

Supplementary Material

Cost-effectiveness of the Victorian Stroke Telemedicine program

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Online supplement

Table I. List of hospital Human Research Ethics Committees which have provided approval for collection of VST program data

HREC Name	NEAF AU/1/5FC418 (3/10/13) NEAF AU/1/B3B6115 (7/2/14) NEAF AU/1/E77B110 (3/11/14) SSA Number HREC Approval Number
Bendigo Health Care Group HREC	<ul style="list-style-type: none"> • Bendigo SSA Number SSA/13/BCHG35 Approval HREC/13/B/BHCG/31 • Echuca SSA Number SSA/13/BHCG/32 Approval HREC/13/B/BHCG/31 • Swan Hill SSA Number SSA/13/BHCG35 Approval HREC/13/B/BHCG/31
Mildura Base Hospital HREC	SSA not required Approval number 20131001 Amendments pending (no meeting since October 2015)
Albury/Wodonga HREC (covers Albury Hospital, Wodonga Hospital)	SSA not required Approval 394-14-3
Goulburn Valley (Shepparton) HREC	SSA GVH08/14 Approval GVH 08/14
Northeast Health Wangaratta HREC	SSA AU/5/9E97112 Approval 137
La Trobe Regional Hospital (LRH) HREC	<ul style="list-style-type: none"> • La Trobe AU/5/3D69119 Approval 2014-23 • Central Gippsland Hospital (Sale) AU/5/C3FB19 Approval 2014-23 (amendment of additional site to the LRH application) • Bass Coast Health (Wonthaggi) SSA not required Accepted authorised HREC approvals (provided Latrobe HREC) on 08/06/2016
Ballarat Hospital	SSA14/BHSSJOG/47 Approval HREC/14/BHSSJOG/47
West Gippsland Hospital (Warragul)	AU/5/47BB111 No approval number (approval date 10/12/2014)
Bairnsdale Regional Health Service	AU/5/81DE18 Approval 2014-23 (amendment of additional site to the LRH application)
Wimmera Health Care Group	AU/5/81DE18 Approval CRC Ref No 15/6
Western District Health Service (Hamilton Base Hospital)	SSA not required Approval 14/2015
Southwest Healthcare (Warrnambool)	SSA not required Project number 04/2016; Approval date 06 June 2016

Table II. Unit prices used to value resource utilisation

	Price (\$AU)	Source used: Accessed 2021.
Acute data collection		
Ambulance arrival	800	Ambulance Victoria fee schedule; available from: https://www2.health.vic.gov.au/hospitals-and-health-services/patient-care/ambulance-and-nept/ambulance-fees
Emergency department stay	716	Australian Public Hospitals Cost Report 2013-2014 Round 18; Appendix 16. NHCDC Round 17 and 18 Emergency Department by Urgency Related Group URG VERSION 1.3, Round 18 (2013-14); available from: https://www.ihipa.gov.au/publications/australian-public-hospitals-cost-report-2013-2014-round-18
Inpatient hospital stay	4666 - 58,345*	2018-19 National Efficient Price Determination, table 10 AR-DRG V9.0; available from: https://www.ihipa.gov.au/publications/national-efficient-price-determination-2018-19
Provision of thrombolysis	3812	from the Victorian Stroke Telemedicine program investigators
Transfer to another hospital	2093 each way	https://www2.health.vic.gov.au/hospitals-and-health-services/patient-care/ambulance-and-nept/ambulance-fees ; Ambulance Victoria transports data 2017-2018
Hospital stay at second hospital	5685 - 27537	2018-19 National Efficient Price Determination, table 10 AR-DRG V9.0; available from: https://www.ihipa.gov.au/publications/national-efficient-price-determination-2018-19
Rehabilitation	15222 - 58,112	AN-SNAP classification Version 4.0 Final Report, table 25 ANSNAP; available from: https://www.ihipa.gov.au/what-we-do/subacute-and-non-acute-care
Palliation	20535	Infographic - Subacute; available from: https://www.ihipa.gov.au/publications/national-hospital-cost-data-collection-report-public-sector-round-21-financial-year#targetText=National%20Hospital%20Cost%20Data%20Collection,IHPA
Telemedicine implementation (total cost)	1,762,892 *	from the Victorian Stroke Telemedicine program investigators
Follow-up data collection		
Accommodation per day		
Hospital	2211	National Hospital Cost Data Collection Report 2016-2017, Round 21, table 24; available from: https://www.ihipa.gov.au/publications/national-hospital-cost-data-collection-report-public-sector-round-21-financial-year#targetText=National%20Hospital%20Cost%20Data%20Collection,IHPA
Rehabilitation	1148	National Hospital Cost Data Collection Report 2016-2017, Round 21; available from: https://www.ihipa.gov.au/publications/national-hospital-cost-data-collection-report-public-sector-round-21-financial-year#targetText=National%20Hospital%20Cost%20Data%20Collection,IHPA

