

Interpretation Manual 2.0

Community Data Roundtable Pennsylvania CANS

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Introduction

Welcome to Community Data Roundtable's CANS–Pennsylvania DataPool™ Interpretation Manual. This manual is for people administering the Pennsylvania CDR CANS, and for those who receive the DataPool Decision Support in order to help them make service prescription decisions. The manual provides information on the nature of the decision support provided, including the underlying mathematical and communimetric logic.

The Child and Adolescent Needs and Strengths (CANS) Assessment is a tool built on the science of communimetrics (Lyons, 2009). It is designed to facilitate assessment and treatment referral of children in Pennsylvania's community behavioral health system. This manual is intended for people who are already familiar with CANS administration and the benefits of the CANS to structuring assessment. This manual goes to a deeper level, explaining the development of the DataPool decision-support information.

At its heart, all communimetric tools are "information integration tools." Their goal is to ensure that all necessary information is gathered during an assessment, and then to facilitate the transfer of that information to other entities in the system of care. Because of the way the tool is structured (e.g. Individual items, scored on a 0–3 scale, uniform anchor definitions), it is also possible to do analytics with the scored CANS. The manual will demonstrate additional uses, such as the sorting of children and families, as well as connecting patients with the most appropriate care for them.

This manual also warns against misuse of "behind the scenes" algorithms and decision support scores. The CANS is meant to clarify information transfer between families, clinicians, and administrators. Families should be engaged in the evaluation process that informs CANS scoring, and it is best-practice to review the CANS with the family when done, so as to focus conversation on whether all are in agreement on the family's strengths and needs, and to plan next steps. When used in this way, the CANS has clear "face validity." However, when algorithms, analytics, and statistics start to convert CANS data into decision support, the CANS becomes more complicated and requires expertise to translate it for families, so that they are still engaged in decision making.

The purpose of this manual, then, is to help clinicians understand what is "under the hood" for all decision support algorithms found in the CDR DataPool. Evaluators should utilize the DataPool decision support to help and inform their decision making, but not replace it.

This manual explains the CANS-based algorithms in the DataPool. Clinicians should utilize this manual to

- ▶ Understand the logic of the algorithms that power the decision support, so that they feel safe in utilizing the decision support, since the underlying logic of it will be concrete and clear to them.
- ▶ Understand limitations in the algorithms in order to avoid misapplication and misuse.
- ▶ Gain an increased understanding of the algorithm end-points and logic, so that not just the professionals benefit from the algorithms, but so can the families and consumer's whose treatment planning is being impacted by them.

Outcomes Benefits for Utilizing DataPool CANS Algorithms

Though there are caveats for utilizing the CANS algorithms, there are also many benefits to their use in your evaluation and prescribing process. Evaluators who utilize the CDR CANS have been shown to:

- ▶ Have more consistency in evaluation thoroughness and quality.
- ▶ Prescribe more evidence-based programs than evaluators not using the CANS, and to prescribe them more appropriately (i.e. to the right people who match the EBP's target audience).
- ▶ Prescribe more highly intensive services (i.e. TSS hours) to the highest-need children.
- ▶ Reduce the prescription of high intensity services to children of lesser needs and whom could benefit from more appropriate care.

These are important outcomes that benefit the whole system of care. Proper use of the CANS, then, is in everyone's interest.

Section I: Basic Interpretation

CANS Overview

The CANS is based on the science of communimetrics (Lyons, 2009).

Communimetrics provides a system for operationalizing formally agreed-upon clinical standards (as laid out in regulations and/or service descriptions, etc.) so that they are amenable to mathematical analysis.

The CANS is scored by someone certified by the Praed Foundation to be reliable on the instrument (please see www.canstraining.com for more details). In the case of the data used as the bedrock of much of the analysis that follows, our CANS scorers are primarily masters and doctoral-level evaluators. They complete the CANS after a thorough biopsychosocial evaluation that pulls together the necessary information to score each of the CANS items correctly.

The table below explains a general logic for what CANS scores on any given item means:

| CANS Score | Evaluation Implications |
|--------------------|----------------------------------------------------------------|
| Need at 0 or 1 | "This does not need to be directly addressed in treatment." |
| Need at 2 or 3 | "This is a clinical need that must be addressed in treatment." |
| Strength at 0 or 1 | "This is a useful strength for the child and family." |
| Strength at 2 or 3 | "This strength is not yet useful for the client and family." |

Domain Scores

What is a CANS Domain Score? The CANS-PA consists of 6 Domains:

1. Problem Presentation (AKA, Mental Health Need)
2. Risk Behaviors
3. Functioning
4. Child Safety
5. Caregiver Needs & Strengths
6. Child Strengths

Each domain consists of various items. The Domain score is calculated according to the following formula:

