

Behavioural, my dear Watson!

Community-based assessment and treatment of operant vomiting and head banging

Concurrent session
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Objectives

- ✦ Service background
- ✦ Case 1: Demi
- ✦ Case 2: Christina
- ✦ Questions

Service background

- ✦ Our target population
- ✦ Interdisciplinary team
- ✦ Collaborative community partnerships

Service background

Community-based behaviour therapy

- ✦ Types of referrals
- ✦ Collaboration with other disciplines
- ✦ The bar has been raised
- ✦ Mediator model
- ✦ Data vs “data”

Demi

Demi

- ✦ Dx: ASD (severe range)
- ✦ Age: 2 y 9 mo
- ✦ Referring issues: vomiting, head banging, tantrums
- ✦ Home enviro: mom, dad, two siblings

Operant vomiting

What does the research say?

- ✦ Associated health risks (Fredericks et al., 1998)
- ✦ Medical vs. operant causes
- ✦ Lang et al. (2011) review - 21 studies; five with operant vomiting

Lang, R., Mulloy, A., Giesbers, S., Pfeiffer, B., Delaune, E., Didden, R., Sigafoos, J., Lancioni, G., & O' Reilly, M. (2011). Behavioral interventions for rumination and operant vomiting in individuals with intellectual disabilities: A systematic review. *Res in Dev Disabilities, 32* (6), 2193-2205.

Demi

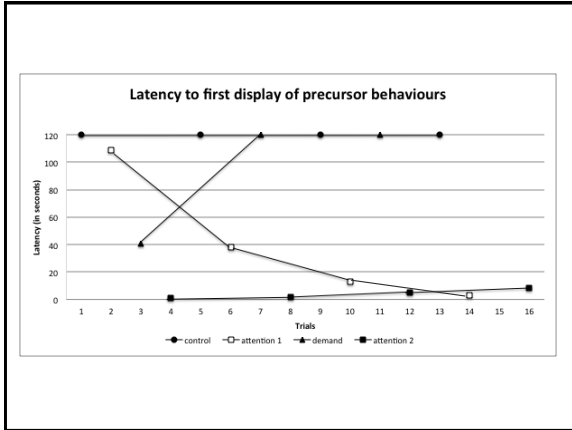
Assessment

- ✦ Parent interview: FBA Inventory (2002), FAST (2005) (see Iwata et al., 2013)
- ✦ Direct observations in natural enviro
- ✦ Baseline data?

Demi

Assessment

- ✦ Preference assessment
- ✦ Functional analysis
 - ✦ Response latency (Thomason-Sassi et al., 2011)
 - ✦ Precursor functional analysis (Najdowski et al., 2008; Smith & Churchill, 2002)



Demi

Treatment planning concerns

- ✦ A well established problem behaviour; a history of failed attempts to “fix it”
- ✦ What about the “child effects” on caregiver behaviour? (Carr et al. 1991)
- ✦ Extinction? (Goh & Iwata, 1994)
- ✦ Differential reinforcement? NCR? Either? (Kahng et al., 1997; Vollmer et al., 1993)

Demi

MORE treatment planning concerns

- ✦ Limitations to DR (Vollmer et al., 1993)
- ✦ Limitations to NCR (Iwata & Kahng, 2005; Ringdahl, 2005)
- ✦ Noncontingent delivery of alternative stimulus, e.g., Fisher et al. (2004); Fischer et al. (1997); Hanley et al. (1997); Lomas et al. (2010)
- ✦ We’re running out of time!

