Table 1: Baseline characteristics of patients with and without documented incontinence.

	Documented incontinence N=320 n (%)	**No documented incontinence N=2,057 n (%)**	**p value**
Age (years)			
<40	1 (0.3)	37 (1.8)	<0.001
40–49	7 (2.2)	73 (3.6)	
50–59	17 (5.3)	201 (9.8)	
60–69	36 (11.3)	365 (17.7)	
70–79	77 (24.1)	504 (24.5)	
80–89	117 (36.7)	636 (30.9)	
≥90	64 (20.1)	241 (11.7)	
Sex (male)	155 (48.4)	1,062 (51.6)	0.29
Ethnicity			
NZ European	258 (80.6)	1,563 (76.0)	0.35
Māori	27 (8.4)	246 (12.0)	
Pacific peoples	14 (4.4)	100 (4.9)	
Asian	13 (4.1)	102 (5.0)	
Other	8 (2.5)	46 (2.2)	
Type of stroke			
ICH	69 (21.6)	222 (11.0)	<0.001
Ischaemic	251 (78.4)	1,801 (89.0)	
Stroke severity (SSV)			
3 (least severe)	18 (5.6)	793 (38.6)	<0.001
2	78 (24.4)	496 (24.1)	
1	108 (33.8)	368 (17.9)	
0 (most severe)	116 (36.3)	399 (19.4)	
Independent pre-stroke (mRS 0–2)*	235 (74.1)	1,805 (88.7)	<0.001
Living situation pre-stroke (at home)*	275 (85.9)	1,897 (92.3)	0.001
Employed pre-stroke*	30 (9.4)	435 (21.3)	<0.001
Comorbidities			
Hypertension*	258 (81.1)	1,437 (70.3)	<0.001
Diabetes*	98 (30.9)	473 (23.2)	0.003
Dyslipidaemia*	114 (36.0)	884 (43.6)	0.01
Atrial fibrillation*	134 (42.1)	673 (33.1)	0.002
Smoking*	31 (7.8)	256 (12.6)	0.15
Prior stroke*	93 (29.3)	422 (20.7)	0.001
Urban hospital	209 (65.3)	1,220 (59.1)	0.04
Length of hospital stay (days) median (IQR)	19.3 (8.1 to 34.4)	5.1 (2.4 to 14.2)	<0.0001

Notes: *Missing values: stroke severity N=1; independent pre-stroke N=25 (documented incontinence N=3); living situation N=1; employed N=17 (documented incontinence N=2); hypertension N=14 (documented incontinence N=2); diabetes N=19 (documented incontinence N=3); dyslipidaemia N=34 (documented incontinence N=3); atrial fibrillation N=22 (documented incontinence N=2); smoking N=29 (documented incontinence N=3); prior stroke N=22 (documented incontinence N=2).
Abbreviations: SSV = six simple variable model; ICH = intracerebral haemorrhage.

Table 2: Prevalence of documented incontinence and related variables in the total stroke cohort.

	n/N (%)	95% CI
Documented incontinence	320/2,377 (13.5)	12.1 to 14.9
Documented continence plan*	221/309 (71.5)	66.1 to 76.5
Indwelling catheter (IDC)		
Reason for IDC**	217/2,377 (9.1)	8.0 to 10.4
Urinary retention	25/196 (12.8)	8.4 to 18.3
Pre-existing catheter	78/196 (39.8)	32.9 to 47.0
Urinary incontinence	34/196 (17.3)	12.3 to 23.4
Need for accurate fluid balance monitoring	23/196 (11.7)	7.6 to 17.1
Critical skin care	6/196 (3.1)	1.1 to 6.5
No reason documented	30/196 (15.3)	10.6 to 21.1
Urinary tract infection	102/2,377 (4.3)	3.5 to 5.2
Constipation	171/2,377 (7.2)	6.2 to 8.3

Notes: * Missing: N=11; ** Missing: N=21.

Table 3: Odds ratio for documented incontinence compared to NZ European ethnicity.

Ethnicity	Documented incontinence n/N (%)	OR (95% CI)	
		Univariate	Multivariate
NZ European	258/1,821 (14.2)	Reference	Reference
Māori	27/246 (9.9)	0.75 (0.79–1.14)	0.74 (0.47–1.18)
Pacific peoples	14/114 (12.3)	0.85 (0.48–1.51)	0.97 (0.53–1.80)
Asian	13/115 (11.3)	0.77 (0.43–1.40)	0.84 (0.45–1.56)
Other	8/54 (14.8)	1.05 (0.49–2.26)	1.15 (0.52–2.54)

Table 4: Association of documented incontinence with death or discharge to residential care and time.

	n/N (%)		OR (95% CI)	
	Documented incontinence	**No documented incontinence**	**Univariate**	**Multivariate***
At discharge Deceased or living in residential care	170/320 (53.1)	442/2,057 (21.5)	4.14 (3.25–5.28) P<0.001	2.17 (1.62–2.91) P<0.001
3 months Deceased or living in residential care	155/241 (64.3)	448/1,597 (28.1)	4.62 (3.48–6.15) P<0.001	2.50 (1.76–3.55) P<0.001
6 months Deceased or living in residential care	127/185 (68.7)	421/1,231 (34.2)	4.21 (3.02–5.87) P<0.001	2.00 (1.34–3.00) P=0.001
12 months Deceased or living in residential care	136/187 (72.7)	440/1,224 (36.0)	4.75 (3.37–6.69) P<0.001	2.47 (1.64–3.74) P<0.001

Notes: *Adjusted for age, sex, ethnicity, stroke severity using SSV model.

Table 5: Residential care status in relation to documented incontinence and disability at discharge in those discharged alive.

Documented incontinence		**OR (95% CI) for residential care**	**P**
Moderate or severe disability (mRS 4 or 5)			
Residential care	Community		
93/247 (37.7%)	57/159 (35.8%)	1.08 (0.71–1.64)	0.71
No, no significant, or slight disability (mRS 0–3)			
Residential care	Community		
25/113 (22.1%)	92/1,590 (5.8%)	4.63 (2.83–7.56)	<0.001