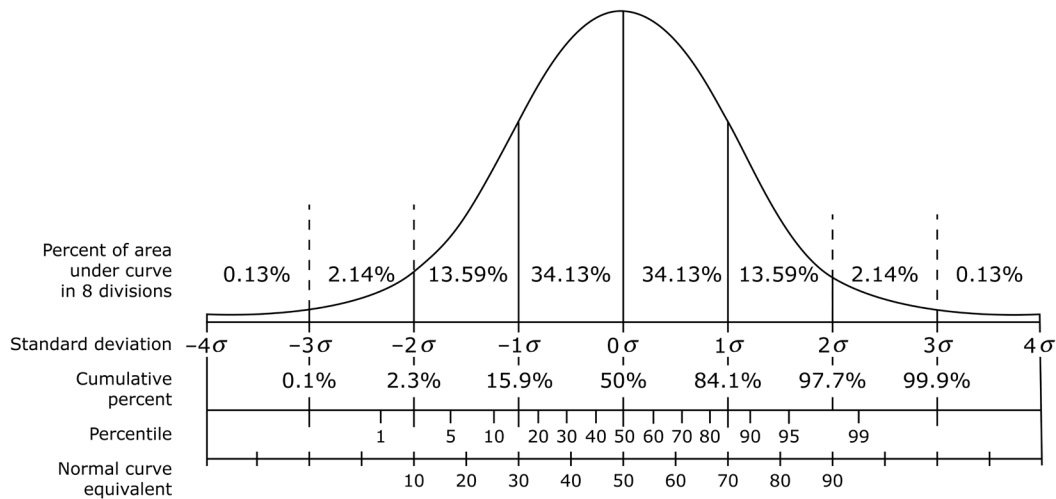
$$10 * \frac{D_{\text{item 1}} + D_{\text{item 2}} + D_{\text{item 3}} + D_{\text{item 4}} + D_{\text{item 5}} + D_{\text{item 6}}}{6}$$

Domain Score Formula

The Percentile of the Domain Score

The percentile helps give context to the CANS Domain scores, and thus helps make the CANS scores more meaningful. Percentiles have been included in the CANS analysis since they are a well known analytic method in psychological testing, and are thus familiar to clinicians. They are helpful to get a gross understanding of a client's severity in comparison to similar gender and age peers. However, there are caveats to interpreting CANS percentile data that must be noted, and we note below, so that a clinician can properly interpret them in their level of care decision making.

A percentile is the value below which a given percentage of observations in a group of observations falls. The graph below demonstrates how percentiles would fall if used to describe the location of one score within a population with a normal distribution.



Bell-shaped Curve

The CDR DataPool calculates the percentile ranking based on continually updated norms. At the time of this manual's writing, this includes over 20,000 CANS.

The percentile rank denominators are divided up by gender, and then one of three age bands:

| | | |
|---------|-----------|------------|
| Age < 6 | Ages 6-13 | Ages 14-21 |
|---------|-----------|------------|

Caveats to CANS Percentile information:

- Typical percentile analysis presumes a normal population. While a case could be made for the normality of the Problem Presentation and Functioning domains, the same cannot be said for the Risk and Caregiver Strengths & Needs domains (these both have strong skews).
- The items on the CANS are not balanced. So scoring 1 item as actionable does not necessarily mean the same thing as scoring another. Substance is lost in ranking someone on a purely quantitative basis such as percentile, since the communimetric/ideational value of the item is essential to its interpretation.
- All of CDR CANS-PA norm data is based on a sample of children presenting for psychological evaluation. As such, they are already “clinical.” Thus the ranking of percentile must be understood in terms of a fully clinical population, and not the general population.

Because of the above caveats, percentile analysis is insufficient for the risk assessment and decision support provided by the CANS DataPool. More appropriate communimetric analysis is presented in the following sections of the manual. Though this analysis may be foreign to many clinicians at first, we hope its utility and rationale make themselves self-evident in time. However, the percentile information is still here, for those who want it.

Two Kinds of Algorithms

There are two basic kinds of communimetric decision support algorithms in the following sections. First are **“Sorting” algorithms**, which sort clients and families into various groups based on CANS profiles. Second are **“Service Match” algorithms**, which identify programs that match a client’s clinical needs and strengths. Both algorithms work similarly: by turning formal program documents (regulations, service descriptions, best-practice documents, research articles, etc.) into communimetric language. The difference is that the end-point of a Sorting algorithm, is simply that a child and/or family is labeled as being of a certain type (e.g. “Severity 2” or “Autism Level 1”), while the end-point of a Service Match algorithm is a program type (e.g. “Functional Family Therapy,” or “BHRS”).

All algorithms in this manual are developed in an iterative process that includes:

- ▶ Identifying which programs in the local area will need algorithms.
- ▶ Gathering together and reviewing relevant documentation for the algorithm by CDR experts.
- ▶ Operationalizing the documents into communimetric language.
- ▶ Testing of the initial algorithms against existing data from the local system of care.
- ▶ Including any outside data and research that may be helpful in clarifying and adding precision to the algorithm (e.g. peer-reviewed research articles, clarification on regulatory documents that are vague, etc.).
- ▶ Continued review by local stakeholders through our Roundtable Process

A few important notes:

- Algorithms are not mandates for how to prescribe.
- There are often multiple Service Matches, and the evaluator should consider all of them, working with the family to identify what is most right for their needs at the time.
- There are no CSMs that say a program is wrong for a client. There are only CSMs that say a client's needs match what a program treats. Another way to say this is that CSMs only point out matches, but not non-matches.

Algorithm Development Process

For CSMs to stay relevant, they need to be continually reviewed and audited by multiple experts. There are many levels of analysis that are necessary:

- ▶ Are the original regulatory and system parameters that were used to devise the CSM still accurate and relevant?
- ▶ What were the descriptive profiles of those who did (and did not) match the CSM?
- ▶ What were the outcomes of those who matched a CSM and received the service versus those who did not?
- ▶ In light of all of the above information, should the CSM be altered in any way?

CDR utilizes the expertise of several committees. These committees draw together key program stakeholders and relevant subject matter experts to review the current structure and impact of the CSMs and make recommendations for improvements. For a complete list of algorithm committee members visit www.communitydataroundtable.org.

Section II: Communimetric Service Matches

Overview

Communimetric Service Matches are algorithms which identify programs that match a client's unique profile as presented on a CANS. A CSM is a quantitative model of what the program treats. The CSM is developed by turning a program's formal presentation into communimetric language.