Demi

Treatment: Practice trials

- ✦ What are we actually trying to achieve?
- ✦ A shaping procedure and the stepwise criterion change design (Hartmann & Hall, 1976)
- ✦ Introduce a new discriminative stimulus

Demi

Treatment: Practice trials

- ✦ Reinforcement – continuous delivery of highly preferred items
- ✦ DRO – if we have to!
- ✦ \$30 shopping trip at Walmart

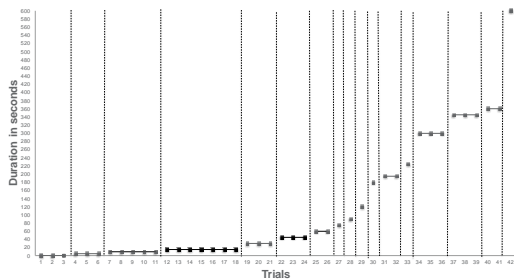
Protocol: Seven steps

- 1 Ensure a variety of highly preferred items
- 2 Deliver the cue
- 3 Show and set the timer
- 4 Mom leaves
- 5 Dad provides high quality praise and engagement with preferred items/activities
- 6 Mom returns when bell rings
- 7 Two possible outcomes for mom's re-entry

Date:

Trial	Duration goal (min.sec)	Achieved? y/n	Location of mom during trial
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Practice trials for increasing "time away" from mom



Demi

- ✦ Getting down to the brass tacks
 - ✦ No further vomiting observed after the first trial
 - ✦ Intervention terminated after four days
 - ✦ Over a year later...

Christina

Christina

- ✦ Dx: chromosomal abnormalities (one deletion and one duplication), global developmental delay, complex medical history
- ✦ Age: 2 y 0 m
- ✦ Referring issue: severe head banging
- ✦ Home enviro: foster care

Self-injurious behaviour

What does the research say?

- ✦ Three decades of research on effective assessment and treatment (Beavers et al., 2013; Hanley et al., 2003)

Christina

Assessment

- ✦ Parent interview: FBA Inventory (2002), FAST (2002)
- ✦ Direct observations in the natural enviro
- ✦ Baseline data collection?
- ✦ Collateral service providers

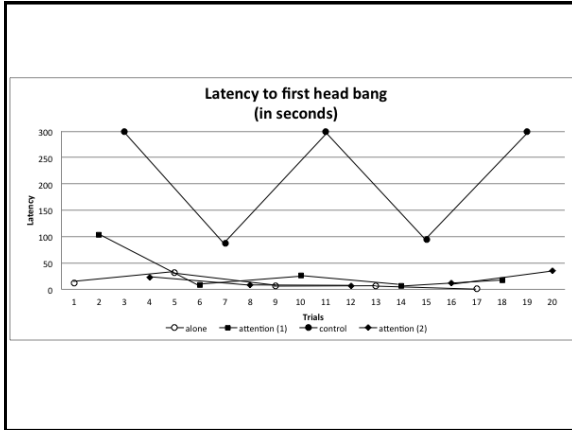
Christina

- ✦ Paediatrician
- ✦ Developmental paediatrician
- ✦ Child protection worker
- ✦ Early interventionist
- ✦ Behaviour consultant
- ✦ SLP
- ✦ OT
- ✦ PT
- ✦ Geneticist
- ✦ ENT
- ✦ Neurologist
- ✦ Psychologist
- ✦ Nurse
- ✦ Opthamologist

Christina

Assessment

- ✦ Functional analysis
 - ✦ Trial-based FA (Bloom et al., 2011)
 - ✦ Latency-based FA (Thomason-Sassi et al., 2011)
- ✦ Use of protective equipment during FA? (Borrero et al., 2002; Le & Smith, 2002)



Christina

Treatment

- ✦ Input from collateral service providers
- ✦ Functional communication training (FCT) (Carr & Durand, 1985; Durand, 1990; Durand & Carr, 1991; Kurtz et al., 2011)

Hagopian, L.P., Fisher, W.W., Sullivan, M., Acquisto, J., LeBlanc, L. (1998). Effectiveness of functional communication training with and without extinction and punishment: A summary of 21 inpatient cases. *JABA, 31*, (2), 211-235.

Tiger, J.H., Hanley, G.P., Bruzek. (2008). Functional communication training: A review and practical guide. *Behav Analysis in Practice, 1*, (1), 16-23.

