WHAT IS NMT?

The Neurosequential Model of Therapeutics is a neuroscience-informed, developmentally-sensitive, approach to the clinical problem solving process.

It is not a therapy – and does not specifically imply, endorse or require – any single therapeutic technique or method.


Essentially, all models are wrong, but some are useful.

The brain mediates our thoughts, feelings, actions and connections to others and the world.

Understanding core principles of neuroscience, including neuroplasticity and neurodevelopment, can help us better understand ourselves and others.

Each person has a unique pathway to the present and deserves individualized care.

“One-size fits all” approaches rarely meet the needs of the individual – more often they meet a need of the provider (or system).
Semi-structured, quantitative assessment process:
NMT Clinical Practice Tools (Metrics)

- Developmental History
  - Genetic
  - Epigenetic
  - Adverse Experiences
    - Developmental Timing
    - Nature, Severity, Patterns
  - Relational Health
    - Developmental Timing
    - Bonding and attachment
    - Family supports
    - Community supports

- Current Functioning
  - Individual CNS
    - Brainstem
    - Diencephalon/CBL
    - Limbic
    - Cortex/F TCTX
  - Relational
    - Family
    - Peers
    - School
    - Community

1. Demographics
2. History – Developmental
   a. Genetic
   b. Epigenetic
   c. Part A. Adverse Events measure
   d. Part B. Relational Health measure
3. Current Status
   a. Part C. Central Nervous System (CNS) Functional Status Measure
     i. Brainstem
     ii. Diencephalon/CBL
     iii. Limbic
     iv. Cortex/F Frontal Cortex
   b. Part D. Relational Health measure
4. Recommendations
   a. Therapeutic Web
   b. Family
   c. Client
     i. Sensory Integration
     ii. Self Regulation
     iii. Relational
     iv. Cognitive
5. Caregiving Challenge Estimator
   a. Caregiving resources
     i. Internal resources/demands
     ii. External resources/demands
   b. Caregiving demand
     i. Children (number)
     ii. Children (challenge)
   c. Caregiving reserve
### NMT Metric Reports

#### NMT-Guided Treatment Planning

#### Additional NM Web-Based Tools

#### The Neurosequential Model

**Selected Outcomes**

Application & Effectiveness (2008-2019)

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**NM is not “On the Shelf”**

86% of clinical research is never used in direct patient care (Balas & Boren, 2000)

It takes an average of 17 years for the 14% of research that influences clinical practice to get there (Morris, Wooding & Grant, 2011)

NMT was first manualized in 2008 when the NMT Certification Process was developed

Since then:

- 48,000 metrics
- over 2000 Phase I trained clinicians
- 10 Flagship sites in three countries (US, Canada, Australia)
- 100 + Phase I NMT Certified Sites and Programs
- 25 countries

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**Inter-Rater Reliability**

Hambrick, Brawner, & Perry, 2017

Amongst 101 acceptable and high-fidelity metric users, metric scores obtained do not differ on average from metric scores obtained by NMT developers (Metric N = 1184).
Youthville: TRC in first year of NMT Certification

- According to Youthville encounter data, between April 23, 2009 and January 26, 2010, the TRC served 28 children. Children and families received between 1 and 257 days of service, with an average of 111 days of service and a median of 118 days of service.

- Findings suggest increased placement stability for children receiving TRC services. Pre-TRC, children in the treatment group had an annualized placement change rate of 2.4%. Since TRC treatment, that rate has declined to 1.13.

- Among children in TRC, the rate of psychiatric, detention, or other institutional placement declined 33.3%. This compares to a 50% increase in the usual care group.

- Of children in TRC treatment, 43.9% now have a case plan goal of adoption, compared to 30.1% of the usual care group. This suggests that the TRC group was well-selected to achieve permanency and appears to be moving toward that goal.


NMT IN PRE-SCHOOL SETTING (STUDY 1)


Restraint and Critical Incident Reduction Following Introduction of the Neurosequential Model of Therapeutics (NMT)


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Introduction of NME
Columbus Public Schools (2014-2015)

<table>
<thead>
<tr>
<th>District</th>
<th>Year</th>
<th># Office Referrals</th>
<th># Detentions, Suspensions or Exclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Columbus City – Ohio Av. E5</td>
<td>2014-15</td>
<td>817</td>
<td>129</td>
</tr>
<tr>
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<td>2014-15</td>
<td>745</td>
<td>85</td>
</tr>
<tr>
<td>Columbus City –立法学 E5</td>
<td>2014-15</td>
<td>1739</td>
<td>2068</td>
</tr>
<tr>
<td>Columbus City –立法学 C5</td>
<td>2014-15</td>
<td>1057</td>
<td>302</td>
</tr>
<tr>
<td>Graham School</td>
<td>2014-15</td>
<td>Not available</td>
<td>166</td>
</tr>
<tr>
<td>The Charles School</td>
<td>2014-15</td>
<td>Not available</td>
<td>166</td>
</tr>
<tr>
<td></td>
<td>2014-15</td>
<td>Not available</td>
<td>10 (1 suspensions)</td>
</tr>
<tr>
<td></td>
<td>2014-15</td>
<td>Not available</td>
<td>10 (1 suspensions)</td>
</tr>
</tbody>
</table>