Algorithm Tables

Many algorithms are presented below in a table format. This is done to help simplify the presentation of the CSM information. The tables are read in the following way:

- The table is read from left to right. It should be read as a statement.
- When each column of a table is true, the CSM matches.

Specifiers

Specifiers are triggered by certain CANS items that are relevant when a CSM matches for a member. They are extra information about the CSM in light of items endorsed on the CANS. Specifiers give information beyond if a program just matches for a client's needs or not, but also give insight into more nuanced decisions that can be, and need to be made in regards to the client.

In this manual, the exact conditions that prompt the triggering of a specifier will be shown, as well as the exact language that will print when the specifier condition is met. Their impact on decision making is usually self-explanatory.

Prioritization

There are many situations in which multiple CSMs match a child's CANS profile. In such situations, the CSMs are presented in an order of priority which is represented in the table below. The logic of this presentation is the following.

1. Primary alerts and screens—When a child's profile requires follow up with ChildLine, or requires an extra assessment for Drug and Alcohol problems, this information will be presented first, indicating the prioritization of necessary follow-ups.
2. Evidence-Based Programs—Matching for an EBP means that there is well controlled research demonstrating that the intervention has the strongest odds of providing positive clinical change for the child and family. In such instances, this CSM is presented first to reflect that the data most strongly supports this program being helpful to the child.
3. Specialty Programs—These are programs that communities have developed to address specific populations that have been identified in their area. These programs have specific documentation (e.g. a service description) that explains the population treated and how

it works. When a client matches the profile of these programs, the CSM matches. These programs are good matches for the member, but not at the same keenness as an EBP, which has a stronger research base to justify the match for the child and family. Thus, these programs will show after an EBP that matches. In situations where no EBP matches, these would of course appear first, since there would be no EBP option.

4. In-Plan Programs—The HealthChoices Program Standards and Requirements has specific Medical Necessity Guidelines for programs that are made available to all people across Pennsylvania. These "in-plan" programs are a part of the official health plan available to all citizens in Pennsylvania. Their fit for a person is even less specific than a Specialty Program and an EBP. When a child or family matches an In-Plan program, this match is presented last.

Note: If a child and family matches for multiple programs at any level, the programs will be presented according to more specific criteria built into the nuance of every CSM. The logic of this system is that less intensive and restrictive programs should be tried before more intensive and/or restrictive ones, which is a principle of the Child and Adolescent Service System Program (CASSP), a philosophy that structures the Medical Necessity Guidelines for children's behavioral health services.

| Ranking Order | Detail | | |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------|
| Primary alerts and screens | Substance abuse assessments, ChildLine Calls, etc. | | |
| Evidence-Based Programs | Programs that have been validated with controlled testing for the identified clinical profile. | | |
| Specialty Programs | Programs that are generated by the local community to solve locally identified clinical populations. These programs have some data to justify them, but do not have the level of empirical support of an EBP. | | |
| In-Plan Programs | Services as laid out in the HealthChoices contract, and which are defined more by the severity they are meant to handle, than by any distinct clinical profile, or concrete evidence base of effectiveness. | Severity 1 | OP, BTM |
| | | Severity 2 | OP, BTM, FBMH |
| | | Severity 3 | FBMH, PHP, BHRS |
| | | Severity 4 | FBMH, PHP, BHRS |

Prioritization Chart

Considerations

Whenever there is extra information about a program that we feel would be helpful for evaluators to know, we share it under the heading of "considerations." These are simply extra facts about a program to help an evaluator better understand what factors are in play in making a decision about the program.

The Programs

After School Therapeutic Program 1.0

Program Description

The purpose of the After School Therapeutic Program is to provide community-based treatment for children who have been identified as having significant difficulties successfully integrating into community and school-based activities due to their mental health needs as they relate to defiance, inattention, hyperactivity, impulsivity, mood dysfunction, anxiety, etc. Many of these children are at possible risk for restrictive placement. The purpose of the After School Therapeutic Program is to improve the child's overall mental health and thus enable maintenance in the least restrictive setting as possible. Goals, therefore, include but are not limited to: facilitating the acquisition and use of problem-solving skills; self-monitoring; identification, labeling and processing of emotional responses; and development of successful coping strategies to deal with negative emotional states.

Key Documentation Source

Program Service Description, 07/30/2015

CSM Algorithm

| Age | & | Not when below is ≥ 1 | & | Needs ≥ 2 | & | Severity |
|------|---|----------------------------|---|-------------------------------------------------------------------------------------------------|---|----------|
| 5-15 | | Autism | | Attention Deficit/Impulse Depression/Anxiety Oppositional Behavior Antisocial Behavior | | 1 or 2 |

Specifiers

None

Prioritization

Specialty Program

Considerations

None

Brief Treatment Model 1.0

Program Description

Brief Treatment Model (BTM) is a less intensive form of BHRS for the following clinical profiles:

- Those that need quicker access because they are stepping down from a more restrictive level of care.
- Children who need to step up from outpatient services without needing the intensity of full BHRS.
- Those needing further assessment by a master's level clinician.
- Those who are new to services and require something more intensive than outpatient.

This program is limited to either a behavior specialist model or a mobile therapy model, and is provided at a high intensity for a limited time.