The BIGmack

- ✦ Benefits of assistive technology in FCT (Durand, 1999)

Christina

Treatment planning concerns

- ✦ Application of FCT as part of a treatment package – what’s in the rest of the package? e.g., prompting, fading, extinction, punishment, response blocking (Fisher et al., 1993; Shirley et al., 1997)
- ✦ FCT with toddlers in home environments (Dunlap et al., 2006; Harding et al., 2009)

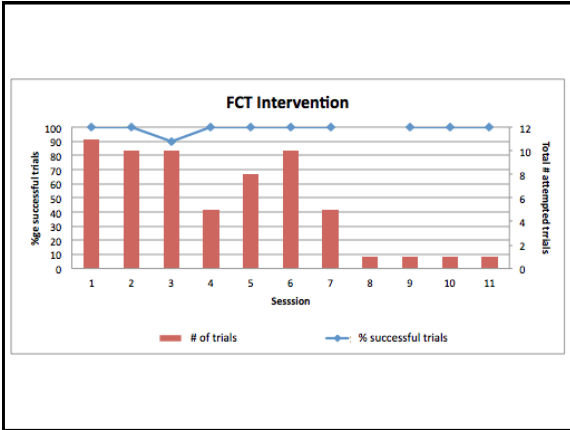
Christina

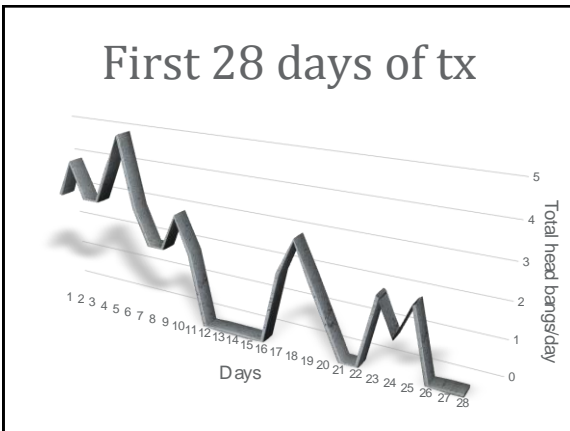
More treatment planning concerns

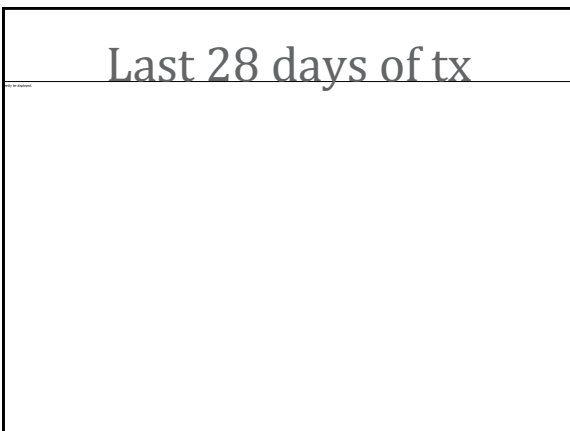
- ✦ What if FCT doesn’t reduce the TB? Why? (Fisher et al., 1993; Hagopian et al., 1998)
- ✦ Excessively high rates of requesting following FCT training and subsequent reinforcement fading (Betz et al., 2013; Fisher et al., 1993; Hanley et al., 2001; Vollmer et al., 1993)

Data sheet based on Durand (1990)

Date & location of trial	Total # of attempted trial	# of successful trials	Best response	Frequency of head banging







Christina

Getting down to the brass tacks

- ✦ No head banging during the day after three weeks of intervention
- ✦ Day time helmet use
- ✦ Thinning the CRF schedule - the plan vs. what actually happened
- ✦ Almost a year later...

