Columbia University Medical Center Contributors:
Alice Saperstein, PhD & Alice Medalia, PhD

OnTrackNY Contributors:
Iruma Bello, PhD, Ilana Nossel, MD, Lisa, Dixon, MD, MPH
New York State Psychiatric Institute, OnTrackNY
# Table of Contents

I. Background ................................................................................................................................. 3
II. Addressing Cognitive Health in OnTrackNY ............................................................................. 5
   A. Step 1: Assessment .................................................................................................................. 6
   B. Step 2: Discussing Cognitive Health ..................................................................................... 8
   C. Step 3: Treatment Planning .................................................................................................. 11
      1. General Cognitive Activation ......................................................................................... 11
      2. Psychoeducation ............................................................................................................... 11
      3. Family-Based Approach ................................................................................................. 12
      4. CBT for Executive Dysfunction ..................................................................................... 12
      5. Compensatory Cognitive Remediation ....................................................................... 12
      6. Restorative Cognitive Remediation ............................................................................... 13
      7. Integrated Strategy Coaching ....................................................................................... 13
III. References and Resources .......................................................................................................... 15
   A. Books .................................................................................................................................... 15
   B. Web-Resources .................................................................................................................... 15
   C. Clinical Resources ............................................................................................................... 15
IV. Appendix ..................................................................................................................................... 16
I. Background

Cognitive health refers to the brain’s ability to support thinking, learning, remembering and the other cognitive skills needed to perceive, acquire, understand and respond to information. This includes the abilities to pay attention, remember, process information, solve problems, organize and reorganize information, and communicate. Cognitive abilities work in a close, interdependent fashion to allow one to function in everyday life – at home, in relationships, in the community, at school, or at work. Cognitive health is essential for subjective well-being and quality of life.

Although every person is born with certain cognitive capabilities with areas of strength and relative weakness, many factors can either enhance or impair cognitive skills. Learning experiences, exercise and diet can positively impact cognitive skills, while stress or illnesses that impair brain functioning can disrupt cognitive functioning. Psychiatric illnesses, like schizophrenia, negatively impact the brain functions that underlie cognition. At the time of first episode, people evidence moderate to large impairments in cognitive skills, when compared to psychiatrically healthy individuals of the same age. Not only are cognitive deficits pervasive, but they also persist throughout phases of the illness, independent of other symptoms, which may fluctuate over time.

Cognitive impairments make it difficult for individuals to carry out important life roles, meet personal goals, and have their needs met. In fact, research shows that cognitive deficits are one of strongest predictors of functional outcome among individuals with schizophrenia spectrum disorders. To understand how having cognitive deficits may be experienced by people with psychosis, consider the following definitions and examples.

**Attention:** the ability to stay focused on a task over a period of time, even in the face of distractions. Attention is required to:

- Concentrate enough to read or follow a conversation
- Keep track of time
- Stay focused on what is important and filter out extraneous information
- Manage more than one task at a time

**Example:** Peter’s concentration was significantly impaired after experiencing a psychotic episode. This made it difficult for him to stay focused in class and complete timed tests at school. He was much more distractible at his cashier job to the point of being fired.

**Speed of Processing:** the ability to quickly make sense of information to generate an appropriate response. Speed of processing is needed to:

- Complete timed tasks such as timed tests
- Keep up with the pace of a conversation
- Interpret information quickly
- Make quick decisions
Example: Around the time of his first episode, Ed began to notice that his thinking often felt slow and cloudy. This made it especially difficult when navigating around the city when he had to make quick decisions about what bus to take or when and where to get off the subway. He started feeling less secure about traveling independently.

**Working Memory:** the ability to maintain and manipulate information in mind for a brief period of time. Working memory is used to:

- Make change at the store
- Remember digits to dial a phone number correctly
- Calculate a tip at a restaurant

Example: Yasmin did not have significant symptoms but had a lot of difficulty at her waitressing job. She often lost track of what customers ordered before she could write it all down, and her manager was getting impatient with the accumulating number of returned orders and slowing service.

**Memory:** the ability to recall information seen, heard, or read. Memory is needed to:

- Take medications at prescribed times
- Keep scheduled appointments
- Follow directions when travelling
- Learn the steps of a task
- Follow verbal instructions
- Recall what was read or discussed
- Do important things (grocery shopping, fill a prescription, pay a bill)
- Keep track of important items (keys, wallet, phone)

Example: Dave frequently missed his appointments with his SEE specialist. Although Dave said he wanted to work, his SEE specialist was uncertain because he thought that Dave’s missed appointments reflected a lack of motivation. However, a closer inspection of his pattern of missed appointments with his therapist and doctors revealed that he had very poor memory and didn’t have the tools he needed to keep track of important dates and times.

