

# 2023 NEHS Annual Meeting Abstract Submission

COMPLETE

NEHS Vice President, Daniel Mastella, M.D., is currently accepting abstract submissions for presentation at our Annual Meeting on December 1, 2023.

This meeting will be held at the Sturbridge Host Hotel in Sturbridge, MA.

Therapists, NPs, and PAs are also encouraged to submit.

THE DEADLINE FOR SUBMISSION IS OCTOBER 15, 2023

RESIDENTS AND FELLOWS ONLY. Please indicate if you want your paper to be considered for the prestigious H.Kirk Watson, M.D. Founder's Award. The abstracts for award consideration will be presented in the morning and the award will be presented in the afternoon.

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## \* ABSTRACT TITLE

Potential of Same-Day Discharge following Targeted Muscle Reinnervation for Treatment of Neuropathic Pain in Amputees

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**\* Name of who will present abstract at NEHS meeting on December 1, 2023 Please note that the same person cannot present more than one abstract at the meeting.**

Karan Amin

## \* Please indicate if the presenter is:

Not currently a resident or fellow

**\* List full names of abstract authors Please note - one of the lead authors must be present at the meeting to answer questions about the paper.**

Floris V. Raasveld, Daniel T. Weigel, Stephen Stearns, Eva van Vliet, Jenna Daddario, David Hao, Kyle R. Eberlin, Ian L. Valerio

**\* ABSTRACT - should include background information and a description of methods, programs, or practices.**

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Introduction: Traditionally, patients undergoing surgery for neuropathic pain are often admitted for post-operative pain control. With inpatient hospital capacity restrictions during and after the Coronavirus (COVID-19) pandemic, there has been increasing priority on performing outpatient surgery without the need for hospital admission. Therefore, we aim to analyze the early post-operative trajectory of patients who underwent same-day discharge (SDD) following Secondary targeted muscle reinnervation (TMR) surgery for symptomatic neuroma.

Methods: A cross-sectional survey was conducted for patients who underwent Secondary TMR with SDD and discharged to a hotel (group 1) or home (group 2). The survey consisted of questionnaires on global physical and mental health, health-related quality of life, improvement of change following surgery, and satisfaction regarding SDD policy. Additionally, a chart review of patient factors was conducted, and the data were summarized.

Results: Of the 21 patients who were contacted after SDD following Secondary TMR, 15 patients completed the survey. Patients had a mean age of 55.2 years old ( $\pm 18.9$ ) and low comorbidity scores (mean Elixhauser Index=1.5 ( $\pm 1.8$ )) (Table 1). All patients were satisfied with the overall care they received but one patient would not under surgery in this setting again (Table 2) and reported improvement following TMR surgery (Table 3).

Conclusion: Outpatient surgery is a feasible option for patients undergoing Secondary TMR, with high patient satisfaction and sufficient overall outcomes on mental and physical wellbeing, although patient selection is fundamental (Figure 1). With increasing capacity issues at many tertiary hospitals, we believe this option may have the potential to decrease hospitalization following Secondary TMR surgery.

**Please attach files with diagrams and/or photos to support your abstract (10 MB limit)**

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**\* Please attach the abstract presenter's CV**

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**Table 1. Demographics, surgery and comorbidity characteristics**