In summary

- ✦Community-based assessment & treatment, can we do it? YES we can!
- ✦Hindsight is 20/20
 - ✦ One thing I'll KEEP doing
 - ✦ One thing I'll DO for next time

A special thank you to

- ✦ Demi, Christina & their caregivers
- ✦ Collateral service providers
- ✦ ACWA (SPC)
- ✦ Placement student - Leah Plumley (Autism & Behavioural Science Program, St. Lawrence College)

Thanks for attending!

Questions?



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References

Beavers, G., Iwata, B.A., & Lerman, D.C. (2013). Thirty years of research on the functional analysis of problem behavior. *JABA, 46*, (1), 1-21.

Betz, A.M., Fisher, W.W., Roane, H.S., Mintz., J.C., & Owen, T.M. (2013). A component analysis of schedule thinning during functional communication training. *JABA, 46*, (1), 219-241.

Bloom, S., Iwata, B.A., Fritz., J.N., Roscoe, E.M., & Carreau, A.B. (2011). Classroom application of a trial-based functional analysis. *JABA, 44*, (1), 19-31.

Borrero J.C., Vollmer T.R., Wright C.S., Lerman D.C., & Kelley M.E. (2002). Further evaluation of the role of protective equipment in the functional analysis of self-injurious behavior. *JABA, (35)*, 1, 69-72.

Carr, E.G., & Durand, V.M. (1985). Reducing behavior problems through functional communication training. *JABA, 18*, (2), 111-126.

Carr, E.G., Taylor, J.C., & Robinson, S. (1991). The effects of severe behavior problems in children on the teaching behavior of adults. *JABA, 24*, (3), 523-535.

Dunlap, G., Ester, T., Langhans, S., & Fox, L. (2006). Functional communication training with toddlers in home environments. *Journal of Early Intervention, 28*, (2), 81-96.

Durand, V.M. (1990). *Severe Problem Behaviors: A Functional Communication Approach*. New York, NY: The Guildford Press.

Durand, V.M. (1999). Functional communication training using assistive devices: Recruiting natural communities of reinforcement. *JABA, 32*, (3), 247-267.

Durand, V.M., & Carr, E.G. (1991). Functional communication training to reduce challenging behavior: Maintenance and application in new settings. *JABA, 24*, (2), 251-264.

Fischer, S.M., Iwata, B.A., Mazaleski, J.L. (1997). Noncontingent delivery of arbitrary reinforcers as treatment for self-injurious behavior. *JABA, 30*, (2), 239-249.

Fisher, W.W., DeLeon, I.G., Rodriguez-Catter, V., & Keeney, K.M. (2004). Enhancing the effects of extinction on attention-maintained behavior through noncontingent delivery of attention or stimuli identified via a competing stimulus assessment. *JABA, 37*, (2), 171-184.

Fisher, W., Piazza, C., Cataldo, M., Harrell, R., Jefferson, G., & Conner, R. (1993). Functional communication training with and without extinction and punishment. *JABA, 26*, (1), 23-36.

Fisher, W.W., Thompson, R.H., Hagopian, L.P., Bowman, L.G., & Krug, A. (1997). Facilitated tolerance of delayed reinforcement during functional communication training. *B Mod, 24*, (1), 3-29.

Fredericks, D.W., Carr, J.E., & Williams, W.L. (1998). Overview of the treatment of rumination disorder for adults in a residential setting. *J Behav Ther Exp Psychiatry, 29*, (1), 31-40.

Goh, H. & Iwata, B.A. (1994). Behavioral persistence and variability during extinction of self-injury maintained by escape. *JABA, 27*, (1), 173-174.

Hagopian, L.P., Fisher, W.W., Sullivan, M., Acquisto, J., LeBlanc, L. (1998). Effectiveness of functional communication training with and without extinction and punishment: A summary of 21 inpatient cases. *JABA, 31*, (2), 211-235.

Hanley, G.P., Iwata, B.A., & McCord, B.E. (2003). Functional analysis of problem behavior: A review. *JABA, 36*, (2), 147-185.