**Critical Thinking Skills:** encompasses multiple skills such as reasoning, problem-solving, planning/organization, and self-monitoring. Critical thinking is required to:

- Begin a task or finish what was started
- Recognize mistakes or switch behavior when errors are made
- Plan ahead
- Make logical decisions
- Deal with a problem that arises
- Inhibit responses when not appropriate
- Accomplish tasks in a reasonable time-frame

Example: Jenny worked closely with her SEE specialist on getting a job and celebrated when she began working. After several weeks, Jenny suddenly quit. In later consultation with her SEE Specialist, Jenny indicated that her boss said Jenny was filling out her time sheets incorrectly and immediate action was
needed to process her paycheck. Jenny felt too overwhelmed by the corrective instructions so she walked out in a panic and never returned.

The examples above illustrate the importance of correctly identifying the underlying cognitive problems as early as possible so that clients can continue to remain active and engaged in their life roles and their pursuit of personal goals. People with cognitive impairments are able to successfully go to work, school, pursue independent living and have meaningful social relationships despite these difficulties. The most successful clients with cognitive difficulties are those who develop their cognitive skill set and learn effective coping strategies for reducing the interference caused by their cognitive limitations.

II. Addressing Cognitive Health in OnTrackNY

While we are born with certain cognitive capabilities - we may be better at some skills than others - cognitive skills can be strengthened and improved. When cognitive skills are strong, learning becomes easier. Thus, improving cognition can have a positive impact on one’s ability to benefit from other skills-based interventions, to function in important life roles, and to progress towards achieving recovery goals. Unfortunately, there are no approved medications that have shown any appreciable benefit for cognitive impairment in people with psychosis. Rather behavioral interventions are the mainstay of cognitive treatments for people with psychiatric disorders.

Cognitive remediation (CR) is an evidence-based skills training intervention that aims to improve the thinking skills discussed above. Not to be confused with Cognitive Behavioral Therapy (CBT) which focuses on the content and form of thoughts and beliefs, CR targets the information processing skills that underlie thinking. Cognitive remediation, like other skills-based interventions, is a learning activity. Learning relies on neuroplasticity which is the brain’s ability to adjust the activity and organization of neurons in response to behaviors and changes in the environment. In order for sustained learning (and therefore brain changes) to occur, training activities need to be structured for repeated practice. There are two general “classes” of evidence-based CR, restorative and compensatory. Restorative training employs exercises, most often computer-based, that are designed to target and, with repeated practice, strengthen one or more thinking skills, ranging from basic sensory processes (auditory, visual), to fundamental processes (attention, memory), to complex skills (problem solving). Many computer-based program packages are available for purchase, but it is recommended that when treating people with schizophrenia, any restorative-based computer package be provided by a trained clinician. That way, exercises can be selected based on each individual’s areas of cognitive need, coaching can be provided to support learning and motivation, and cognitive skills can be discussed with respect to their application to everyday life. As opposed to training cognitive skills directly, compensatory approaches teach people how to use tools and strategies to accomplish cognitive tasks in everyday situations. Both types of CR can be conducted individually or in a group, have been manualized to facilitate dissemination and implementation, and are effectively paired with educational, vocational, and social interventions.

Cognitive remediation programs are increasingly found in outpatient clinics that offer psychosocial rehabilitation. This is because the ultimate goal is to improve functioning, and CR is most effective when paired with programs that teach skills to function well in the community. Since recovery can mean different things to different people, CR must be personalized to best address the cognitive needs and
goals of each individual, to keep the individual engaged, and to maximize learning. Central elements of CR programs include:

1. **Assessment:** An assessment of cognitive health needs will inform shared decision making and treatment planning. This can include client report of cognitive problems, interview with support persons, or formal neuropsychological testing.
2. **Recovery Orientation:** Discussion of assessment results and the formulation of a treatment plan should focus on how improving cognitive skills will facilitate attainment of recovery goals.
3. **Dedicated Time:** Like any new skill being developed, cognitive skills and compensatory strategies require repeated practice, and practice in several contexts to reinforce learning, to promote generalization, and make lasting changes in functional abilities.
4. **Clinician Expertise:** CR is delivered by clinicians knowledgeable about cognitive health, trained to do CR, and skilled at working with people who have mental illnesses.

Cognitive remediation is one way to address cognitive problems. However, there is no “one size fits all” approach to improving cognitive skills and everyday functioning. Rather, there are multiple strategies that can be integrated in the treatment plan by different members of the OnTrackNY team. How cognitive health is addressed will be informed by assessments of cognitive functioning, client interest in addressing cognitive health, and an evaluation of the available resources. Through the process of shared decision making, the approach that may best help each individual meet his/her needs will be determined. In this way, addressing cognitive health in clients experiencing their first episode of psychosis is personalized, using approaches that complement each other, and can be integrated in the overall treatment plan. The ultimate goal is to facilitate ongoing community engagement, and enhance the potential for personal goal achievement.

The steps that will help the OnTrackNY team and client make decisions about how best to address cognitive health are outlined in the sections that follow. It is important to preface this discussion with two caveats.