Trauma-Informed Movement in Education (TIME)

<table>
<thead>
<tr>
<th>District</th>
<th>Year</th>
<th>Suspensions By School Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Columbus City – Ohio Av. E5</td>
<td>2015-16</td>
<td>20</td>
</tr>
<tr>
<td>Columbus City –立法学 B5</td>
<td>2015-16</td>
<td>15</td>
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<tr>
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<td>2015-16</td>
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<tr>
<td>Columbus City –立法学 C5</td>
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<td>2</td>
</tr>
<tr>
<td>Graham School</td>
<td>2015-16</td>
<td>1</td>
</tr>
<tr>
<td>The Charles School</td>
<td>2015-16</td>
<td>1</td>
</tr>
</tbody>
</table>

CTA: CLIENT D. S/P SEVERE NEGLECT
THE NEUROSEQUENTIAL MODEL

CERTIFICATION

The certification process was started to ensure that the use of “NMT” was based upon an understanding of the core principles that underlie the approach and to help clinicians learn to use the NMT Clinical Practice Tools (NMT Metrics) with acceptable fidelity.

The key objectives of the Phase I Certification process are: 1) to introduce the core concepts in neuroscience, psychology, social sciences and related disciplines that inform the Neurosequential Model and the NMT Clinical Practice Tools (NMT Metrics); 2) introduce and develop the capacity to use the NMT Metrics with acceptable fidelity and 3) introduce and model the use of the NMT in the clinical problem-solving process.
NAPA IPMH FELLOWSHIP

NMT Certification has been integrated into the internationally-acclaimed post-graduate training program led by Dr. Kristie Brandt at UC-Davis. The result is an annual group of clinicians with advanced training in Infant Mental Health, who also qualify for NMT certification. While many of these clinicians are based in California, the group has international representation. 

NMT EMBEDDED IN MSW TRAINING (LOYOLA, CHICAGO SSW)

Following the lead of Dr. Mason at Loyola-Chicago, multiple graduate programs in social work and education are integrating NMI concepts into their curricula; these include Case Western Reserve, University of Texas, Smith College, Cleveland State and the University of Chicago. 

NMT CERTIFICATION PROCESS

Certification (Phase I NMT Certification)

Mentor (Phase II NMT Certification)

Trainer (ITT - Phase II NMT Certification)
There are a dozen or more primary articles and many supplemental readings to support the learning and teaching processes. The core reading list provides additional background and context for the use of the NMT. As new materials become available they will be provided to the participants. The online Support Resource Page will contain copies of all Core and Supplemental readings.

**PHASE I STUDY GROUP MINI-DIDACTICS**

An experienced NMT Clinician/Trainer facilitates the monthly Phase I Study Group. Using live web-based platforms (e.g., GoToMeeting or Zoom), the Trainers will begin each session with a mini-didactic on a topic that is a focus of the Phase I study group’s current Module.

- **Understanding Developmental Trauma: A Primer**
  - **Session 1: Basics of Brain Organization & Structure**
    - The Neuron:
      - 86 billion neurons in the human brain
      - Neurons: 86,000,000,000 86 Billion
      - Glia: 111,800,000,000 111 Billion
      - Synaptic boutons: 430,000,000,000,000 420 TRILLION
      - Synaptic proteins: 8,603,956,000,000,000,000 8.4 QUADRILLION
    - The Synapse:
      - One billion synapses in a cubic centimeter of brain tissue

**PHASE I STUDY GROUP CASE DISCUSSIONS**

At least quarterly, the Phase I Study Group will include a case-based staffing. One of the Phase I learners will complete the NMT Case Abstract Form and complete an NMT Metric for the client being presented. These ‘mini-staffings’ are an opportunity to begin getting feedback about scoring the NMT Metric and learn more about the clinical treatment planning process using the NMT.

**INTERACTIVE DISCUSSIONS METRIC, QUARTERLY CALLS & SOCIAL MEDIA**

There are other options for live (or online) discussions. The monthly Metric call and a set of social media outlets.