Key Documentation Source

PerformCare Brief Treatment Model Service Description Guide

CSM Algorithm

| Age | & | Diagnosis | & | Needs ≥ 2 | & | Severity |
|------|---|-----------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----------|
| 0-21 | | Any | | Psychosis Attention Deficit/Impulse Autism Spectrum Depression/Anxiety Oppositional Behavior Antisocial Behavior Anger Control Family Living Situation Social Functioning – Peer School Behavior School Attendance Supervision Involvement Knowledge Organization | | 1 or 2 |

Specifiers

None

Prioritization

In-Plan Service

Considerations

None

Behavioral Health and Rehabilitation Services 1.0

Program Description

Behavioral Health and Rehabilitation Services (BHRS) are home/community delivered behavioral health services, specifically appropriate for children and adolescents who require intervention at the sites where their problematic behaviors occur. Home and community services are developed and tailored specifically to meet individualized child and family needs. Specialized therapeutic services on the Medical Assistance fee schedule are: Mobile Therapy, Behavioral Specialist Consultant, & Therapeutic Staff Support (TSS). All of these services are provided for the purpose of improving and developing the capacity of the treated child or adolescent, and the family, thereby contributing toward the independence of the family as a unit. The need for these services will vary according to the severity of the child's problems and the richness of the resources of the child, the family, and the community.

Key Documentation Source

Healthchoices Behavioral Health Services Guidelines For Behavioral Health Medical Necessity Criteria, Appendix T, Part B, (2).

CSM Algorithm

A child matches for BHRS if:

(Severity 3 or 4) & (School Behavior **OR** Living Situation \geq 2),

OR

(ASD Level 1, 2, or 3) & (School Behavior **OR** Living Situation \geq 2).

Specifiers

| | | |
|------------------|--------|-------------------------------------------------------------------------------------------------------------------|
| School behavior | ≥ 2 | "Child has significant functioning problems in the school environment." |
| Living situation | ≥ 2 | "Child has significant functioning problems in the living environment." |
| Severity | 3 or 4 | "CDR's historical data show a decline in mean risk severity over time, among high-risk clients who receive BHRS." |

Prioritization

In-Plan Service

Considerations

- The BHRS CSM states when an evaluated child matches for BHRS based on the following logic.
 - The child's needs match what BHRS is supposed to address as expressed in the HealthChoices PSR, Appendix T, Part B (2).
 - CDR has historical data that shows a decline over time in mean risk severity for this client profile. If a client does not match with the BHRS CSM, this does NOT mean that the child should not have BHRS. But it does mean that a close scrutiny of the client's unique needs are in order.
- The BHRS CSM does not specify the type of BHRS service (MT, BSC, TSS, etc.). The specific service needs to be chosen utilizing evaluator expertise. The BHRS CSM only identifies an appropriate BHRS match.
- The BHRS CSM does not specify hours for any service. The specific hours must be chosen utilizing evaluator expertise.

ChildLine 1.0

Program Description

The evaluator has identified an issue relevant to child safety which could result in the involvement of Child Welfare.

Pennsylvania's ChildLine and Abuse Registry 24 hour contact number is: 800-932-0313.

Key Documentation Source

Domestic Relations Code (23 PA.C.S.) – Persons Required To Report Suspected Child Abuse, Privileged Communications And Penalties For Failure To Report Or To Refer, Act Of Apr. 15, 2014, P.I. 414, No. 32.

CSM Algorithm

| |
|----------------------------------|
| Needs \geq 1 |
| Safety |

Specifiers

None

Prioritization

Primary – alerts and screens

Considerations

Note that Safety does not need to be actionable, for this CSM to match for a client. Safety need only be a concern.

Family Based Mental Health 1.0

Program Description

Family Based Mental Health (FBMH) is a comprehensive mental health service that provides treatment, casework services, and family support services to consumers with serious mental illness or emotional disturbance who are at risk of psychiatric hospitalization or out-of-home placement. FBMH engages the whole family in treatment.

Key Documentation Source

Healthchoices Program Standards And Requirements, Appendix T, Part B (3).

CSM Algorithm

A child and family match for FBMH when:

Need (Family Functioning) = 3 & Severity \geq 2

OR

Need (Family Functioning) = 2 & Severity = 3 or 4

Specifiers

None

Prioritization

In-Plan Service

Considerations

- MST and FFT are prioritized over FBMH, all things being equal, when the client has actionable crime/delinquency.
- FBMH prioritizes over MST and FFT, all things being equal, when there is a profound mental health need (i.e. Depression/Anxiety or Psychosis = 3).
- The FBMH CSM does not distinguish based on the presence or absence of autism.

Functional Family Therapy 2.0

Program Description

Functional Family Therapy (FFT) is a treatment program that targets youth (and their families) who are at risk for and/or presenting with behavioral indicators of delinquency, violence, substance use, conduct disorder, oppositional defiant disorder, or disruptive behavior disorder. Often these youth present with additional occurring challenges, such as depression. FFT is a short-term intervention, averaging 16 to 20 weeks. Some of the goals of the program include:

- Improve communication and support within the family.
- Decrease intense negativity of family interactions.
- Increase use of positive solutions to family problems.
- Increase positive parenting strategies.
- Reduce adolescent behavior problems.

Key Documentation Source

Office of Mental Health and Substance Abuse Services Functional Family Therapy service description template.