A) Demographics and surgery characteristics												
Group	Patient	Sex	Age at surgery (y)	Amputation-to-TMR-interval (y)	Follow-up (m)	Limb side	Level of amputation	Indication of amputation	Post-operative complications	Revision Surgery	Intra-op ON-Q pump	
<b>1</b>	1	M	48.9	18.0	31.5	R	Transtibial	Trauma	No	No	Yes	
	2	M	53.9	32.7	22.9	R	Transmetacarpal	Trauma	No	No	Yes	
	3	M	72.4	11.1	29.4	L	Transtibial	Trauma	No	No	No	
	4	M	71.2	9.1	16.8	R	Transtibial	Trauma	No	No	Yes	
	5	F	36.8	20.3	15.9	R	Transfemoral	Malignancy	No	No	NA	
	6	M	61.6	21.6	17.7	R	Transtibial	Trauma	No	No	Yes	
Mean (± SD) / Count (%)			57.5 (±13.7)	18.8 (±8.4)	22.4 (±6.8)				0 (0.0)	0 (0.0)	4 (66.7)	
<b>2</b>	7	M	34.6	1.7	25.8	R	Transmetacarpal	Trauma	No	No	Yes	
	8	M	17.3	0.9	42.4	R	Transmetacarpal	Trauma	No	Deepening of webspace	Yes	
	9	M	65.7	40.0	66.8	R	Transfemoral	Trauma	No	No	Yes	
	10	F	33.8	9.5	1.0	R	Transtibial	Trauma	No	No	NA	
	11	F	45.2	13.6	9.9	R	Transfemoral	Trauma	No	No	Yes	
	12	M	58.6	7.1	17.9	L	Transmetatarsal	Trauma	No	No	No	
	13	F	86.7	4.2	4.8	L	Transfemoral	PVD	No	No	NA	
	14	M	74.1	2.0	57.2	R	Transfemoral	PVD	No	No	Yes	
	15	M	67	55.2	4.3	L	Transfemoral	Trauma	No	No	Yes	
Mean (± SD) / Count (%)			53.7 (±22.4)	14.9 (±19.4)	25.6 (±24.4)				0 (0.0)	1 (11.1)	6 (66.7)	
<b>Overall. Mean (± SD) / Count (%)</b>			<b>55.2 (±18.9)</b>	<b>16.5 (±15.6)</b>	<b>24.3 (±19.0)</b>				<b>0 (0.0)</b>	<b>1 (6.7)</b>	<b>10 (66.7)</b>	
B) Comorbidity characteristics												
Group	Patient	BMI	Elixhauser Index	Diabetes	Alcoholism, former	Smoking, former	Psychiatric Comorbidities	Opioids pre-op	Opioids post-op	Neuromodulators pre-op	Neuromodulators post-op	
<b>1</b>	1	24	0	No	No	No	No	Yes	Yes	No	No	
	2	24	3	No	No	No	Mild Depression	Yes	No	No	No	
	3	24	0	No	No	Former	No	Yes	No	Yes	Yes	
	4	33	1	Yes	No	No	Hx: Depressive disorder	Yes	Yes	Yes	Yes	
	5	29	1	No	No	No	No	Yes	No	Yes	No	
	6	31	1	No	No	No	No	No	No	No	No	
Mean (± SD) / Count (%)			29.2 (4.2)	1.0 (1.1)	1 (16.7)	0 (0.0)	1 (16.7)	2 (33.6)	5 (83.3)	2 (33.6)	3 (54.3)	2 (33.6)
<b>2</b>	7	27	1	No	No	No	No	Yes	Yes	No	No	
	8	26	2	No	Former	Former	Mild Anxiety	No	No	Yes	No	
	9	21	4	No	No	No	PTSD	Yes	Yes	Yes	No	
	10	23	0	No	No	No	No	Yes	No	Yes	Yes	
	11	33	3	No	No	No	No	No	No	No	No	
	12	22	0	No	No	Former	No	Yes	No	Yes	Yes	
	13	23	6	No	No	No	No	Yes	Yes	Yes	Yes	
	14	29	0	No	No	No	No	No	No	No	No	
	15	20	1	No	No	No	No	Yes	No	No	Yes	
Mean (± SD) / Count (%)			24.9 (±4.4)	1.9 (±2.1)	0 (0.0)	1 (11.1)	2 (22.2)	2 (22.2)	6 (66.6)	3 (33.3)	5 (55.5)	4 (44.4)
<b>Overall. Mean (± SD) / Count (%)</b>			<b>25.9 (±4.2)</b>	<b>1.5 (±1.8)</b>	<b>1 (6.7)</b>	<b>1 (6.7)</b>	<b>3 (20.0)</b>	<b>4 (26.7)</b>	<b>11 (73.3)</b>	<b>5 (33.3)</b>	<b>8 (53.3)</b>	<b>6 (40.0)</b>

Abbreviations: SD = standard deviation, (y) = years, (m) = months, BMI = Body Mass Index, pre-op= pre-operative, post-op = post-operative, PTSD = post-traumatic stress disorder, Hx = Medical history, NA=not applicable

