	0	1	100.0

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10 **Table S2. Comorbidity data summaries by died (n = 313) and alive (n =746) groups. Data tabulated are counts, with estimated odds**
 11 **ratios (OR), with 95% confidence intervals, and p-values from Fisher's exact tests for each comorbidity.**

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Comorbidity	Alive	Died	OR	p-value
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	(n = 746)	(n = 313)	(95% CI)	
	Y:N (%Y)	Y:N (%Y)		
Current smoker	34:712 (4.6%)	9:304 (2.9%)	0.62 (0.26, 1.34)	0.235 -
Asthma	53:693 (7.1%)	21:292 (6.7%)	0.94 (0.53, 1.62)	0.895 -
Current cancer diagnosis	57:689 (7.6%)	24:289 (7.7%)	1.00 (0.58, 1.68)	0.999 -
Chronic kidney disease (moderate/severe)	106:640 (14.2%)	71:242 (22.7%)	1.77 (1.25, 2.51)	0.001 **
Chronic obstructive pulmonary disease (COPD)	95:651 (12.7%)	57:256 (18.2%)	1.53 (1.05, 2.21)	0.027 *
Congenital abnormality - cardiac	4:742 (0.5%)	1:312 (0.3%)	0.60 (0.01, 6.04)	0.999 -
Congenital abnormality - non-cardiac	0:746 (0.0%)	4:309 (1.3%)	-	- -
Congestive heart failure	81:665 (10.9%)	58:255 (18.5%)	1.87 (1.27, 2.73)	<0.001 ***
Dementia	248:498 (33.2%)	133:180 (42.5%)	1.48 (1.12, 1.96)	0.005 **
Diabetes mellitus	142:604 (19.0%)	63:250 (20.1%)	1.07 (0.76, 1.51)	0.671 -
Hypertension	387:359 (51.9%)	186:127 (59.4%)	1.36 (1.03, 1.79)	0.026 *
Myocardial infarction or ischemic heart disease	103:643 (13.8%)	63:250 (20.1%)	1.57 (1.09, 2.25)	0.012 *
Peripheral vascular disease	34:712 (4.6%)	21:292 (6.7%)	1.51 (0.82, 2.72)	0.172 -
Stroke/ TIA	107:639 (14.3%)	57:256 (18.2%)	1.33 (0.92, 1.92)	0.114 -
Other (including other lung disease)	377:369 (50.5%)	158:155 (50.5%)	1.00 (0.76, 1.31)	0.999 -

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14 **Table S3. Diagnosis data summaries by died (n = 313) and alive (n =746) groups. Data tabulated are counts, with estimated odds ratios**
 15 **(OR), with 95% confidence intervals, and p-values from Fisher's exact tests for each diagnosis method.**

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Diagnosis	Alive (n = 746)	Died (n = 313)	OR (95% CI)	p-value
	Y:N (%Y)	Y:N (%Y)		
<i>Pre-op 4-7days</i>				
CT thorax scan (negative for SARS-CoV-2)	10:736 (1.3%)	2:311 (0.6%)	0.47 (0.05, 2.24)	0.526 -

