Implementation of
The Neurosequential Model of Therapeutics
at
William Roper Hull School
Denise Manderson, MC
William Roper Hull School

• Partnership between Calgary Board of Education and Hull Services
• Grades 1-12 special education
  • Main campus, secure services, transition programs
• Students are residential and/or identified with severe social, emotional, behavioural needs
• Modified and individualized curriculum
• Integrative approach: NMT, Circle of Courage, and ARC framework as guiding perspectives
• Approximately 110-120 students, 20 teachers, 45 Hull staff
• 5 staff within the NMT training group
Informing and Shaping our Service Delivery

Shifting our lens and language

Psycho-education for staff, students, teachers, parents, caregivers

Developmentally sensitive interventions

Treatment Plans
- change in focus of goals
- strength-based
NMT
- PD sessions with Dr. Perry
- Pilot program with PTP for Hull
- Cases and Training series
- Series 1 & 2 videos – presented to entire staff

ARC
- Kinniburgh & Blaustein
- Attachment, Self-Regulation and Competency (ARC) framework with the Calgary Board of Education (CBE)
- Pilot site for the Trauma Sensitive

Dr. Ratey
- SPARK
- Daily physical activity
Shifting the Lens

• Shift to trauma informed care lens in a school setting.

• Fundamentally, we are changing the brain

• Understanding the short term impact of “dosing” as well as the long term impact of dosing and subsequent self regulation

• Conversations around behavior management vs. behavioral change?
Answering the Question: What does an NMT program look like?

1. NMT Training.
2. Brain mapping.
3. Creating a Therapeutic Web.
4. Relationally healthy caregiver characteristics.
5. Safe, predictable, structured environment.
What does an NMT program look like? (continued)


8. Preventative and responsive dosing of somatosensory activities; patterned, repetitive activities that support self-regulation (prompting use of NMT skills prior to stressful events, and caregiver recognition of distress/dysregulation).


10. Parental assistance with regulation difficulties.

Psycho-education

- Staff, students, teachers, caregivers provided with education about the neuroscience of brain development
- Counselor Selection and Orientation Training
- Utilize case studies pertinent to the programs to better understand our clients in the context of neuroscience and brain development
Developmentally Sensitive Interventions

- Know the stage and watch the state
- Provide Regulatory Exercises
- Provide a relationally rich environment
Implementation within the classroom helps to:

- Regulate students
- Build healthy relationships
- Access higher-order thinking skills
- Increase retention and learning potential
- Target meaningful, developmentally appropriate tasks and interventions
Regulating Students

- Changed the structure of our school day to include SPARK and 5-7 minute body breaks between classes
- Resources in the classroom
- Engage in drumming sessions
- Sensory Room
- Psychoeducation for students
- Occupational Therapist, Physical Therapist
- Fine Arts program:
  - Art
  - Woodworking
  - Music
<table>
<thead>
<tr>
<th>TIME</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
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<td>8:45 - 9:00</td>
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<td>9:20 - 10:00</td>
<td>Life Skills</td>
<td>Journal</td>
<td>Language Arts</td>
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<td>10:00 - 10:40</td>
<td>NMT Activity</td>
<td>Language Arts</td>
<td>Art</td>
<td>Drama</td>
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<td>Social Studies</td>
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<td>10:55 - 11:30</td>
<td>Math</td>
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<td>Woodshop</td>
<td>Gym (prep)</td>
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<td>11:30 - 12:05</td>
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<td>LUNCH/SOCIAL SKILLS</td>
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<td>12:50 - 1:10</td>
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<td>Drama</td>
<td>Computers</td>
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<td>EARLY DISMISSAL</td>
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<td>House Leagues OR Friday Fun</td>
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<td>2:30 - 3:05</td>
<td>Daily Reflection (Free Time @ 2:45)</td>
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<td>3:05 - 3:15</td>
<td>HOMEROOM &amp; GOALS</td>
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Resources for the Classroom

- Exercise balls
- Standing desks
- Fidget toys
- Treadmills
- Drums
- Wii
- Theraband
- Weighted vests and blankets
- Zuma Rockers
- Visual timers
- Various bean bags, balls, etc.
- Activity cards
- Wake and Shake
- Quiet area to calm
- Emotional first aid kits
Relevant

Sensory Bins
Bin Contents and Schedule

• Bin # 10
  • * Felt colouring pages with markers
    • * 1 colouring book
  • * 4 squishy ball faces – fidget toys
    • * Ball sorter toy
  • * Mood Lamp with extra Gel beads – watch them grow
  • * Guided imagery and relaxation books/CD’s (from the library)

Schedule
• Week 1 – Room 3 (Apr. 9 – 17)
• Week 2 – Sherwood (Apr. 22 – 25)
• Week 3 – Room 14 (Apr. 28 – May 2)
  • Week 4 – Room 4 (May 5 – 9)
• Week 5 – Room 1 (May 12 – 15)
• Week 6 – Room 2 (May 20 – 23)
Drumming
Sensory and Regulation
Fine Arts at Hull

• Education in a therapeutic milieu, teaching through a fine arts lens.