CSM Algorithm

| Age | & Needs ≥ 2 | & Must be ≥ 2 | & NOT ≥ 2 | & NOT = 3 |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------------------------|--------------------------------------------------------------------------------------------------|
| 10–18 | Oppositional Behavior Antisocial Behavior Anger Danger to Others Other Self Harm Elopement Exploitation Social Behavior Crime/Delinquency Firearms Risk Social Functioning – Peer School Behavior School Attendance Supervision Involvement Knowledge Organization | Family | Autism Sexually Aggressive Behavior | Psychosis Depression/Anxiety Danger to Self Danger to Others Intellectual Disability |

Specifiers

| | | |
|-------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Involvement | 2 or 3 | Caregiver involvement was noted as an actionable concern with this child and family. Please note FFT requires caregiver participation to be effective. The evaluator must use discretion. |
| Danger to Self | 2 | "Self-harm was noted as an actionable concern for this child. Please note that active suicidal behavior can rule-out FFT. The evaluator must use discretion." |
| Intellectual Disability | 2 | "This child was identified as having intellectual deficits that could interrupt the effectiveness of FFT. The evaluator must use discretion." |
| Relationship Permanence | 2 or 3 | "This child has unstable caregiver relationships. FFT works best when long-term placement potential exists for the caregivers and child. Evaluator must use discretion on whether such potential exists." |

Prioritization

Evidence-Based Program

Considerations

- The importance of Involvement: FFT is a program that helps improve relations in the family. It both requires the involvement of the caregiver, as well as has a model that engages families that are on the brink of "giving up" on each other. As such, it is not uncommon for successful FFT families to have Involvement needs, since this is what FFT treats. However, if FFT treatment is not able to improve involvement, then the prognosis is bad, since caregiver involvement is a requirement for effective FFT services. Thus, when Involvement is an issue for an FFT family, it must be monitored by the evaluator and highlighted to the treatment team as a need that the treatment team must effectively address for treatment to be successful.
- Broad Severity options for FFT: FFT is a program that is designed to work with the whole gamut of severity levels. It is not designed specifically for high Severity children (ie. Severities 3 or 4) or low severity (1 or 2) .
- FFT is a family therapy.
- Foster care: FFT is most effective when the family involved in the treatment is already a long-term placement for the child (e.g. the child's own family) or a plausible long-term placement for the family (e.g. a long term foster placement.) The evaluator needs to assess for this prospect when recommending FFT for a foster family.

Incredible Years 2.0

Program Description

The Incredible Years (IY) is an Evidence Based Program that helps increase emotional, social, and academic competencies for children with behavior problems and ADHD and reduce behavior problems. During this 18–20 week long program the entire family attends once per week. Families begin by sharing a light meal. Parents then meet privately for parenting lessons, while the identified children simultaneously attend the Incredible Years "Dinosaur School." Siblings are welcomed into childcare. Including the meal, the program runs for approximately two and a half hours. Video vignettes and role-plays are used to help parents learn key concepts such as child-led play, limit setting, praise, and positive discipline strategies. Children learn emotion awareness, self-management strategies, and problem solving skills by watching vignettes and through stories about Dina Dinosaur, Wally, and Molly (puppets). Parents are then encouraged to take the lead in helping family members practice the skills learned during the group session at home. The Incredible Years is a program delivered in a group model. Cohorts of 4 to 8 families start the program together, and work together through the process.

Key Documentation Source

Incredible Years Service Descriptions, *03/01/2012*.

CSM Algorithm

| Age | & | Needs ≥ 2 | & | NOT ≥ 2 | & | NOT = 3 | & | NOT |
|-----|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-------------|---|-----------------------------------------------|---|------------------------|
| 4-8 | | Attention Deficit/Impulsive Oppositional Behavior Antisocial Behavior Anger Control Danger to Others Other Self Harm Elopement Exploitation Social Behavior Crime/Delinquency Social Functioning – Peer Knowledge | | Firesetting | | Family Functioning Intellectual Disability | | Autism Level 2 or 3 |

Specifiers

| | | |
|-------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Involvement | 2 | "IY requires caregiver involvement, and caregiver involvement is deemed actionable for this family. Evaluator should work to motivate caregiver for the service, and use discretion." |
| ASD | 1 | "When integrated into an appropriately diverse group, children with this level of autism have been shown to benefit from IY in regards to social skills." |

Prioritization

Evidence-Based Program

Considerations

- Involvement
 - Caregiver involvement is very important. The research on the Incredible Years demonstrates that most of the program's impact comes from the parent component.
- Cohort Model:
 - IY has a cohort model, and keeping track of when cohorts start is important. Upcoming Cohorts will be printed with the CSM in the DataPool application.
 - Building a strong, diverse cohort is part of the intervention. IY is designed to take people of all Severities, and can handle various levels of developmental delay and intellectual disability, as long as there is a good case mix for a cohort. It is the individual provider who builds their own program's cohort.
 - IY has many modules and types (i.e. it can be a prevention program, it can be offered in different locations, etc.). The DataPool CSM is for the program delivered in outpatient

clinics, or in school-based outpatient offices, and which blend a child and a parent component. This CSM is "treatment," and not prevention.

- There are many situations where children match for both the Incredible Years and Parent-Child Interaction Therapy. In such situations the two hold the same priority. The models should be discussed with the family, and whatever seems to most appropriately match their style and preferences should be pursued.

Juvenile Firesetter Assessment Consultation Treatment Services 1.0

Program Description

Juvenile Firesetter Assessment Consultation Treatment Services (JFACTS) is designed to specifically address the needs of children and adolescents who use fire inappropriately. An interdisciplinary team collaborates to determine duration and frequency of services as well as eliminate fire behavior across systems and settings.

Key Documentation Source

JFACTS service description, 2009.

CSM Algorithm

| Needs \geq 2 | & | NOT when the below = 3 |
|----------------|---|---------------------------------------------------------------------------------------|
| Firesetting | | Augmented Communication Receptive Language Stereotyped Sound Output Gestures |

Specifiers

None

Prioritization

Specialty Program

Considerations

None

Mental Health Outpatient 1.0

Program Description

Office based weekly or bi-weekly therapy that can be either individual, family or group and serves consumers with a mental health diagnosis which can be managed in a less intense setting.

Key Documentation Source

HealthChoices Program Standards and Requirements, Appendix T, Part B (1).