CT thorax scan (positive for SARS-CoV-2)	12:734 (1.6%)	0:313 (0%)	0.00 (0.00, 0.85)	0.023	*
Swab (negative for SARS-CoV-2)	17:729 (2.3%)	3:310 (1%)	0.42 (0.08, 1.45)	0.215	-
Swab (positive for SARS-CoV-2)	31:715 (4.2%)	8:305 (2.6%)	0.61 (0.24, 1.37)	0.283	-
<i>Pre-op 1-3days</i>					
CT thorax scan (negative for SARS-CoV-2)	8:738 (1.1%)	3:310 (1%)	0.89 (0.15, 3.75)	0.999	-
CT thorax scan (positive for SARS-CoV-2)	10:736 (1.3%)	3:310 (1%)	0.71 (0.13, 2.79)	0.765	-
Swab (negative for SARS-CoV-2)	41:705 (5.5%)	9:304 (2.9%)	0.51 (0.22, 1.08)	0.080	-
Swab (positive for SARS-CoV-2)	86:660 (11.5%)	15:298 (4.8%)	0.39 (0.20, 0.69)	<0.001	*
<i>Pre-op surgery</i>					
CT thorax scan (negative for SARS-CoV-2)	0:746 (0%)	0:313 (0%)	-	0.999	-
CT thorax scan (positive for SARS-CoV-2)	4:742 (0.5%)	0:313 (0%)	0.00 (0.00, 3.61)	0.326	-
Swab (negative for SARS-CoV-2)	13:733 (1.7%)	2:311 (0.6%)	0.36 (0.04, 1.62)	0.254	-
Swab (positive for SARS-CoV-2)	18:728 (2.4%)	7:306 (2.2%)	0.93 (0.32, 2.35)	1	-
<i>Post-op Admission</i>					
CT thorax scan (negative for SARS-CoV-2)	4:742 (0.5%)	1:312 (0.3%)	0.60 (0.01, 6.04)	0.999	-
CT thorax scan (positive for SARS-CoV-2)	8:738 (1.1%)	4:309 (1.3%)	1.19 (0.26, 4.50)	0.756	-
Swab (negative for SARS-CoV-2)	51:695 (6.8%)	12:301 (3.8%)	0.54 (0.26, 1.05)	0.064	-
Swab (positive for SARS-CoV-2)	317:429 (42.5%)	143:170 (45.7%)	1.14 (0.87, 1.50)	0.342	-
<i>Discharge 30days</i>					
CT thorax scan (negative for SARS-CoV-2)	4:742 (0.5%)	0:313 (0%)	0.00 (0.00, 3.61)	0.326	-
CT thorax scan (positive for SARS-CoV-2)	0:746 (0%)	1:312 (0.3%)	-	-	-
Swab (negative for SARS-CoV-2)	8:738 (1.1%)	0:313 (0%)	0.00 (0.00, 1.39)	0.114	-
Swab (positive for SARS-CoV-2)	75:671 (10.1%)	27:286 (8.6%)	0.85 (0.51, 1.36)	0.496	-
<i>Diagnosis</i>					
Positive SARS-CoV-2 swab - before surgery	122:624 (16.4%)	31:282 (9.9%)	0.56 (0.36, 0.86)	0.007	*
Positive SARS-CoV-2 swab - after surgery	409:337 (54.8%)	177:136 (56.5%)	1.07 (0.82, 1.41)	0.636	-

CT scan of the chest confirming SARS-CoV-2 - before surgery	20:726 (2.7%)	2:311 (0.6%)	0.23 (0.03, 0.97)	0.033	*
CT scan of the chest confirming SARS-CoV-2 - after surgery	9:737 (1.2%)	5:308 (1.6%)	1.33 (0.35, 4.46)	0.569	-
Clinical diagnosis or chest x-ray - suspected before time of surgery	39:707 (5.2%)	12:301 (3.8%)	0.72 (0.34, 1.43)	0.432	-
Clinical diagnosis or chest x-ray - suspected after time of surgery	67:679 (9%)	31:282 (9.9%)	1.11 (0.69, 1.77)	0.643	-

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Table S4. SARS-CoV-2 symptoms data summaries by died (n = 313) and alive (n =746) groups. Data tabulated are counts, with estimated odds ratios (OR), with 95% confidence intervals, and p-values from Fisher's exact tests for each symptom.

Symptom	Alive (n = 746) Y:N (%Y)	Died (n = 313) Y:N (%Y)	OR (95% CI)	p-value	
Abdominal pain	11:735 (1.5%)	1:312 (0.3%)	0.21 (0.01, 1.49)	0.124	-
Breathlessness (dyspnoea)	54:692 (7.2%)	31:282 (9.9%)	1.41 (0.86, 2.28)	0.172	-
Cough	73:673 (9.8%)	35:278 (11.2%)	1.16 (0.73, 1.81)	0.505	-
Diarrhoea	8:738 (1.1%)	1:312 (0.3%)	0.30 (0.01, 2.22)	0.295	-
Fatigue	21:725 (2.8%)	10:303 (3.2%)	1.14 (0.47, 2.56)	0.695	-
Fever (>38 celsius)	61:685 (8.2%)	25:288 (8%)	0.98 (0.57, 1.61)	0.999	-
Haemoptysis	0:746 (0.0%)	0:313 (0.0%)	-	-	-
Myalgia	10:736 (1.3%)	3:310 (1%)	0.71 (0.13, 2.79)	0.765	-
Nausea/vomiting	13:733 (1.7%)	7:306 (2.2%)	1.29 (0.43, 3.52)	0.623	-
Sputum	8:738 (1.1%)	4:309 (1.3%)	1.19 (0.26, 4.50)	0.756	-
Other	311:435 (41.7%)	136:177 (43.5%)	1.08 (0.82, 1.42)	0.633	-