		year#targetText=National%20Hospital%20Cost%20Data%20Collection,IHPA
Hostel and nursing home	272	2019 Report on the funding and financing of the aged care sector; available from: https://www.gen-agedcaredata.gov.au/Resources/Reports-and-publications/2019/July/2019-Report-on-the-Funding-and-Financing-of-the-Aged-Care-Sector
Transitional care service	272	2019 Report on the funding and financing of the aged care sector; available from: https://www.gen-agedcaredata.gov.au/Resources/Reports-and-publications/2019/July/2019-Report-on-the-Funding-and-Financing-of-the-Aged-Care-Sector
Readmissions	5171 - 29430	2018-19 National Efficient Price Determination, table 10 AR-DRG V9.0; available from: https://www.ihsa.gov.au/publications/national-efficient-price-determination-2018-19
Rehabilitation services (per session)	20 - 196	http://www9.health.gov.au/mbs/search.cfm and Farag I, Sherrington C, Ferreira M, Howard K. A systematic review of the unit costs of allied health and community services used by older people in Australia. BMC Health Services Research. 2013;13:69. doi: 10.1186/1472-6963-13-69.
Home modifications	20 - 15000	Out-of-pocket costs reported by participants
Special aids and equipment	15 - 8000	Out-of-pocket costs reported by participants
Secondary prevention medications (per 30 day script)	13 - 88	Various on the Pharmaceutical Benefits Scheme; available from: https://www.pbs.gov.au/browse/medicine-listing
Informal care	23 per hour	Fair Work Commission 2019; available from: https://www.fwc.gov.au/documents/documents/modern_awards/award/ma000018/default.htm
Changes in workforce participation	46 per hour	Australian Bureau of Statistics, 6306.0 2018; available from: https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6306.0May%202018?OpenDocument

Table III. Follow-up completion by study period				
	3 month N=423		12 month N=601	
	Control	Intervention	Control	Intervention
Ineligible	N=92	N=168	N=128	N=202
Died in hospital	72	69	72	69
Deaths notified at 3 month follow-up	9	46*	9	48*
Opt outs at 3 month follow-up	11	53	11	53
Deaths notified at 12 month follow-up	-	-	12	16
Opt outs at 12 month follow-up	-	-	24	16
Eligible	N=311	N=433	N=295	N=399
Completed	26	334	107	300
Lost to follow-up	9	29	8	27
Refused	0	1	0	2
Not possible due to delays with acute data collection	296	69	180	70

* This discrepancy relates to two people for whom we had a completed questionnaire and a death notification at 3 months follow-up.