- An NMT Certification discussion group is available on NMT Phase I Facebook page. This forum allows ongoing discussion between members and with NMN personnel and partners.
  - Twitter: @Neurosequential @BDPerry @ChildTraumaAcad

**CLINICAL PRACTICE TOOLS DEVELOPMENTAL HISTORY**

The core of the NMT Clinical Practice tools are the web-based metrics. Adverse experiences and relational health during development help create an estimate of developmental risk. In turn, looking at developmental risk as a function of neurodevelopment can help provide insights regarding the vulnerability of key neural networks, systems and related functional capabilities of the client.

**NMT METRICS FUNCTIONAL CNS MAPS**

The functional CNS maps are created from examination of the current functional status of a set of key brain-mediated capabilities. When compared with age-typical capabilities, a rough indication of the developmental and functional status of various brain areas can be estimated. This allows the selection and sequencing of enrichment, educational and therapeutic activities which would plausibly help organize or re-organize key neural networks and, thereby, improve function.

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# PHASE I
## CORE CASE-BASED WEBINAR SERIES

### Session 1.1: NMT Overview: Dissociation and Intimacy Barrier
**Key content:**
- Dissociation Continuum
- Intimacy Barrier
- Arousal Continuum

### Session 1.2: Severe Early Abuse and Relational Templates
**Key content:**
- Bonding/Attachment
- Feeding Habits
- Somatosensory Regulation
- Epigenetics

### Session 1.3: Dissociation and Hyperarousal
**Key content:**
- Neurodevelopmental physiology
- NMT fundamentals
- Dissociation/hyperarousal

### Session 1.4: FAS +
**Key content:**
- Fetal Alcohol Spectrum
- Caregiver Competency
- Navigating Difficult Legal Custody Issues
- Neglect

### Session 1.5: Reconstruction of Developmental History
**Key content:**
- How to score metric in cases where there is little to no info
- Somatosensory interventions
- Therapeutic Web
- Sequential development, processing and healing

### Session 1.6: Sexual Abuse and Failed Adoption
**Key content:**
- State-dependent functioning
- Adoption issues
- Primitive regulatory strategies

### Session 1.7: Severe Neglect and Institutionalization
**Key content:**
- Institutionalization
- Neglect in multiple forms
- Transgenerational trauma
- Pediatric psychopharmacology and irrational prescribing practices

### Session 1.8: Dissociation, Reward, and Relational Poverty
**Key content:**
- Neurodevelopmentally informed work in clinical & school settings
- The biology of reward
- Primary relational associations

### Session 1.9: Chaos, Neglect, and Adoption
**Key content:**
- Brief overview of NMT neurodevelopmental perspective
- State-dependency of intimacy barrier
- Development of primary associations
- Cortical Modulation

### Session 1.10: State-Dependence & Toxic Relational Milieu
**Key content:**
- State-dependence
- The Therapeutic Web & key relational environments
- Court system
- Parental arousal and co-dysregulation
Session Title: 1.11: Outcomes, Pre- and Post

Key content:
- Domestic Violence
- Hypofrontality (FASD?)
- Attachment issues
- Co-regulation
- Case with pre- and post outcome data

PHASE I
 CORE CASE-BASED WEBINAR SERIES

The Neurosequential Model of Therapeutics

PHASE II-TTT CERTIFICATION

MODULAR LEARNING

The Phase II-TTT process is comprised of 12 Modules. Each Module includes multimedia content, core readings, the Master Clinician case-based webinar series, TTT-specific didactic webinars, recommendations for structuring the Phase I Study Groups, and all related TTT learning activities.

Each Module outlines the Objectives for that Module and Key Principles. The TTT Modules parallel the Phase I Modules in content, Learning Objectives and Key Principles. As the TTT learner is leading the Phase I Study Group this allows (or requires) the Trainer to revisit and master the basic concepts and principles presented in Phase I.

SELECTED CHAPTERS ARE INCORPORATED INTO THE PHASE II-TTT MODULES

The primary importance of relationships in the healing processes encouraged and supported by FASD are well described in the book, Born for Love. The narrative presentation of these concepts make these readings useful for the Phase II-TTT learners.

TEACH TO LEARN

A major component of this Train-the-Trainer program is co-leading a Phase I Study Group. The Phase I TTT clinician learner will use the Phase I Modules to help guide the Phase I learners in their assigned Phase I Study Group.

The content and process will mirror the TTT content and process. Reviewing the previously presented material as a teacher rather than a new learner will provide a unique and enriching perspective.

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The Phase II-TTT clinician learner will use the Phase I Modules to help guide the Phase I learners in their assigned Phase I Study Group. In addition to the didactic content, the TTT learners will help Phase I learners master the online app and the NMT assessment process. Over time the clinical application of the NMT becomes a focus of the discussions in the Phase I Study Group.