CSM Algorithm

| Age | & | Diagnosis | & | Severity | & | Needs ≥ 2 |
|------|---|-----------|---|----------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0-21 | | Any | | 1 or 2 | | Psychosis Attention Deficit/Impulse Autism Spectrum Depression/Anxiety Oppositional Behavior Antisocial Behavior Anger Control Attachment |

Specifiers

None

Prioritization

In-Plan Service

Considerations

None

Multisystemic Therapy 2.0

Program Description

Multisystemic Therapy (MST) is an intensive family and community-based treatment that addresses the multiple determinants of serious antisocial behavior in chronic, violent, or substance-abusing male or female juvenile offenders, ages 12 to 17, at high risk of out-of-home placement. The multisystemic approach views individuals as nested within a network of interconnected systems that encompass individual, family, and extrafamilial (peer, school, neighborhood) factors. Intervention may be necessary in any one or a combination of these systems. The primary goals of MST programs are to decrease rates of antisocial behavior and other clinical problems, improve functioning (e.g. family relations, school performance), and promote behavior change in the youth's natural environment. These outcomes are achieved by reducing the use of out-of-home placements such as incarceration, residential treatment, and hospitalization. The ultimate goal of MST is to empower families to build a healthier environment through the mobilization of existing child, family, and community strengths and resources. The typical duration of home-based MST services is approximately 4 months, with multiple therapist-family contacts occurring weekly. MST addresses risk factors in an individualized, comprehensive, and integrated fashion, allowing families to enhance protective factors. Specific treatment techniques used to facilitate these gains are based on empirically supported therapies, including behavioral, cognitive behavioral, and pragmatic family therapies.

Key Documentation Source

Pennsylvania Office of Mental Health and Substance Abuse Services MST service description template.

CSM Algorithm

| Age | & Needs ≥ 2 | OR | Needs ≥ 1 | & | NOT ≥ 2 | & | NOT = 3 | NOT |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------------------------------------|---|---------------------|---|-----------------------------------------------------------------------------------------------------------------------------------------|------------|
| 12–17 | Oppositional Behavior Antisocial Behavior Anger Danger to Others Other Self Harm Elopement Social Behavior Firearms Social Functioning – Peer Family School Behavior School Attendance | | Crime & Delinquency Substance Abuse | | Psychosis Autism | | Substance Abuse Danger to Self Firearms Risk Intellectual Disability Sexually Aggressive Behavior Depression/ Anxiety | Severity 1 |

Specifiers

| | | |
|--------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Involvement | 2 or 3 | "Caregiver involvement was noted as an actionable concern with this client. Please note MST requires caregiver participation to be effective. The evaluator must use discretion." |
| Self-harm | 2 or 3 | "Self-harm was noted as an actionable concern for this child. Please note that MST is counter-indicated if the youth is actively suicidal. Youth who are actively suicidal should be stabilized before referral." |
| Depression/Anxiety | 3 | "This client was identified as having significant mental health needs, which in the absence of acting-out behaviors may be appropriate for more individually focused treatment." |

Prioritization

Evidence-Based Program

Considerations

- Self-harm – Youth who are actively suicidal should be stabilized before referral to MST.
- High mental health need – Significant psychosis or Depression/anxiety can interrupt treatment. The youth should be stabilized before referral to MST.
- Severity 1 Rule-Out – MST is for high-risk children.
- In situations where a child and family matches for both MST and another EBP (e.g. FFT), the specifics of each program should be discussed with the child and family, and the best match should be chosen.

Parent-Child Interaction Therapy 1.0

Program Description

Parent-Child Interaction Therapy (PCIT) is a nationally-recognized, evidence-based parent training program for families who have children with externalizing behavior problems (Opposition, Anger Control, Danger to Others, etc). The program is unique in that it involves coaching parents live as they interact with their young child (ages 2.5 to 7 years). The coaching is done via a "bug in the ear" earphone that the parent wears while the clinician watches from another room.

There are two phases to PCIT: Child-Directed Interaction (CDI) and Parent-Directed Interaction (PDI). For each phase, parents attend one teaching session without their child present during which the PCIT therapist reviews with the parent specific skills that will be 'coached' in subsequent sessions. Once parents' skill level meets a predetermined level, typically in six or seven sessions, the second phase of PCIT begins, PDI. During PDI parents are taught to provide clear, direct commands, assess compliance versus noncompliance, and to provide consistent consequences for both compliance (labeled praise) and noncompliance (timeout). In response to repeated

noncompliance, parents are taught a sophisticated time-out procedure that emphasizes shaping and teaching appropriate behavior.

Critical clinical components of PCIT have been identified and include: involving the child and parents together in treatment, establishing the parent as the central figure within the family, coaching parents, using assessment to guide treatment, and tailoring treatment to the child's developmental level. For most families, the full course of treatment is conducted in 12 to 20 weekly, one-hour, clinic-based sessions.

Key Documentation Source

Blueprints for Healthy Youth Development – Parent-Child Interaction Therapy.