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Table S5. Pre-surgery measures data (n, mean and sd) for the full study population (n = 1063), and died (n = 313) and alive (n =746) groups, and the difference in means between groups, with 95% confidence interval, and p-values from unpaired t-tests.

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Measure	Full (n = 1063)		Alive (n = 746)		Died (n = 313)		Difference (95%CI)	p-value
	n	Mean (SD)	n	Mean (SD)	n	Mean (SD)		
Respiratory rate (breaths/minute)	996	17.75 (3.52)	706	17.65 (3.68)	289	18.02 (3.09)	-0.37 (-0.85, 0.11)	0.132
Heart rate (bpm)	1022	81.10 (14.63)	723	81.16 (14.59)	298	80.95 (14.77)	0.22 (-1.76, 2.20)	0.830
Systolic blood pressure (mmHg)	1023	138.15 (26.04)	724	138.33 (25.85)	298	137.61 (26.53)	0.72 (-2.80, 4.24)	0.687
Diastolic blood pressure (mmHg)	1021	72.97 (13.89)	723	73.07 (13.86)	297	72.70 (14.00)	0.37 (-1.52, 2.25)	0.703
Haemoglobin (g/L)	1062	117.94 (19.22)	745	118.35 (19.21)	313	116.93 (19.26)	1.41 (-1.13, 3.95)	0.276
White cell count (10 ⁹ /L)	1060	10.33 (4.26)	744	10.33 (4.36)	313	10.34 (4.04)	-0.01 (-0.57, 0.56)	0.976
C-reactive protein (mg/L)	738	54.70 (66.26)	514	54.84 (67.68)	221	54.63 (63.34)	0.21 (-10.28, 10.70)	0.969

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Table S6. Operation details for the full study population (n = 1063), and died (n = 313) and alive (n = 746) groups; p-values are for Fisher's exact tests comparing groups for each characteristic.

Characteristic	Full (n = 1063)	Alive (n = 746)	Died (n = 313)	Died (%)
<i>Anaesthesia (p-value = 0.787)</i>				
General	527 (49.6%)	368	157	29.9
Regional	524 (49.3%)	372	152	29.0
Missing	12 (27.8%)	6	4	33.3
<i>Pre-op respiration (p-value = 0.031 *)</i>				
None	714 (67.2%)	520	194	27.2
Oxygen	336 (31.6%)	220	115	34.3
Ventilated	2 (0.2%)	2	0	0.0
Missing	11(1.03%)	4	4	36.4
<i>Pre-op delay (p-value = 0.220)</i>				

< 6 hours	16 (1.5%)	11	5	31.2
6-23 hours	322 (30.3%)	232	88	27.5
24-47 hours	224 (21.1%)	147	77	34.4
48-71 hours	82 (7.7%)	61	21	25.6
72+ hours	123 (11.6%)	94	29	23.6
Missing	296 (27.8%)	201	93	31.4
<i>Procedure (p-value = 0.015 *)</i>				
LIMB - lower limb - total hip replacement	45 (4.2%)	41	4	8.9
LIMB - lower limb fracture - Cannulated Screws	5 (0.5%)	5	0	0.0
LIMB - lower limb fracture - Reduction and Internal Fixation	15 (1.4%)	10	5	33.3
LIMB - lower limb fracture - Dynamic Hip Screw	276 (26%)	195	81	29.3
LIMB - lower limb fracture - Reduction and Intramedullary Fixation	243 (22.9%)	169	73	30.2
LIMB - lower limb fracture - Partial Hip Replacement (Hemiarthroplasty)	479 (45.1%)	326	150	31.5
Missing	0 (0.0%)	0	0	0.0

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Figure S1. Boxplots showing distributions of pre-surgery measures by outcome status (died or alive). Boxes show interquartile range (IQR), bars medians and whiskers are 1.5 times IQR.

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