

Systematic Desensitization to Venipuncture with Combined Visual Supports and Relaxation Strategies for an Adult with Developmental Disability

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Client Profile

- 24 year old male
- Diagnosis: Chromosome Ring 13 syndrome, moderate developmental disability, sickle cell trait, and small kidneys
- Resides at home with his Mother and attends a day program 3 days per week



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Interdisciplinary Approach & Clinical Service History

- Previous family and individual counselling due to death of young nephew
- Behaviour therapy to target aggression toward others in day program and home, as well as elopement in community
- Nursing and medical support through primary care clinic with Dr. Bill Sullivan at St. Michael's Hospital



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Group Activity - How do you feel?



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Risks to client & current needs

- Due to small kidneys and having an elevated creatine levels he required ongoing blood work
- Long learning history of a fear of needles and having blood drawn
- Aggression toward others with blood being drawn, as well as anxiety-related behaviour
- Ativan was trialed as a PRN, however unsuccessful
- Required the least intrusive intervention over long term to appropriately support client

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What does the research tell us about phobias?

- Ost and Sterner (1987) report that blood phobia, including injuries, is one of the most common phobias in the general population with prevalence being approximately 3.5%
- According to Mednick & Claar (2012), the median onset age of blood phobia in the general population is approximately 5.5 years
- A phobia of needles and blood can lead to significant social and medical consequences where individuals might avoid particular situations that they might associate with the fear, such as attending a regular doctor or dentist appointment, or even going to the hospital for an emergency visit (Willemssen et al., 2002; Choy et al., 2007)

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What does the research tell us about interventions fears of venipuncture?

- Behavioural interventions targeting childhood phobias, including needles, demonstrated effectiveness across limited studies using systematic desensitization strategies and stimulus fading combined with differential reinforcement across typical youth, as well as those with autism. (Shabani & Fisher, 2006; Willemsen et al., 2002; Ellmore et al., 1980)
- Chemical and physical restraints are often suggested as the primary intervention strategy for fears associated with venipuncture, however these can also contribute to an elevation in fear (Raghvendra et al., 2010)



What does the research demonstrate as effective strategies in combination with systematic desensitization?

- Muscle tension and progressive muscle relaxation (Farmer & Wright, 1971; Ellmore et al., 1980; Chen et al., 2009)
- In-vivo exposure (Choy et al., 2007; Mednick & Claar, 2012)
- Video modelling (Fernandes, 2003)



Program Description

Phase 1: Exposure and Teaching (video modeling, visual schedule, and muscle relaxation):

A video, as well as social story were used to expose the client to the steps that he would go through in the venipuncture process. Support staff were utilized to carry out this phase to minimize the effects of past exposure to the venipuncture process in the presence of his mother and reduce any risk to his mother herself.

The client was taught muscle tension and relaxation strategies while in a calm state so that he was able to reliably use this self-management technique to prepare himself prior to an intervention trial being run, as well as to encourage him to remain calm during various steps of the intervention process (phase 2).



Program Description (cont'd)

Phase 2: Intervention (in vivo exposure):

A formal preference assessment was completed.

This phase was carried out within a novel medical setting (i.e. St. Michael's Hospital) with a support staff. During this phase, the client progressively moved through various stages of exposure of both the feared object (i.e. needle) and the venipuncture procedure. Movement from one step of the procedure to the next was based upon the client's ability to remain calm according to a Likert-type scale for a specified duration of time and number of sessions.



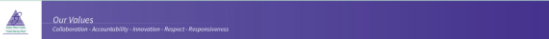
Program Description (cont'd)

Phase 3: Generalization:

Once the client was able to remain calm during the entire venipuncture process with the support of a 1:1 staff, his mother was reintroduced within the current hospital setting and the staff supporting was then faded out systematically. Once Justin is able to remain calm and meet criteria within the initial medical setting with his mother, the procedure was repeated across novel medical settings.



Positive & Differential Reinforcement

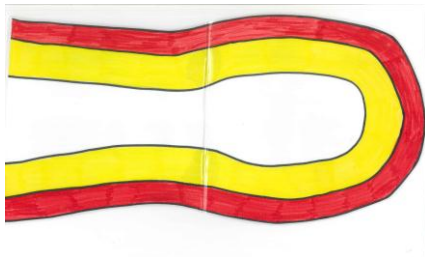


Priming - social story, progressive muscle relaxation, and video model

Before the nurse takes my blood she will clean my skin. It will feel cool and wet on my arm, this doesn't hurt.

RELAXATION ROUTINE

Visual supports



Arousal Rating Scale

State	Description	Score
Calm	Client will engage in minimal movement with neutral or happy expression.	1
Sad	Client will engage in whining and/ or crying which may be combined with tears.	2
Tense	Client will engage in rocking, shaking and/or clenching of his body, which may or may not occur in combination with crying/whining.	3
Agitated/Protesting	Client will engage in fast, jerky movements with significant displacement from his calm position.	4
Acting out aggressively	Client attempts to or successfully engages in aggressive acts such as hitting, kicking, pinching, biting, scratching or grabbing (alone or in combination).	5

Results: a huge success!