The core concepts underlying the NMT are introduced in a set of multimedia DVDs provided in Phase I. In the TTT materials are set of supplemental multimedia materials intended to both expand concepts introduced in Phase I and to model how to present and teach these. The supporting materials and handouts for Series 2 can facilitate self-directed learning and provide useful handouts and takeaways when Trainers teach.

A major objective of the TTT experience is to develop comfort and competence in teaching the core NMT concepts. Phase II – TTT learners will facilitate a monthly Phase I Study Group comprised of Phase I learners. Using live web-based platforms (e.g., Zoom), the TTT learners will begin each session with a mini-didactic on a topic that is part of the focus of their Phase I study group’s current learning Module.

At least quarterly, the Phase I Study Group should include a case-based staffing. One of the Phase I learners should complete the NMT Case Abstract Form and complete an NMT Metric for the client being presented. For the TTT process, the participants are asked to provide summaries for some of these staffings.

Just as there are cohorts of Phase I learners who are in Study Groups led by Phase II-TTT clinician learners, there are Phase II Study groups comprised of clinician learners who are progressing through their Phase II-TTT Modules. This group meets each month using one of the CTA’s web platforms (e.g., GoToMeeting or Zoom). The Phase II Study Groups are facilitated by clinician learners who are either training to become Mentors (Phase III) or who have completed Mentor certification. This will be an opportunity to review progress towards certification, expand on core concepts, review NMT training materials (e.g., NMT Slide Series), share experiences (triumphs and challenges) and create collegial relationships that will continue to provide opportunities for collaboration well past the formal certification process.
There are other options for live (or online) discussions. The Metric call, the Quarterly IC or Site call, and a set of social media outlets. An NMT Train-the-Trainer discussion group is available on the TTT Facebook page. This forum allows ongoing discussion between members and with members of the Neurosequential Network.

All emerging practices should be based upon plausible principles derived from the most updated research. And as these practices are evaluated and translated they should be evaluated for practicability, affordability and effectiveness. Unless a practice or program can be reasonably disseminated in large public systems their global effectiveness is limited.

A key role of the NMT Trainer will be to stay up-to-date on the growth of the evidence base for the use of the Neurosequential Model. As NMT is a relatively new and significantly unique approach to clinical work, it will, rightly, be challenged to demonstrate effectiveness. The Trainer should be prepared to address these issues.

A summary of the emerging research and evidence support for the Neurosequential Model is maintained and updated by the Neurosequential Network.

The Phase II-TTT clinician learner will have access to a host of materials that can support their teaching and training efforts. A major component of the Trainer learning process is a set of web-based didactic presentations (Adobe Connect or Vimeo). These presentations were originally archived in 2010-2011. While the majority of this content continues to be accurate and useful, the working heuristics and emerging research and experience of the CTA and other in the field require ongoing updates to the training materials. In 2018, an updated didactic series, the Developmental Trauma Primer, was created for all advanced NM Trainers. This series is a core requirement for Phase II-TTT.

A completely new set of supporting slides was created in 2019. These are in the provided as two main files (Intro to the NMT and NM Core Concepts). As new findings and updated heuristics are developed, updated slides and other support materials will be posted in the web-based Resource Support Section.

NMT TTT PRIMARY TRAINING MATERIALS

PHASE II CORE DIDACTIC WEBINAR SERIES

Session 1: Brain Organization
Key challenge: Volume of content: "factoids" vs principles; recognition of the regional mediation of function – and the network distribution of neural systems mediating function

Session 2: Neurodevelopment
Key challenge: Volume of content: language; appreciation of the nature and timing of the multiple micro-processes of neurodevelopment

Session 3: Memory
Key challenge: appreciation of the broader concept of memory; early experience and the creation of templates

Session 4: Relational and Reward Neurobiology
Key challenge: complex inter-relationships stress response, relational and reward neurobiology

Session 5: Neglect
Key challenge: recognition of the various “forms” of neglect, appreciation of the key role of timing of experience

Session 6: Stress, Distress and Trauma
Key challenge: complex interplay between hyperarousal and dissociation

Session 7: Special Topics: Sensitization, Tolerance
Key challenge: appreciation of key role of patterns of experience, relationship to therapeutic approaches

Session 8: Special Topics: Neurosociology
Key challenge: appreciating concepts of group dynamics and influence on neurobiology

Session 9: State-dependent functioning
Key challenge: appreciation of the pervasive role of state-dependent functioning, arousal continuum, intimacy barrier

Session 10: Advanced Clinical Topics
Key challenge: Sleep, physical hygiene, patterns, timing and duration of experience

Session 11: NMT Metrics: Patterns and Integration to Practice
Key challenge: appreciation of most common patterns

Session 12: Introduction to the NMT
Key challenge: sample brief overview for trainers to model