1. Treating cognition within the OnTrack model recognizes that assessment and treatment planning is a dynamic process that is ongoing throughout the time someone is enrolled in the program. Assessment of cognition does not end at intake; clinicians continue to consider whether cognitive problems are occurring and need to be treated.
2. The best time to address cognitive problems is when they are interfering with functioning. There is no need for other symptoms, like psychosis, to be treated first. In fact, it will be easier to stick to medication schedules if attention and memory are functioning well, and addressing cognitive health is often the first step to ready someone for supported employment or education.

A decision tree will help guide team members through a step-wise process.

### A. **Step 1: Assessment**

The assessment conducted at admission includes important pieces of information pertinent to cognitive health: Psychoeducational History, Wide Range Achievement Test 5th edition – Reading Subtest (WRAT5-Reading), and the Self-Assessment of Cognitive Functioning. Questions regarding the psychoeducational history are found in the Psychiatric History form. Questions assess for diagnosed learning disability, attention-deficit hyperactivity disorder (ADHD), and receipt of formal academic accommodations in
school. The latter would not only indicate whether learning disabilities have been formally diagnosed, but will also flag potential challenges the client may face during the course of treatment, in academic or work settings, and what supports will be needed. For example, knowing that a client has a prior diagnosis of ADHD signals that the client might have difficulty with planning, time management, organization, goal-setting, memory, and attention. Consequent functional difficulties can be addressed through teaching compensatory skills, pursuing accommodations, or by integrating restorative cognitive remediation, with a focus on the practice of attention, memory, and problem-solving skills.

The WRAT5-Reading test yields two pieces of information to consider in the process of treatment planning – a full scale IQ estimate and a grade reading level. An IQ estimate may inform program inclusion and is helpful for determining the individual’s pre-illness cognitive capacity against which current cognitive ability can be compared. That is, the severity of one’s cognitive impairment must always be analyzed with respect to one’s own baseline ability level. This may impact the subjective experience of cognitive impairment, as an appreciable decline in cognitive functioning may be associated with a range of emotions from frustration to dejection. On the flip side, knowing one’s cognitive capacity provides an endpoint goal when interventions to remediate cognitive deficits are enacted. Similarly, assessment of grade reading level will inform the need for referrals to remedial reading or literacy programs or indicate the degree of assistance the client may need to comprehend materials such as job applications, healthcare forms, or exercise instructions and handouts used throughout the course of interventions implemented in the treatment plan.

The Self-Assessment of Cognitive Functioning (located in the appendix) is a brief questionnaire that assesses the client’s perception of their abilities in the domains of memory, attention and critical thinking skills. Additional questions query whether the difficulty is a change from a previous level of functioning, when that change occurred, and to what factors the client attributes that change. The Self-Assessment of Cognitive Functioning should be completed at the time of admission, and re-administered as clinically indicated. The information from this assessment is intended to start the discussion about cognitive health and informs the need for further evaluation. It is recommended that collateral information is gathered at a separate time which may include the medical record, formal cognitive testing, team member, family or other support person report. As shown (left), the information gathered may help to understand the etiology of the cognitive impairments identified by the client, and inform the appropriate ameliorative approaches. For example, current misuse of substances can adversely affect cognitive functioning and may need to be specifically addressed prior to engaging in targeted cognitive intervention. If medication may be causing lethargy and difficulty with attention, then speaking to the team psychiatrist may be prudent to discuss a change in dosing or timing to improve alertness. The cognitive impact of concurrent neurological illness or traumatic brain injury can be difficult to disentangle from impairment as a result of psychiatric illness. It
is recommended that consultation with a specialist and/or OnTrack Central is sought in order to determine an appropriate course of treatment.

As shown below, when cognitive problems are not identified by the client, consultation with team members and support persons should still be sought. On one hand, others’ report of the client’s cognitive functioning may shed light on the presence or nature of cognitive impairments of which the client may be unaware. On the other, reports from others may confirm that no cognitive problems are present. Supplementing the client’s report with information gathered from others will inform how cognitive health may best be approached to address current or future cognitive health needs. This is discussed further below.

**B. Step 2: Discussing Cognitive Health**

Data gathered from the assessments opens the opportunity to discuss what is meant by cognitive health, the range of available treatment options, and guides the process of shared decision making as to what will be pursued in the treatment plan. It is best that any discussion of cognitive health and treatment approaches remain strengths-based and oriented toward assisting the client to achieve personal recovery goals. The following questions may be used to discuss the results from the Self-Assessment of Cognitive Functioning, whether cognitive difficulties were (example 1) or were not (example 2) identified. The clinical objectives of each query are presented to help guide the discussion of cognitive health in a supportive and meaningful way, as well as to gather information that will assist with subsequent treatment planning.