Table IV. Generalisability of 3 month follow-up data

	Control			Intervention		
	Completed follow-up if eligible		p-value	Completed follow-up if eligible		p-value
	No	Yes		No	Yes	
	N=305	N=26		N=99	N=334	
	n (%)	n (%)		n (%)	n (%)	
Age Group (years)			0.001			0.148
<65	85 (28)	9 (35)		28 (28)	83 (25)	
65-74	69 (23)	14 (54)		18 (18)	95 (28)	
75-84	98 (32)	3 (12)		34 (34)	112 (34)	
85+	53 (17)	0 (0)		19 (19)	44 (13)	
Male	160 (52)	21 (81)	0.005	60 (61)	197 (59)	0.773
Modified Rankin Scale pre-stroke			0.452			0.104
0 no symptoms at all	166 (54)	15 (58)		59 (60)	239 (72)	
1 no significant disability despite symptoms	48 (16)	4 (15)		10 (10)	31 (9)	
2 slight disability	22 (7)	3 (12)		9 (9)	20 (6)	
3 moderate disability	27 (9)	0 (0)		11 (11)	21 (6)	
4 moderately severe disability	2 (1)	1 (4)		7 (7)	8 (2)	
5 severe disability	1 (0)	0 (0)		0 (0)	1 (0)	
Unknown	39 (13)	3 (12)		3 (3)	14 (4)	
Able to walk on arrival*	106 (35)	14 (54)	0.052	32 (32)	104 (31)	0.823
Final diagnosis			0.985			0.161
Ischaemic	261 (86)	22 (85)		83 (84)	301 (90)	
Haemorrhagic	34 (11)	3 (12)		11 (11)	28 (8)	
Transient ischaemic attack	1 (0)	0 (0)		1 (1)	1 (0)	
Undetermined	9 (3)	1 (4)		4 (4)	4 (1)	
Admitted to hospital	270 (89)	23 (88)	0.919	79 (81)	273 (82)	0.673
Provided thrombolysis	79 (26)	7 (27)	0.909	28 (28)	116 (35)	0.232

*proxy measure for stroke severity

Table V. Generalisability of 12 month follow-up data

	Control			Intervention		
	Completed follow-up if eligible		p-value	Completed follow-up if eligible		p-value
	No	Yes		No	Yes	
	N=188	N=107		N=99	N=300	
	n (%)	n (%)		n (%)	n (%)	
Age Group (years)			0.072			0.044
<65	54 (29)	28 (26)		28 (28)	79 (26)	
65-74	41 (22)	36 (34)		21 (21)	89 (30)	
75-84	60 (32)	33 (31)		29 (29)	99 (33)	
85+	33 (18)	10 (9)		21 (21)	33 (11)	
Male	95 (51)	66 (62)	0.064	42 (42)	121 (40)	0.714
Modified Rankin Scale pre-stroke			0.013			0.019
0 no symptoms at all	101 (54)	64 (60)		57 (58)	224 (75)	
1 no significant disability despite symptoms	34 (18)	10 (9)		11 (11)	28 (9)	
2 slight disability	10 (5)	10 (9)		9 (9)	16 (5)	
3 moderate disability	22 (12)	3 (3)		13 (13)	14 (5)	
4 moderately severe disability	1 (1)	2 (2)		5 (5)	7 (2)	
5 severe disability	1 (1)	0 (0)		0 (0)	1 (0)	
Unknown	19 (10)	18 (17)		4 (4)	10 (3)	
Able to walk on arrival*	63 (34)	43 (40)	0.251	27 (27)	101 (34)	0.237
Final diagnosis			0.119			0.124
Ischaemic	153 (81)	98 (92)		81 (82)	270 (90)	
Haemorrhagic	28 (15)	7 (7)		13 (13)	25 (8)	
Transient ischaemic attack	1 (1)	0 (0)		1 (1)	1 (0)	
Undetermined	6 (3)	2 (2)		4 (4)	4 (1)	
Admitted to hospital	162 (87)	97 (91)	0.305	75 (77)	250 (84)	0.086
Provided thrombolysis	50 (27)	28 (26)	0.936	32 (32)	101 (34)	0.806