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Results: Impact on the client and family

- The client was able to successfully complete the entire program generalizing across people and environments
- Long-term gains were noted with follow up over six months
- Satisfaction was high on the part of the caregiver

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Moving forward: Implications of our case study

- SPC REB approval in progress
- Submission of study for publication in a peer-reviewed journal
- Creation of a “tool kit”
- Presentations to medical communities and caregivers
- Potential training of front line medical staff

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References:

Banda, D., Grimmert, E. & Hart, S. (2009). Activity schedules. *TEACHING Exceptional Children*, 41(4), 16-21.

Bryan, L.C. & Gast, D.L. (2000). Teaching on-task and on-schedule behaviors to high-functioning children with autism via picture activity schedules. *Journal of Autism and Developmental Disorders*, 30(5), 553-567.

Chen, W., Chu, H., Lu, R., Chou, Y., Chen, C., Chang, Y., O'Brien, A.P. & Chou, K. (2008). Efficacy of progressive muscle relaxation training in reducing anxiety in patients with acute schizophrenia. *Journal of Clinical Nursing*, 18, 2187-2196.

Choy, Y., Fyer, A.J. & Lipsitz, J.D. (2007). Treatment of specific phobia in adults. *Clinical Psychology Review*, 27, 266-286.

Elmore, R.T., Wildman, R.W. & Westfeld, J.S. (1980). The use of systematic desensitization in the treatment of blood phobia. *Journal of Behavior Therapy and Experimental Psychiatry*, 11, 277-279.

Farmer, R.G. & Wright, J.M.C. (1971). Muscular reactivity and systematic desensitization. *Behavior Therapy*, 2, 1-10.

Fernandes, P.P. (2003). Rapid desensitization for needle phobia. *Psychosomatics*, 44(3), 253-254.

Gordon, O. (2012). Evaluating a picture schedule reinforcement system to improve blood draw procedures for children diagnosed with an autism spectrum disorder and diabetes. (Unpublished doctoral dissertation). Colorado State University, Colorado.

Lennox, N.G. & Kerr, M.P. (1997). Primary health care and people with an intellectual disability: the evidence base. *Journal of Intellectual Disability Research*, 41(5), 365-372.



References (cont'd)

Mednick, L.M. & Claar, R.L. (2012). Treatment of severe blood-injection-injury phobia with the applied tension method: two adolescent case examples. *Clinical Case Studies*, 11(1), 24-34.

Miller, M.L. (2008). *Teaching relaxation skills to adults with intellectual disability and generalized anxiety disorder*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database. (UMI No.3291 039)

Mullins, J.L. & Christian, L. (2001). The effects of progressive relaxation training on the disruptive behavior of a boy with autism. *Journal of Positive Behavior Interventions*, 4(3), 166-177.

Ost, L. & Sterner, U. (1987). A specific behavioral method for treatment of blood phobia. *Behaviour Research and Therapy*, 25(1), 25-29.

Ost, L., Sterner, U. & Fellenius, J. (1989). Applied tension, applied relaxation, and the combination in the treatment of blood phobia. *Behaviour Research and Therapy*, 27(2), 109-121.

Ost, L., Fellenius, J. & Sterner, U. (1991). Applied tension, exposure in vivo, and tension-only in the treatment of blood phobia. *Behaviour Research and Therapy*, 29(6), 561-574.

Raghendra, S., et al. (2010). Trypanophobia – An Extreme and Irrational Fear of Medical Procedures: An Overview. *International Journal of Pharmaceutical Sciences Review and Research*, 4 (1), 18-21.



References (cont'd)

Shabani, D.B. & Fisher, W.W. (2006). Stimulus fading and differential reinforcement for the treatment of needle phobia in a youth with autism. *Journal of Applied Behavior Analysis*, 39, 449-452.

Shibley-Benamou, R., Lutzker, J.R. & Taubman, M. (2002). Teaching Daily Living Skills to Children with Autism Through Instructional Video Modeling. *Research in Developmental Disabilities*, 22, 449-462.

Sue, D. (1972). The role of relaxation in systematic desensitization. *Behaviour Research and Therapy*, 10, 153-158.

Turnage, J.R. & Logan, D.L. (1974). Treatment of a hypodermic needle phobia by in vivo systematic desensitization. *Journal of Behavior Therapy and Experimental Psychiatry*, 5, 67-69.

Willemssen, H., Chowdhury, U. & Britscall, L. (2002). Needle phobia in children: a discussion of aetiology and treatment options. *Clinical Child Psychology and Psychiatry*, 7(4), 609-619.



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Questions?