<table>
<thead>
<tr>
<th>Example 1. Cognitive Problems Are Self-Identified</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Query</strong></td>
</tr>
</tbody>
</table>
| "You've identified that ______ is a problem area for you. Everyone has strengths and weaknesses. Can you provide an example of how this impacts you in your life? For example, some people say they forget their to-do list, or what people tell them. How about you?" | • Normalize experience of cognitive problems  
• Link cognitive health to functioning in everyday life |
| "Sometimes people develop work-around or support strategies to boost their thinking skills (e.g. making notes, using a planner/calendar). Do you use any such strategies?" | • Highlight skills strengths  
• Reinforce current application of strategies to aid functioning and increases opportunities for further use  
• Open up discussion about compensatory training |
“What would change if ________ was no longer an issue for you?”

- Link cognitive health to everyday life and recovery goals
- Open up discussion about cognitive interventions

“It sounds like working towards improving your ability to ________ may be something we can incorporate into our plan.”

- Open up discussion about cognitive interventions
- Engage the client in the process of shared decision making

**Example 2. Cognitive Problems Are Not Self-Identified**

<table>
<thead>
<tr>
<th>Query</th>
<th>Clinical Objectives</th>
</tr>
</thead>
</table>
| “You’ve identified that ________ is not an issue for you. How has having a strong ability to ________ been helpful to you?” | - Highlight perceived strengths  
- Link cognitive health to functioning                                          |
| “It’s great that you feel that this is an area of strength. Do you ever feel that ________ could be even better than it already is? How do you think that might help you?” | - Allow for the possibility of cognitive intervention to be discussed, even if cognitive problems are unrecognized  
- Link cognition to functioning and recovery goals                                |
| “Sometimes people develop work-around or support strategies to boost their thinking skills (e.g. making notes, using a planner/calendar). Do you use any such strategies?” | - Highlight skills strengths  
- Reinforce current application of strategies to aid functioning and increases opportunities for further use  
- Open up discussion about compensatory training                                   |
| “This is an area of strength that you can use to your advantage while working towards you goal(s) of ________” | - Link cognitive skills use to recovery goals                                      |
The transition from assessment to treatment planning may not be linear. For example, as shown (below), team members and/or support persons may identify cognitive problems even when an individual does not recognize cognition is an issue. Psychoeducation and a guided discussion helping the client to link recovery goals to cognitive health may bring to light areas in need of improvement. For example, the client may not initially report cognitive problems interfering with school. However, further probing at the suggestion of a family member may reveal that difficulties with planning and organization are impacting timeliness with completing class assignments. Highlighting the skills and strategies already in use can help promote a sense of competence. For example, the client may report making use of an agenda, taking notes, and writing to-do lists which help with learning and memory. The use of these compensatory strategies can be reinforced and additional skills to improve time management (e.g. prioritization, chunking by task or time) may then be developed. Cognitive skills and strategies would be framed in the context of helping the client work towards achieving academic goals.

For those who do not present with cognitive problems at the time of assessment (right), current cognitive skill strengths and existing strategies can be highlighted so as to encourage opportunities for further use. Cognitive health may be re-assessed in the future, as needs evolve. For example, taking on a part time job may expose cognitive problems not experienced previously when the primary focus was on school. Additionally, as cognitive health may be a previously unexplored topic for some, the client may need some time to digest the assessment experience and then return to cognitive treatment planning at a later time.

Assessment data and collateral information will guide the discussion of how cognitive health impacts each individual and their recovery, and will inform the process of shared decision making. In some cases, these data will be sufficient to determine treatment need and/or create a meaningful treatment plan to address cognitive health. In some cases, an additional formal neuropsychological assessment may be obtained to clarify the nature and severity of cognitive deficit(s). Testing is needed if academic accommodations are being requested or to develop a restorative cognitive remediation treatment plan. Otherwise, the clinical utility of formal testing will need to be considered with respect to the availability of resources. Consider the following:
1. Does the OnTrackNY team include a licensed Psychologist who can provide testing and interpretation?
2. Is there a licensed Psychologist within the agency to whom the client can be referred?
3. Is there a nearby Cognitive Remediation program that routinely conducts cognitive testing for the purposes of treatment planning?

The clinical utility and feasibility of formal testing should be considered when next steps are discussed.

C. **Step 3: Treatment Planning**

The central question for determining Cognitive Health treatment need is, “Are cognitive problems identified that impact recovery goal attainment or quality of life?” Assessment data, client interest, and the availability of resources within and outside the OnTrackNY program will together determine the most appropriate course(s) of action within the framework of shared decision making.

1. **General Cognitive Activation**

   **What it is:** Alternative ways of staying mentally active (e.g. reading, crossword puzzles, logic puzzles, games) may be appealing to some clients. The Primary Clinician may help the client to find local resources (e.g. public libraries, chess clubs, book clubs) that are mentally and/or socially engaging. Online resources (e.g. www.puzzles.com) are also available.