• A balanced team of teachers, counselors with an artistic passion to create a strength based project for students to practice academic, social and relational skills.

• Students embraced the opportunity to be creative, take risks in the context of healthy adult relationships. Students accomplishing tasks that normally they would not attempt.
Body Break Activities

Support student needs in the following functional domains:

- Sensory integration
- Self regulation
- Relational capacity
- Cognitive
Elements of Student Programming

- Relationally rich environment
- *Somatosensory diet throughout the day (dosing)
- Understanding the stress response system and how that impacts child’s functioning
- Developmentally sensitive approach to treatment based on NMT metric
- Involvement with Occupational Therapy, sensory rooms, drums, treadmills
- Understanding the pairing of regulatory activities with relationships
Executive Functioning

• Regulated students have allowed our educators to focus on executive functioning skills for our students.
• Professional development on executive functioning skills for all staff, such as:
  • Inhibiting response-sustained attention
  • Mental Flexibility-Planning/Prioritization & Problem solving/Flexibility
  • Working memory-organization.
Outcomes

• Reduction in critical incidents
• Changes in NMT metrics
• Increase in executive functioning scores
# Metric Review

## Functional Brain Map(s) and Key

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**Age Typical 8 to 10**

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Case Study

Critical & Noteworthy Incident Tracking - EM Total Incidents

- August 2012: 20
- September 2012: 15
- October 2012: 10
- November 2012: 5
- December 2012: 0
- January 2013: 5
- February 2013: 10
- March 2013: 15
- April 2013: 20
- May 2013: 25
- June 2013: 20
- August 2013: 15
- September 2013: 10
- October 2013: 5
- November 2013: 0
- December 2013: 5
- January 2014: 10
- February 2014: 15
- March 2014: 20
- April 2014: 25
- May 2014: 30
9 months later . . .
Cortical Modulation Ratio Values

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<tr>
<td>Adult</td>
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Date: July 4th

My favourite thing about Fish Creek Park is making lots of friends.

Tell me something about your favorite animal.

Shark is my favorite animal.
Next up... 

Starting the implementation process

- Consider world café style of reflection:
  - Discussing the 6 core elements
  - Brain storming what people already know/do
  - Making a plan for next steps...
Core elements of positive developmental, educational and therapeutic experiences

- Relational (safe)
- Relevant (developmentally-matched)
- Repetitive (patterned)
- Rewarding (pleasurable)
- Rhythmic (resonant with neural patterns)
- Respectful (child, family, culture)
Relational Safety

• Creating a relationally rich environment is the most powerful core element.

• When meaningful relationships are developed between others (staff and students, staff and parents, staff and administration team), a sense of safety and belonging can occur.

• Healthy relationships should be present, attuned, attentive, and responsive (PAAR)- Dr. Bruce Perry.
• Developmentally Matched

• In order to make tasks relevant for a student, they must be meaningful for them. This can be done by ensuring tasks and activities are developmentally sensitive and attuned to their needs.

• Understanding the developmental level of each student is critical, it is also important to be able to recognize their state of arousal and adjust expectations accordingly.

• Interspersing/Dosing developmentally matched sensory and self-regulatory breaks throughout the day—enhances opportunities for learning in the classroom.

  • “know the stage understand the state”—Dr. B. Perry
Repetitive

Patterned

• The Brain develops in a use-dependent way. The more an action or experience is replicated, the more those areas of the brain will be activated.

• Engaging in activities in a patterned, repetitive way provides the neural pathways in the brain with repeated exposure, strengthening connections.

• Many repetitive activities can also be rhythmic.

• Structure/predictability in the classroom creates repetition and the repetition impacts the organization of the brain.
Rewarding

Pleasurable

• Keeping students engaged and learning, means the environment must be rewarding.
• The drive to seek reward and avoid distress can be very strong.
• Teachers and caregivers help students build healthy ways to seek reward.
• Relationships are the most powerful reward.
• Rewarding activities coupled with positive relationships equates to an optimal learning experience.
Rhythmic

Resonant with Neural Patterns

• Creating a rhythmically rich environment is also one of the most powerful core elements used to re-organize the brain.

• Rhythmic activities tap into rudimentary ways the brain recognizes as regulating. This stems back to a fetus hearing the maternal heartbeat in utero and associating this rhythm with a homeostatic environment where they are safe and biological needs are met.

• Using rhythmic activities can help the brain manage the stress response system using a “bottom-up” approach which resonates with neural patterns.
Respectful

Child, Family, Culture

- Willingness to listen and communicate openly is important. Understanding similarities and differences. Validation
- Seek understanding about an individual’s belief system and how their life experiences have shaped them, always respecting the intimacy barrier.
- Respect for individual’s culture
- Understanding the power differential. By respecting this differential and staff making themselves more approachable, a respectful and authentic relationship can develop.
Denise Manderson, MC
dmmanderson@cbe.ab.ca