CSM Algorithm

| Age | & | Needs ≥ 2 | & | Strengths ≤ 2 | & | NOT ≥ 2 |
|-------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-------------------------|---|---------|
| 2.5–7 | | ADD Depression/Anxiety ODD Antisocial Anger Attachment Danger to Others Other Self Harm Elopement Social Behavior Crime/Delinquency Firearms Firesetting Living Situation School Behavior Safety Supervision Knowledge | | Relationship Permanence | | Autism |

Specifiers

| | | |
|--------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Exploitation | 3 | "Please note that PCIT is not the correct match when the parent participating in the treatment has a history of sexually exploiting the child." |
|--------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------|

Prioritization

Evidence-Based Program

Considerations

- Parents who sexually abused their children are not appropriate for PCIT.
- PCIT does not require low-severity. It simply requires that a child with the necessary needs come to treatment with their parent for the duration of treatment.
- Research has not shown the effectiveness of PCIT to improve with an in-home adjunct.
- Because PCIT is an intensive outpatient program, it is helpful to be prepared with solutions for difficulties that families commonly face in accessing PCIT:
 - Lack of Transportation to an outpatient clinic providing PCIT.
 - Concerns about the complexity of making the regular appointments.
 - Child care for a parent's other children while the session is occurring.
 - Situations when the a school "demands" other interventions.

Partial Hospitalization Program 2.0

Program Description

A nonresidential treatment program which includes psychiatric, psychological, social, and vocational elements under medical supervision. Designed for consumers with moderate to severe mental or emotional disorders who require less than 24 hour care, but more intensive and comprehensive services than are offered in outpatient treatment programs.

Key Documentation Source

HealthChoices Program Standards and Requirements, Appendix T, Part B (1).

CSM Algorithm

| Age | & | Needs ≥ 2 | & | 2 below at 3, OR 3 below at 2 | & | Any 2 items below at 3, OR 3 items below at 2 | & | NOT when below ≥ 2 |
|----------------------------------------------------------------------------|---|-----------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-----------------------|
| Different PHPs will have different age ranges, and this will vary by area. | | School Behavior | | Psychosis Attention Deficit/ Impulse Depression/Anxiety Oppositional Behavior Antisocial Behavior Anger Control Substance Abuse Attachment | | Danger to Self Danger to Others Other Self Harm Runaway/Elopement Exploitation Sexually Aggressive Behavior (SAB)* Social Behavior Crime & Delinquency Firearms Risk Fire Setting | | Autism Level |

Specifiers

None

Prioritization

In-Plan Service

Considerations

The PHP algorithm accepts children with autism, but rules out children with autism who are at ASD Level 2 or 3. These would be children with significant communication barriers, who require specialty services due to their unique needs.

Specialized In-Home Services 1.0

Program Description

The Specialized In-Home Treatment Program (SPIN) is an intensive, family-based mental health program that provides individual counseling, individual therapy, family therapy, case management, and group therapy to youths between 8 and 18 (with occasional age exceptions made on an individual basis) who have sexual-behavior issues that meet "medical-necessity" criteria for this services.

SPIN's mission is to reduce sexual victimization by providing treatment services to youths who sexually act out or offended—and by providing education and treatment services to family members of such youths, so that the youths have support to maintain low-risk behaviors.

The youths served have identified issues that impede functioning in their home, school, or community.

Key Documentation Source

SPIN Service Description, 07/01/15

CSM Algorithm

| Age | & | Needs ≥ 1 | & | Needs ≥ 2 | & | NOT when below = 3 |
|------|---|---------------------|---|------------------------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8–18 | | Crime & Delinquency | | Sexually Aggressive Behavior | | Psychosis Attention Deficit/Impulse Autism Spectrum Depression/Anxiety Oppositional Behavior Antisocial Behavior Substance Abuse Adjustment to Trauma Attachment |

Specifiers

None

Prioritization

None

Considerations

None

Specialized Outpatient Trauma Therapy 1.0

Program Description

The network has outpatient therapists with various certifications in outpatient trauma therapies. Details on each approach can be gained directly from the clinician. To be listed as an option, the clinician must present proof of certification or accreditation in a recognized trauma treatment.

Key Documentation Source

Clinicians must provide documentation that shows certification in an official official trauma therapy.

CSM Algorithm

| Age | & | Diagnosis | & | Need ≥ 2 |
|------|---|-----------|---|----------------------|
| 0-21 | | Any | | Adjustment to Trauma |

Specifiers

None

Prioritization

Specialty Program

Considerations

Every county will have their own trauma focused therapists. The details on a given therapist will be listed in the CSM. At times it may be necessary to reach out directly to the therapist to learn about their approach.

The Achieve Program – After School Therapeutic Program 1.0

Program Description

The Achieve Program provides community-based treatment for youth who have been identified as having significant difficulties successfully integrating into community and school-based activities due to developmental delays in the areas of social skills, communication, emotional expression and recognition, safety awareness, play skills, sensory needs, etc. Through intervention, participating youth will be able to maximize their individual and unique strengths, challenges, and developmental capacities.

The purpose of The Achieve Program is to improve the youth's developmental functioning, and thus, enable him or her to be maintained in the least restrictive setting as possible. The ultimate goal is for the youth to improve their functioning across environmental settings. Daily therapeutic goals therefore include, but are not limited to: Improving emotional recognition, labeling, and expression of other feelings; facilitating routine and structure and attention/concentration skills; developing communication skills, develop social skills/improving conflict resolution, improving ability to generalize discrete tasks into a whole, and to generalize across contexts; facilitating adult and peer interactions.

Key Documentation Source

The Achieve Program Service Description, 04/01/11

CSM Algorithm

| Age | & | Needs ≥ 1 | & | Needs ≥ 2 | & | = to 1 or 2 | & | Severity | & | NOT when below = 3 |
|------|---|-----------|---|--------------------------------------------------|---|---------------|---|----------|---|-----------------------------------------------------------|
| 6–18 | | Autism | | Sensory Responsive-ness Maladaptive Behaviors | | Communication | | 1 and 2 | | Anger Control Intellectual Disability Communication |

Specifiers

None

Prioritization

Specialty Program

Considerations

None

Section III: Sorting Algorithms

Autism Level

The CDR CANS produces an Autism Level Score, built off of the DSM-5. This score is assigned based on the client's autism deficits. It is designed to assist with treatment planning and communicating a client's needs across treatment providers.