   **Considerations:** While not a replacement for cognitive remediation, general cognitive activation strategies can facilitate mental and social engagement at no cost and with minimal commitment.

2. **Psychoeducation**

   **What it is:** Psychoeducation about cognition can be provided at any time point – during assessment, treatment planning and thereafter. Some clients may benefit from education on what cognitive health is, how cognitive problems may manifest and impact goal attainment. For example, it may be helpful to distinguish between academic skills and cognitive skills, or clarify the difference between cognitive remediation and cognitive behavioral therapy. Perceptions about the static versus malleable nature of cognitive skills may need to be addressed during the process of shared decision making. Since functioning is impacted by several factors, it can also be helpful to discuss how cognition can be improved by ensuring healthy sleep hygiene practices, maintaining a healthy diet, staying physically active, taking medications properly, and managing stress. An information sheet, About Cognition (located in the appendix) is available to OnTrack teams to help educate and engage the client so that the concept of cognition may be better understood. Talking points can be chosen based on need. It is most clinically effective when the client is asked to form his/her ideas first. Two pamphlets, *SMART Ways to Stronger Cognitive Health* and *Healthy Lifestyles & Stronger Cognitive Health* (located in the appendix) are available as take-away materials.

   **Considerations:** Psychoeducation can be an ongoing process, implemented by any member of the OnTrack team, to supplement any approach to cognitive health or facilitate the process of shared decision making with the client and/or support person(s) at any point in the treatment planning and follow-up time line.
3. **Family-Based Approach**

What it is: *Dealing with Cognitive Dysfunction* is a free handbook for families and friends of people with psychiatric disorders. It defines cognition and explains how mental illness impacts cognitive processes and functioning. The handbook guides readers through the identification of specific cognitive problems and how memory, attention and critical thinking skills can best be supported by structuring the environment, using aides, and by providing encouragement and emotional support.

Considerations: This is a no-cost, easily accessed and easy to use resource. Depending on the level of family involvement, the handbook may be offered as the sole approach to addressing cognitive health, or can be provided in combination with any other method. This approach may be particularly useful when insight into cognitive problems is limited but problems are recognized by family and social support network. Strategies to enhance cognitive functioning can be provided in a supportive way; providing support persons with useful tools can be empowering and clinically effective.

4. **CBT for Executive Dysfunction**

What it is: Executive functions refer to the abilities to organize, prioritize and manage information and time, problem solving, reasoning and the ability to hold information in mind while working toward a goal. These skills are often impaired in people with schizophrenia as well as other psychiatric disorders such as bipolar disorder, substance use disorders, depression and ADHD. This is a flexible skills-based approach, similar to compensatory CR, with a specific focus on prioritization and goal setting, problem solving, mindfulness and attention. Uniquely, this approach also addresses thought patterns and behaviors that impact motivation and learning to help individuals initiate change and maintain behaviors that positively impact cognitive health. It is most effective when it is embedded in a comprehensive therapeutic approach that considers the biological, emotional, and physical factors that impact cognition.

Considerations: CBT for Executive Dysfunction includes several learning modules that can be flexibly implemented. It can be employed with individuals, but works well with a group by taking advantage of social learning. It is recommended that sessions are conducted once weekly; in a group setting, sessions are 120 minutes long. Groups can be "open" such that new participants can join after sessions have initiated or "closed" such that enrollment is fixed; the structure of the group may depend on the participants and the treatment setting. Training in the principles and implementation of this approach is available online (www.teachrecovery.com) and can be integrated into the OnTrack program, or clients may be referred out if this intervention is locally available.

5. **Compensatory Cognitive Remediation**

What it is: As opposed to training cognitive skills directly, compensatory approaches teach people how to use tools and strategies to accomplish cognitive tasks in everyday situations. Targeted skills often include attention, learning and memory, and executive functioning. This intervention takes advantage of abilities relatively unaffected by psychiatric illness such as habit learning and imagery to enhance impaired functions. Participants are guided by a trained therapist to automate tasks (i.e. learn new habits) and thus reduce the cognitive effort required to perform tasks in everyday life. Worksheets, in-session practice, and homework support learning and transfer. The skills learned can be applied to any domain of
functioning pertinent to a client’s recovery goals such as school, work, social functioning and independent living.

Considerations: This type of CR does not require computers, is practical and engaging to clients. It is relatively brief - delivered in 12 one-hour sessions if done individually or 12 two-hour sessions if done in groups. An evidence-based manualized intervention (CogSMART: Cognitive Symptom Management and Rehabilitation Therapy) is available for free online (www.cogsmart.com) and can be implemented by OnTrack teams. However, if such services are provided within a local agency, a client may be referred out.