*proxy measure for stroke severity

Table VI. Generalisability of 3 month outcome data

	Control			Intervention		
	Outcome data		p-value	Outcome data		p-value
	No	Yes		No	Yes	
	N=316	N=107		N=152	N=449	
	n (%)	n (%)		n (%)	n (%)	
Age Group (years)			0.034			0.812
<65	86 (27)	17 (16)		36 (24)	92 (20)	
65-74	69 (22)	33 (31)		34 (22)	112 (25)	
75-84	103 (33)	31 (29)		50 (33)	154 (34)	
85+	58 (18)	26 (24)		32 (21)	91 (20)	
Male	166 (53)	54 (50)	0.712	92 (61)	254 (57)	0.394
Modified Rankin Scale pre-stroke			0.001			0.312
0 no symptoms at all	174 (55)	44 (41)		89 (59)	286 (64)	
1 no significant disability despite symptoms	50 (16)	13 (12)		21 (14)	44 (10)	
2 slight disability	23 (7)	14 (13)		13 (9)	32 (7)	
3 moderate disability	27 (9)	10 (9)		16 (11)	38 (8)	
4 moderately severe disability	2 (1)	6 (6)		8 (5)	16 (4)	
5 severe disability	1 (0)	3 (3)		0 (0)	3 (1)	
Unknown	39 (12)	17 (16)		5 (3)	30 (7)	
Able to walk on arrival*	112 (35)	21 (20)	0.002	48 (32)	110 (24)	0.087
Final diagnosis			0.069			0.098
Ischaemic	270 (85)	81 (76)		129 (85)	374 (83)	
Haemorrhagic	36 (11)	23 (21)		16 (11)	68 (15)	
Transient ischaemic attack	1 (0)	0 (0)		1 (1)	1 (0)	
Undetermined	9 (3)	3 (3)		6 (4)	6 (1)	
Admitted to hospital	281 (89)	100 (94)	0.137	120 (79)	368 (83)	0.374
Provided thrombolysis	82 (26)	28 (26)	0.964	49 (32)	136 (30)	0.653

No outcome data considered to be those who were opt out, lost to follow up, refused follow up, follow-up not attempted due to delays with acute data collection (as shown in online supplement Table I)

*proxy measure for stroke severity

Table VII. Generalisability of 12 month outcome data

	Control			Intervention		
	Outcome data		p-value	Outcome data		p-value
	No	Yes		No	Yes	
	N=223	N=200		N=168	N=433	
	n (%)	n (%)		n (%)	n (%)	
Age Group (years)			0.036			0.652
<65	66 (30)	37 (19)		40 (24)	88 (20)	
65-74	45 (20)	57 (29)		38 (23)	108 (25)	
75-84	69 (31)	65 (33)		53 (32)	151 (35)	
85+	43 (19)	41 (21)		37 (22)	86 (20)	
Male	113 (51)	107 (54)	0.561	97 (58)	249 (58)	0.959
Modified Rankin Scale pre-stroke			0.003			0.254
0 no symptoms at all	121 (54)	97 (49)		96 (57)	279 (64)	
1 no significant disability despite symptoms	41 (18)	22 (11)		23 (14)	42 (10)	
2 slight disability	14 (6)	23 (12)		16 (10)	29 (7)	
3 moderate disability	23 (10)	14 (7)		19 (11)	35 (8)	
4 moderately severe disability	1 (0)	7 (4)		7 (4)	17 (4)	
5 severe disability	1 (0)	3 (2)		0 (0)	3 (1)	
Unknown	22 (10)	34 (17)		7 (4)	28 (6)	
Able to walk on arrival*	81 (36)	52 (26)	0.022	49 (29)	109 (25)	0.318
Final diagnosis			0.597			0.157
Ischaemic	183 (82)	168 (84)		143 (85)	360 (83)	
Haemorrhagic	31 (14)	28 (14)		18 (11)	66 (15)	
Transient ischaemic attack	1 (0)	0 (0)		1 (1)	1 (0)	
Undetermined	8 (4)	4 (2)		6 (4)	6 (1)	
Admitted to hospital	196 (88)	185 (93)	0.070	129 (77)	359 (84)	0.067
Provided thrombolysis	58 (26)	52 (26)	0.988	59 (35)	126 (29)	0.151

No outcome data considered to be those who opted out, were lost to follow up, refused follow up, or follow-up not attempted due to delays with acute data collection (as shown in online supplement Table I)

*proxy measure for stroke severity

Acknowledgements

Steering Committee:

