

VitalStim Therapy in Outpatient Rehab

VitalStim Therapy is the use of neuromuscular electrical stimulation (NMES) during dysphagia therapy. Patients exercise their swallowing muscles while simultaneously receiving transcutaneous electrical stimulation applied through surface electrodes attached to the skin over the anterior neck. This use of NMES is FDA cleared and proven to be safe and effective, especially in stroke and deconditioned patients. Therapists receive special certification training to ensure competency.



Dysphagia is prevalent and burdensome

- 20% of adult primary care patients seeking unrelated medical care have symptoms dysphagia of which 46% had not reported problem to their physician¹
- Up to 65% of stroke patients have dysphagia²⁻⁵
- Fluid intake is insufficient in dysphagic patients following stroke⁶
- Dementia and dehydration are significant risk factors for pressure ulcer incidence⁷
- Direct charges associated with tube feeding over 1 year are estimated at approximately \$30,000⁸
- Quality of life and ability to participate in therapy are severely affected as result of dehydration and malnutrition⁹

Treatment of dysphagia is directly related to improved function

- Swallowing treatment improves swallowing function, and improved swallowing function is associated with improvements in nutritional parameters¹⁰
- Thickened liquids do not alter the rate of water absorption in the gut¹¹
- Better nutrition leads to better exercise performance and prevents energy depletion as a result of rehabilitation of the compromised patient¹²

Cost benefit of using VitalStim Therapy

- VitalStim Therapy is effective to treat dysphagia^{13, 14}
- Improved hydration and nutrition is directly correlated with improved patient outcomes (decreased associated costs and complications)
- Improved patient participation in therapy leads to better outcomes and faster discharge¹⁴
- Decreased number of patients on modified diets
- Improved staff and patient satisfaction¹⁵

Benefits of implementing VitalStim Therapy Program

- ↑ patient outcomes
- ↑ patient admissions
- ↑ marketability
- ↑ patient's participation in therapy
- ↑ performance on accreditation

VitalStim Therapy in Outpatient Rehab

Cost impact study

Figure 1 below shows a typical scenario in an Outpatient Rehab Department. In this instance, the therapist typically sees patients every 60 minutes for individual dysphagia therapy. The profit/loss calculations are based on assumed expenditures of \$50 (time, supplies, etc.) This Outpatient department is realizing healthy net revenue per hour for the speech therapy services.

VitalStim Therapy Cost Calculator: Outpatient

Estimate of cost impact prepared for:

Locality:

Number of mins per pt:

Number of patients seen per hour:

Revenue	Units	Price
Dysphagia treatment (92526)	<input type="text" value="1"/>	\$ 95.49
Group therapy (92508)	<input type="text" value="0"/>	\$ -
Electrotherapy unattended (G0283)	<input type="text" value="0"/>	\$ -
Electrotherapy 1:1 (97032)	<input type="text" value="0"/>	\$ -
Biofeedback (90901)	<input type="text" value="0"/>	\$ -
Gross revenue/patient:		\$ 95.49
Gross revenue/hour:		\$ 95.49

Profit/Loss

Net revenue/hour:

Figure 1: Revenue estimation in OP

VitalStim Therapy in Outpatient Rehab

References

1. Wilkins T, Gillies RA, Thomas AM, Wagner PJ. The prevalence of dysphagia in primary care patients: a HimesNet Research Network study. *J Am Board Fam Med.* Mar-Apr 2007;20(2):144-150.
2. Mann G, Hankey GJ, Cameron D. Swallowing function after stroke: prognosis and prognostic factors at 6 months. *Stroke.* Apr 1999;30(4):744-748.
3. Mann G, Hankey GJ, Cameron D. Swallowing disorders following acute stroke: prevalence and diagnostic accuracy. *Cerebrovasc Dis.* Sep-Oct 2000;10(5):380-386.
4. Smithard DG. Swallowing and stroke. Neurological effects and recovery. *Cerebrovasc Dis.* 2002;14(1):1-8.
5. Odderson IR, Keaton JC, McKenna BS. Swallow management in patients on an acute stroke pathway: quality is cost effective. *Arch Phys Med Rehabil.* Dec 1995;76(12):1130-1133.
6. Sharpe K, Ward L, Cichero J, Sopade P, Halley P. Thickened fluids and water absorption in rats and humans. *Dysphagia.* Jul 2007;22(3):193-203.
7. Bourdel-Marchasson I, Barateau M, Sourgen C, et al. Prospective audits of quality of PEM recognition and nutritional support in critically ill elderly patients. *Clin Nutr.* Aug 1999;18(4):233-240.
8. Callahan CM, Buchanan NN, Stump TE. Healthcare costs associated with percutaneous endoscopic gastrostomy among older adults in a defined community. *J Am Geriatr Soc.* Nov 2001;49(11):1525-1529.
9. Ekberg O, Hamdy S, Woisard V, Wuttge-Hannig A, Ortega P. Social and psychological burden of dysphagia: its impact on diagnosis and treatment. *Dysphagia.* Spring 2002;17(2):139-146.
10. Elmstahl S, Bulow M, Ekberg O, Petersson M, Tegner H. Treatment of dysphagia improves nutritional conditions in stroke patients. *Dysphagia.* Spring 1999;14(2):61-66.
11. Whelan HT, Smits RL, Jr., Buchman EV, et al. Effect of NASA light-emitting diode irradiation on wound healing. *J Clin Laser Med Surg.* Dec 2001;19(6):305-314.
12. Steiner MC, Barton RL, Singh SJ, Morgan MD. Nutritional enhancement of exercise performance in chronic obstructive pulmonary disease: a randomised controlled trial. *Thorax.* Sep 2003;58(9):745-751.
13. Carnaby-Mann GD, Crary MA. Examining the evidence on neuromuscular electrical stimulation for swallowing: a meta-analysis. *Arch Otolaryngol Head Neck Surg.* Jun 2007;133(6):564-571.
14. Shaw GY, Sechtem PR, Searl J, Keller K, Rawi TA, Dowdy E. Transcutaneous neuromuscular electrical stimulation (VitalStim) curative therapy for severe dysphagia: myth or reality? *Ann Otol Rhinol Laryngol.* Jan 2007;116(1):36-44.
15. Crary MA, Carnaby-Mann GD, Faunce A. Electrical stimulation therapy for dysphagia: descriptive results of two surveys. *Dysphagia.* Jul 2007;22(3):165-173.