6. Restorative Cognitive Remediation

What it is: Restorative cognitive training employs exercises, most often computer-based, that are designed to target and, with repeated practice, strengthen one or more thinking skills, ranging from basic sensory processes (auditory, visual), to fundamental processes (attention, memory), to complex skills (problem solving). Exercises are selected based on each individual’s areas of cognitive need, determined by self-report of cognitive problems and/or a formal neuropsychological evaluation. In the case of the latter, standardized scores on measures of cognitive ability can be compared to a pre-morbid IQ estimate, thereby indicating severity of cognitive decline. Comparing scores across cognitive domains indicates areas of relative strength and weakness and informs treatment planning. Cognitive practice may be accompanied by coaching and support from a trained therapist. This supports learning by prompting individuals to "think about their thinking", allowing them to be more mindful of their cognitive processes and strategies that can be used to aid the performance on cognitive tasks in session and in everyday life. A key to improving functioning as well as cognition is to help clients apply skills and strategies learned to contexts outside of the CR session. Bridging is an important component that can be incorporated into the CR session whereby cognitive skills are applied in another learning activity (e.g. logic puzzle) or discussed using examples from everyday life (e.g. managing a busy day). Links between cognition and functioning can also be supported when CR is embedded in a larger psychosocial rehabilitation program geared towards recovery goal attainment.

Considerations: Restorative CR requires a time commitment - typically twice weekly, one hour sessions over the course of 15 weeks. Current research recommends that restorative CR is implemented by a trained therapist. The role of the therapist is to identify appropriate cognitive exercises and coaching strategies suitable for each individual’s cognitive and learning needs, as well as their functional goals. OnTrack teams can refer clients to a local CR program if available. A local CR program should be evaluated for fit. Consider the client population served, the intensity of sessions, group size, level of personalization offered, and whether there would be good communication between the outpatient CR program and the OnTrack team. Also, consider the quality of the program: whether there are sufficient resources such as computers to meet clients’ needs, access to a variety of exercises, trained facilitators, and whether bridging is integrated with individual computer-based practice.

7. Integrated Strategy Coaching

What it is: In addition to formal restorative or compensatory CR, cognitive strategies to aid information processing and compensatory skills may be taught on an as-needed basis, as challenges in educational,
employment, social or independent living domains arise. A *Guide to Enhancing Cognitive Functioning* and supplemental handouts are available for OnTrack teams. This guide focuses on memory, attention, and critical thinking skills. The skills and strategies included can be integrated into the treatment plan, taught by the Primary Clinician. However, to aid learning and transfer across domains of functioning, all team members should become familiar with this guide so that strategy use can be practiced and reinforced in multiple contexts.

**Considerations:** This option is low-tech, versatile, and can be employed in an individualized manner, either sequentially as a series of brief sessions, or selectively, on an as-needed basis. The *Guide to Enhancing Cognitive Functioning* includes, for the clinician, an explanation of the strategy (what it is) and the clinical utility (why it works), and for the client, handouts to follow along during the discussion and take away for additional practice. This intervention option should be provided by OnTrack team members and integrated with complementary services (e.g. Supported Employment and Education).
III. References and Resources

A. Books

Dealing with Cognitive Dysfunction Handbook:

Cognitive Remediation to Improve Functional Outcome
www.OUP.com

Cognitive Remediation for Psychological Disorders, Therapist Guide 2nd edition
www.OUP.com

B. Web-Resources

CBT for Executive Dysfunction
www.teachrecovery.com

CogSMART: Cognitive Symptom Management and Rehabilitation Therapy
www.cogsmart.com

http://practiceinnovations.org/Learning-Community-Login

C. Clinical Resources

Lieber Recovery Clinic
www.Lieberclinic.com
IV. Appendix

A. Cognitive Health Decision Tree
B. Self-Assessment of Cognitive Functioning
C. Discussing Cognitive Health
D. Information Sheet: About Cognition
E. Pamphlet: Healthy Lifestyles and Cognitive Health
F. Pamphlet: Smart Ways to Stronger Cognitive Health
Cognitive Health Decision Tree

[Diagram of decision tree with options and pathways]

- **Evaluation**: WRAT-5 Reading, Psychoeducational History
- **Intervention**: Psychoeducational History
- **Self-Assessment of Cognitive Functioning**: Are cognitive problems identified?
  - **Yes**: Discuss Cognitive Functioning
    - **Determine Etiology**
    - **Identify Local Resources**
      - Cognitive Health Service Options:
        - Psychoeducation
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Approach
        - Family-Based Appr...
Self-Assessment of Cognitive Functioning

1. Do you wish you remembered better what you’ve read, heard, learned? Or about appointments, events, things to do?
   
<table>
<thead>
<tr>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

2. Would it be helpful to you if you could concentrate better or stay focused over a longer period of time?

<table>
<thead>
<tr>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

3. Do you think you could accomplish more if you could stay more organized, plan ahead, or manage your time better?

<table>
<thead>
<tr>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

4. For any of those items #1 - #3 you rated a 2 or higher, do you feel this is a change from an earlier time in your life?

   No 0    Yes 1

4.a. When did you notice the change?