Hanley, G.P., Piazza, C.C., & Fisher, W.W. (1997). Noncontingent presentation of attention and alternative stimuli in the treatment of attention-maintained destructive behavior. *JABA, 30*, (2), 229-237.

Hanley, G.P., Iwata, B.A., & Thompson, R.H. (2001). Reinforcement schedule thinning following treatment with functional communication training. *JABA, 34*, (1), 17-38.

Harding, J.W., Wacker, D.P., Berg, W.K., Lee, J.F., & Dolezal, D. (2009). Conducting functional communication training in home settings: A case study and recommendations for practitioners. *Behavior Analysis in Practice, 2*, (1), 21-33.

Hartmann, D.P., & Hall, R.V. (1976). The changing criterion design. *JABA, 9*, (9), 527-532.

Iwata, B.A., DeLeon, I.G., & Roscoe, E.M. (2013). Reliability and validity of the functional analysis screening tool. *JABA, 46*, (1), 271-284.

Iwata, B.A., & Kahng, S. (2005). Some undesirable effects of noncontingent reinforcement. *European Journal of Behavior Analysis*, 6, (1), 47-50.

Kahng, S., Iwata, B.A., DeLeon, I.G., Wordsell, A.S. (1997). Evaluation of the "control over reinforcement" component in functional communication training. *JABA*, 30, (2), 267-277.

Kurtz, P.F., Boelter, E.W., Jarmolowicz, D.P., Chin, M.D., & Hagopian, L.P. (2011). An analysis of functional communication training as an empirically supported treatment for problem behavior displayed by individuals with intellectual disabilities. *Res in Dev Disabilities*, 32, (6), 2935-2942.

Lang, R., Mulloy, A., Giesbers, S., Pfeiffer, B., Delaune, E., Didden, R., Sigafoos, J., Lancioni, G., & O' Reilly, M. (2011). Behavioral interventions for rumination and operant vomiting in individuals with intellectual disabilities: A systematic review. *Res in Dev Disabilities*, 32, (6), 2193-2205.

Le, D.D., & Smith, R.G. (2002). Functional analysis of self-injury with and without protective equipment. *J of Dev and Phys Disabilities*, 14, (3), 277-290.

Lomas, J.A., Fisher, W.W., & Kelley, M.E. (2010). The effects of variable-time delivery of food items and praise on problem behavior reinforced by escape. *JABA*, 43, (3), 425-435.

Najdowski, A.C., Wallace, M.D., Ellsworth, C.L., MacAleese, A.N., & Cleveland, J. (2008). Functional analysis and treatment of precursor behavior. *JABA*, 41, (1), 97-105.

Ringdahl, J.E. (2005). Noncontingent reinforcement and the acquisition of appropriate behavior. *European Journal of Behavior Analysis*, 6, (1), 51-55.

Shirley, M.J., Iwata, B.A., Kahng, S., Mazaleski, J.L., Lerman, D.C. (1997). Does functional communication training compete with ongoing contingencies of reinforcement? An analysis during response acquisition and maintenance. *JABA*, 30, (1), 93-104.

Smith R.G., & Churchill, R.M. (2002). Identification of environmental determinants of behavior disorders through functional analysis of precursor behaviors. *JABA*, 35, (2), 125-136.

Thomason-Sassi, J.L., Iwata, B.A., Neidert, P.L., & Roscoe, E.M. (2011). Response latency as an index of response strength during functional analyses of problem behavior. *JABA*, 44, (1), 44-51.

Tiger, J.H., Hanley, G.P., Bruzek. (2008). Functional communication training: A review and practical guide. *Behav Anal Prac*, 1, (1), 16-23.

Vollmer, T.R., Iwata, B.A., Zarccone, J.R., Smith, R.G., & Mazaleski, J.L. (1993). The role of attention in the treatment of attention-maintained self-injurious behavior: Noncontingent reinforcement and differential reinforcement of other behavior. *JABA*, 26, (1), 9-21.