Geoffrey Donnan (Chair), Christopher Bladin, Dominique Cadilhac, Peter Hand, Helen Dewey, Mark Parsons, Mark Savage, John Britten, Glenn Howlett, Dane Huxley, Kevin Masci, David Ryan, Erin Lalor, Bruce Winzar, Nicola Reinders, Joel Deane, Elise Davies, Tom Niederle, George Braitberg, Geraldine McDonald, Adam Horsburgh, Fiona Webster, Janet Chapman, Marc Budge, Greg Blakely

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Information Technology

Christopher Bladin (Chair), Tiffany Waugh, Roger Coleman-Bock, Patrick Testa, Terry Atkinson, Terry Mounsey, Brent Colbert, Greg Orr, Luke Maskell, Tom Niderle, Nigel Phipps, Chris Reeve, Mark Atkin, Neil Irving-Dusting, John Miller, Andres Haas, Mathew Oakley, Adrian Shearer

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Christopher Bladin (Chair), Tom Niederle, Bruce Winzar, Karin Sitte, Mick Petrovski, Jennifer Jones, Nigel Phipps

Communication & Education,

Dominique Cadilhac (Chair), Christopher Bladin, Amanda Place, Mary Orgill, Kelvin Hill, Kevin Masci, Liz Morley, Jo Cottrell, Lauren Arthurson, Sonia Denisenko, Patrick Groot, Loretta Gibson, Travey Urbanavicius, Sarah McAdie, Janine Murnane, Kirsty Cole, Angie Spencer

Financial Sustainability

Paul Talman (Chair), Dominique Cadilhac, Christopher Bladin, Karin Sitte, Sonia Denisenko, Elise Davies, Margaret Bennett, Geraldine McDonald, Victoria Wade, Marj Moodie, Jackie Plunkett, Paulette Kelly, Denise Ferrier, Peter Hand, John Zelcer, Alex Hurley, Tanya Sowards, Lauren Sheppard

VST Neurologists: Christopher Bladin, Bruce Campbell, Ben Clissold, Helen Dewey, Richard Gerraty, Amanda Gilligan, Peter Hand, Matt Lee-Archer, Chris Levi, Matthew Ligtermoet, Poh-Sien Loh, Tom Oxley, Ed Rodrigues, Marion Simpson, Vincent Thijs, Hans Tu, Teddy Wu, Nawaf Yassi, Philip Choi, Jorge Zavala

Site co-ordinators: Sharan Ermel, Jo Cottrell, Lisa Peters, Lauren Arthurson, Maria Fox, Emma Marino, Justin Rabl, Trudi Hill, Anne van Berkel, Casey Hair, Mick O'Shea, Janette McCabe, Catharina de Muelenaere, Lisa Howard, Julie Stevens, Ashley Murray, Patrick Groot, Janet May, Chris Burns, Tessa Coupland.

Hospitals: Bendigo Health, Echuca Regional Health, Mildura Base Hospital, Swan Hill District Health, Goulburn Valley Hospital, Northeast Health Wangaratta, Albury Wodonga Health, Wimmera Health Care Group, Latrobe Regional Hospital, Central Gippsland Health Service, Bairnsdale Regional Health, Ballarat Health Services, West Gippsland Healthcare Group, South West Healthcare, Bass Coast Health, Western District Health Service.

VST program Staff: Michelle Vu, Kathleen Bagot, Joosup Kim, Sally Berger, Nancy Pompeani, Karen Biddiscombe, Connor McGuinness, Shaun Hancock, Gary Eaton, Jorge Silveira, Grant Stephens, Sonia Denisenko, Chris Price, Natasha Moloczij, Emma Tod

Australian Stroke Clinical Registry: Brenda Grabsch, Francis Kung, Sibilah Breen, Sam Shehata, Kasey Wallis, Julie Morrison, Kate Paice.

Deakin University: Lauren Sheppard, Marj Moodie, Lan Gao, Elise Tan

Research support and data analysis: Ian Mosley, Leonid Churilov, Monique Kilkenny, Atte Meretoja, Garveeta Sookram

Ambulance Victoria: Karen Smith, Stephen Bernard, Dearne Stewart, Grant Hocking