<table>
<thead>
<tr>
<th>I did not notice a change</th>
<th>Over the last few months</th>
<th>Over the last year</th>
<th>Over the last few years</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

4.b. Do you have some ideas about why the change occurred (why remembering, paying attention, or being organized is harder now)?

Select those that apply:

- Mental health issues
- Sleep changes
- Started taking medications or medication changes
- Life stress
- Substance use
- Neurological illness or injury
- Don’t know

5. Would you like to learn ways to address any of the issues described above?

   No 0    Yes 1
### Example 1. Cognitive Problems Are Self-Identified

<table>
<thead>
<tr>
<th>Query</th>
<th>Clinical Objectives</th>
</tr>
</thead>
</table>
| “You’ve identified that ______ is a problem area for you. Everyone has strengths and weaknesses. Can you provide an example of how this impacts you in your life? For example, some people say they forget their to-do list, or what people tell them. How about you?” | Normalize experience of cognitive problems  
Link cognitive health to functioning in everyday life |
| “Sometimes people develop work-around or support strategies to boost their thinking skills (e.g. making notes, using a planner/calendar). Do you use any such strategies?” | Highlight skills strengths  
Reinforce current application of strategies to aid functioning and increases opportunities for further use  
Open up discussion about compensatory training |
| “What would change if _______ was no longer an issue for you?” | Link cognitive health to everyday life and recovery goals  
Open up discussion about compensatory training |
| “It sounds like working towards improving your ability to _______ may be something we can incorporate into our plan.” | Open up discussion about cognitive intervention options  
Engage the client in the process of shared decision making |

### Example 2. Cognitive Problems Are Not Self-Identified

<table>
<thead>
<tr>
<th>Query</th>
<th>Clinical Objectives</th>
</tr>
</thead>
</table>
| “You’ve identified that ______ is not an issue for you. How has having a strong ability to ______ been helpful to you?” | Highlight perceived strengths  
Link cognitive health to functioning |
| “It’s great that you feel that this is an area of strength. Do you ever feel that ________ could be even better than it already is? How do you think that might help you?” | Allow for the possibility of cognitive intervention to be discussed, even if cognitive problems are unrecognized  
Link cognition to functioning and recovery goals |
| “Sometimes people develop work-around or support strategies to boost their thinking skills (e.g. making notes, using a planner/calendar). Do you use any such strategies?” | Highlight skills strengths  
Reinforce current application of strategies to aid functioning and increases opportunities for further use  
Open up discussion about compensatory training |
| “This is an area of strength that you can use to your advantage while working towards your goal(s) of ________.” | Link cognitive skills use to recovery goals |
Information Sheet: About Cognition

1. What is Cognition?
   - Cognition refers to thinking skills that allow you to perceive, acquire, understand and respond to information.
   - This includes the abilities to pay attention, remember, process information, solve problems, organize and reorganize information, communicate, and act upon information.
   - Cognitive abilities work in a close, interdependent fashion to allow you to function in your environment.

2. Can Cognition Change?
   - We are born with certain cognitive capabilities - we may be better at some skills than others.
   - Cognitive skills develop and change over time.
   - When cognitive skills are strong, learning becomes easier. (*note: learning may be particularly relevant for those with academic and/or work goals*)
   - Cognitive skills can be strengthened and improved.

3. What Factors Impact Cognitive Functioning?
   - Mental illness affects the way the brain functions, which significantly impacts cognitive skills
   - Cognitive functioning is also impacted by:
     1. Diet/Nutrition
     2. Sleep Hygiene
     3. Stress
     4. Drugs and Alcohol
     5. Medication
     6. Exercise
     7. Medical Conditions
     8. Learning Disabilities
   - You can take advantage of the relationship between some of these factors and cognition to benefit your current level of functioning
     1. *Diet/Nutrition:*
        - nutrient rich foods support healthy brain function
     2. *Sleep:*
        - quality sleep helps the body and brain to rest and recharge at night, while feeling well-rested during the day supports alertness and concentration
     3. *Physical Activity:*
        - exercise improves the circulation of blood throughout the body which delivers oxygen and nutrients that help maintain healthy brain function
     4. *Emotional Well-Being:*
        - staying socially connected can ensure that the tools and supports needed to work towards personal goals are readily available
     5. *Mental Activity:*
        - activities like reading, puzzles, and crosswords are engaging and can help sharpen thinking skill
4. Putting Cognitive Skills into Context

Cognitive skills are the underlying skills that must be in place for you to think, read, understand, remember, plan and organize.

Here are examples of ways in which different cognitive skills are used in everyday life.