**Table 2. Satisfaction with Same-Day-Surgery Questionnaire**

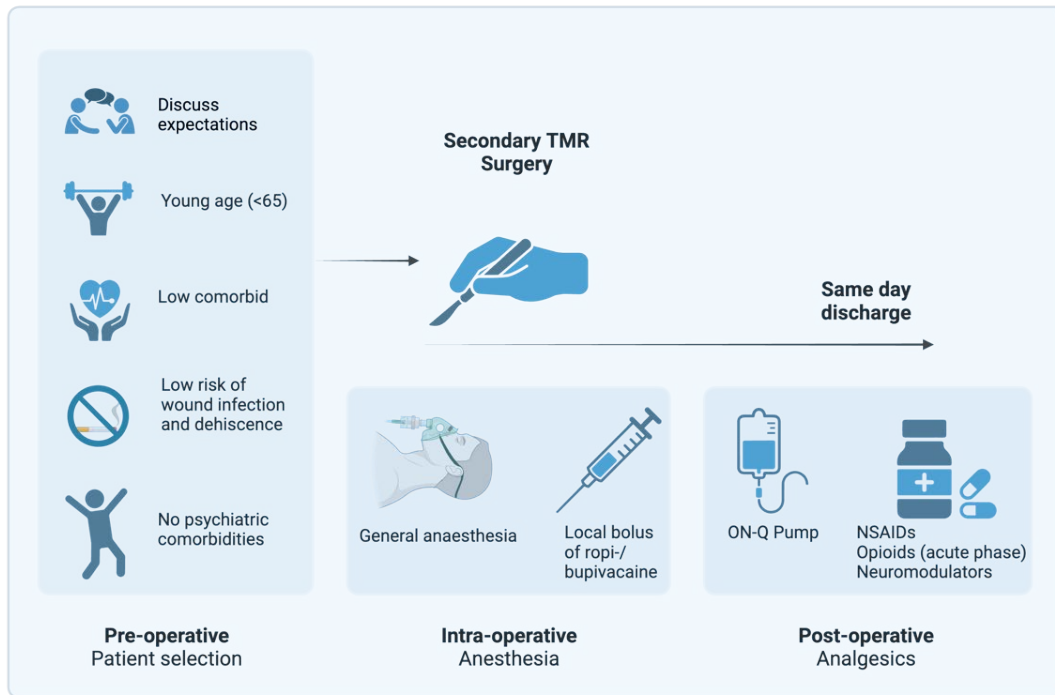
Group	Patient	Were you satisfied with the overall care you received?	Did you feel safe leaving the hospital the same day?	Did you feel comfortable during the first days after discharge?	Would you undergo similar surgery in same-day setting again?	How did you experience the overall care during your day surgery?	Do you have any recommendations for surgery in day-setting?	Since the TMR surgery, my overall pain is ... (PGIC)
<b>1</b>	1	very much	quite a bit	very much	Yes	Very good	Not that I can think of.	Very much improved
	2	very much	very much	very much	Yes	great, 10	No	Very much improved
	3	very much	very much	very much	Yes	Good	No	Minimally improved
	4	somewhat	quite a bit	somewhat	No	would've preferred staying in the hospital.	Desire more attention in the following days.	No Change
	5	very much	quite a bit	very much	Yes	Satisfied	No	Much improved
	6	very much	very much	very much	Yes	10/10	No	Very much improved
<b>2</b>	7	somewhat	quite a bit	somewhat	Yes	It was alright.	No	Much improved
	8	very much	quite a bit	quite a bit	Yes	It was good.	No	Minimally improved
	9	very much	very much	very much	Yes	Excellent	No	Minimally improved
	10	very much	very much	very much	Yes	I like the care I experienced was	No	Much improved
	11	quite a bit	quite a bit	quite a bit	Yes	Generally decent. All staff and medical personal made me feel relaxed and	No	Much improved
	12	very much	very much	quite a bit	Yes	I received very kind and professional care	No	Very much improved
	13	quite a bit	very much	very much	Yes	Very good quality of care	No	Minimally improved
	14	very much	very much	very much	Yes	Had a great experience	No	Very much improved
	15	very much	very much	very much	Yes		No	Very much improved

Abbreviations: SD = standard deviation, PGIC = Patient Global Impression of Change

**Table 3. Patient Reported Outcome Measures**

Group	Patient	Global Health, Physical	Global Health, Mental	OPUS HR-QOL	PGIC, quantified
<b>1</b>	1	50.8	53.3	62.21	1
	2	57.7	48.3	66.04	1
	3	42.3	43.5	57.1	3
	4	47.7	50.8	46.86	4
	5	42.3	41.1	52.15	2
	6	54.1	59	66.96	1
Mean (± SD)		49.1 (±6.3)	49.3 (±6.5)	58.6 (±8.0)	2.0 (±1.3)
<b>2</b>	7	57.7	53.3	58.64	2
	8	34.9	36.6	46.86	3
	9	34.9	43.5	44.83	3
	10	61.9	59	66.96	2
	11	42.5	43.5	46.45	2
	12	42.5	43.5	49.28	2
	13	47.7	53.3	54.75	1
	14	44.9	56	88.59	3
	15	57.7	59	70.26	1
Mean (± SD)		47.2 (±9.9)	49.7 (±8.1)	58.5 (±14.5)	2.1 (±0.8)
<b>Overall mean (± SD)</b>		<b>48.0 (±8.5)</b>	<b>49.6 (±7.3)</b>	<b>58.5 (±12.0)</b>	<b>2.1 (±1.0)</b>

Abbreviations: SD = standard deviation, preop = preoperative, postop = postoperative, OPUS = Orthotics and Prosthetics User Survey, HR-QOL = Health-Related Quality of Life, PGIC = Patient Global Impression of Change



*Figure 1: Patient selection and analgesic regimen for patient eligible for Secondary TMR surgery with same day discharge*