<table>
<thead>
<tr>
<th>Work</th>
<th>Memory</th>
<th>Attention</th>
<th>Planning/Organization</th>
<th>Problem Solving</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Remembering what your boss told you to do that day</td>
<td>Staying on-task</td>
<td>Getting to work on time</td>
<td>Something might come up unexpectedly and you need to have a plan to handle it</td>
</tr>
<tr>
<td>Work</td>
<td>Recalling information from class to do homework or to take a test</td>
<td>Staying focused in class so information is not missed</td>
<td>Writing down assignment due dates on a calendar Knowing which books are needed for which days</td>
<td>Seeking out extra help for a class</td>
</tr>
<tr>
<td>School</td>
<td>Recalling information from class to do homework or to take a test</td>
<td>Staying focused in class so information is not missed</td>
<td>Writing down assignment due dates on a calendar Knowing which books are needed for which days</td>
<td>Seeking out extra help for a class</td>
</tr>
<tr>
<td>Relationships and Communication</td>
<td>Remembering names, dates, what was talked about in conversation</td>
<td>Paying attention to others during conversation</td>
<td>Making plans with friends</td>
<td>Settling a dispute with a co-worker or friend</td>
</tr>
<tr>
<td>Independent Living</td>
<td>Remembering when bills are due</td>
<td>Navigating public transportation independently</td>
<td>Paying bills and rent on time Budgeting</td>
<td>Expressing concerns to your boss/friend</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Addressing an issue with roommates or neighbors</td>
</tr>
</tbody>
</table>
**SMART skills:** The Cognitive (thinking) skills that support Cognitive Health. They work in a close, interdependent fashion to support functioning in everyday life.

**Speed of processing:** ability to quickly take in and understand information

**Memory:** ability to recall what is heard, read, or seen

**Attention:** the ability to concentrate, stay focused and multi-task

**Reasoning & Problem Solving:** critical thinking skills needed to evaluate, make decisions, and navigate through challenges

**Time Management:** ability to plan, stick to a schedule and meet deadlines
What is Cognitive Health?
Cognitive health refers to the brain’s ability to support thinking, learning, remembering, and the other cognitive skills needed to perceive, acquire, understand and respond to information.

Why is Cognitive Health Important?
Problems related to cognitive health, known as “cognitive impairment” are common among people with mental health issues like schizophrenia. Cognitive impairments can impact many aspects of daily life.

Frequently Asked Questions:
Do SMART skills actually reflect how smart you are?
SMART skills are not the same as "intelligence" or how smart you are. While some cognitive skills may be stronger than others, cognitive abilities can develop and become stronger.

Are SMART skills the same as academic skills?
SMART skills support the ability to process information and gain new knowledge. When cognitive health is strong, learning becomes easier.

Can SMART skills change?
Yes! Cognitive skills develop and change over time. Cognitive skills can be strengthened and improved.

What can I do to improve my cognitive health?
There are many ways to maintain cognitive health or even improve your SMART skills. Cognitive health is supported when physical health is strong and mental health is well addressed. There are cognitive skill building activities as well as supports and strategies that can help people better manage their lives and aid recovery. Learn about which approaches may be appropriate for you by talking with your recovery coach.

There are already ways you can strengthen your Cognitive Health in your daily life!

When cognitive health is strong, it is easier to make healthy decisions that affect your physical and mental health.

Leading a healthy lifestyle can have a positive impact on your thinking ability.

What makes a healthy lifestyle?
Diet & Nutrition
Sleep
Physical Activity
Emotional Well-Being
**What is Cognitive Health?**

Taking care of your physical and mental health can have a positive impact on your thinking ability.

A healthy lifestyle is an important part of building stronger cognitive health.

When cognitive health is strong, it is easier to make healthy decisions that affect your physical and mental health.

**Good News:** There are many ways you can strengthen your cognitive health in your daily life!
What makes a Healthy Lifestyle?

Diet & Nutrition
- Eating a balance of foods that are nutritious and satisfying support the brain’s ability to function well
- Staying hydrated with water supports concentration
- Eating regular meals during the day provides the energy you need to do important activities and staves off distracting hunger pangs
- Eating the right types of foods can ensure that your medications work properly
- Choosing foods rich in nutrients like omega-3 fatty acids and antioxidants support brain health
- Avoiding foods high in saturated fat and refined sugar support cognitive health as well as physical and emotional well-being

Physical Activity
- Exercise produces the “feel good” chemicals in your brain that can help manage your mood and anxiety
- Physical activity improves the circulation of blood throughout your body, delivering oxygen and important nutrients to help maintain healthy brain function
- Physical activity increases energy and mental alertness
- Feeling “good” can help with motivation to work hard towards personal goals

Emotional Well-Being
- Managing stress so there is a balance of positive and difficult experiences in your day
- Taking medications properly allows your brain to function at its best
- Being mentally active (reading, doing crossword puzzles) can help keep your thinking skills sharp
- Staying socially connected and engaged with your treatment team can ensure that you have the tools and supports you need to reach your goals

Sleep
- Good quality sleep helps manage stress and allows the body and brain to rest and recharge
- Feeling rested during the day supports your ability to process information so that you can perform well at school or work
- Sleep is important for brain processes like learning and memory