The CDR CANS Autism Level is built off of the three Autism Levels as articulated in the Diagnostic & Statistical Manual of Mental Disorders – Fifth Edition (DSM-5). In the following table, the first 3 columns come directly from the DSM-5. The fourth column is the operationalization of the DSM language into CANS language.

It is helpful to note that according to the DSM-5:

The severity specifiers may be used to describe succinctly the current symptomatology (which might fall below level 1), with the recognition that severity may vary by context and fluctuate over time. Severity of social communication difficulties and restricted, repetitive behaviors should be separately rated. The descriptive severity categories should not be used to determine eligibility for and provision of services; these can only be developed at an individual level and through discussion of personal priorities and targets. (DSM-5, pg. 51).

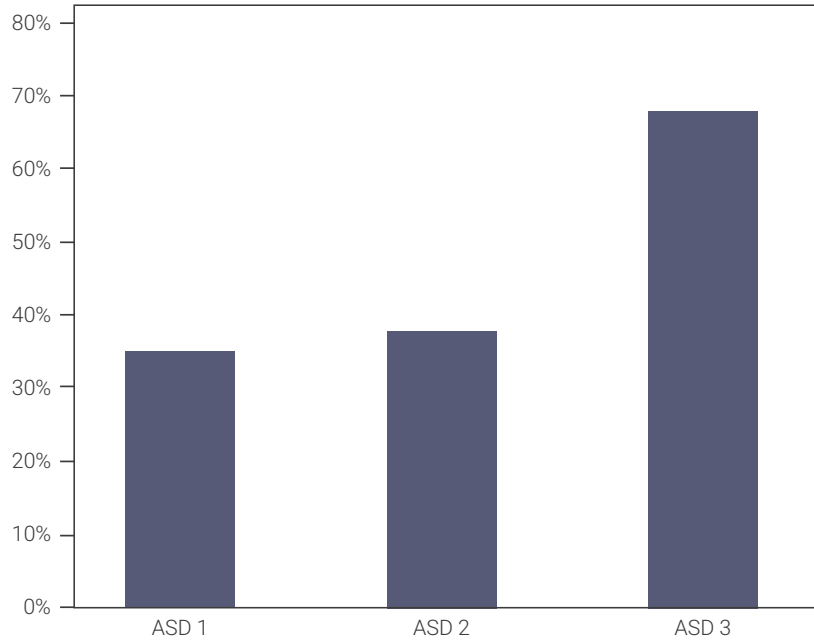
Comments on ASD Level algorithm:

- ▶ By definition, a score of 2 on the CANS Autism item means that the autism needs to be addressed clinically, and thus it meets the threshold for Severity Level 1, i.e. some support is required.
- ▶ Autism needing clinical action, without the specification of communication or behavior deficits, means that the ASD is of the lowest ASD Level (i.e. an ASD Level 1 – “support” required). Clinically, this is a child who presents similarly to what was once referred to as Asperger Disorder.
- ▶ Once Communication and/or Maladaptive Behavior require specific action, the ASD Level increases to “substantial” support required (i.e. an ASD Level of 2).
- ▶ A score of 3 on any of those items now means “very substantial” support is needed (i.e. an ASD Level of 3).
- ▶ Although technically the algorithm is written so that this lowest ASD Level could be triggered when autism is at 3, as long as communication and behaviors are at less than 2, in practice such an event has never happened in our data, and it doesn't really make clinical sense. Such a scoring should be investigated for propriety.

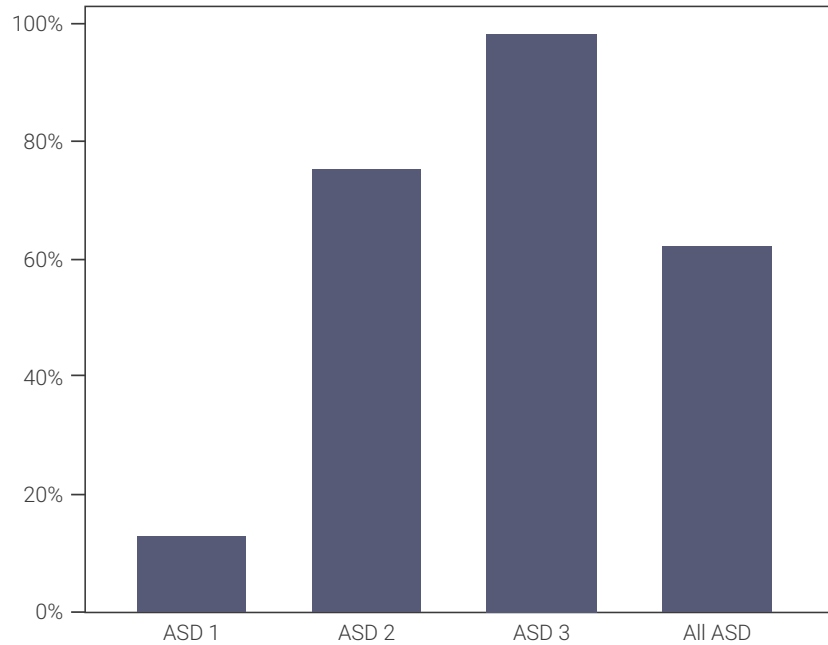
ASD Severity Level

| | Social Communication | Restricted, Repetitive Behaviors | CANS |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Level 3 – "Requiring very substantial support" | Severe deficits in verbal and nonverbal social communication skills cause severe impairments in functioning, very limited initiation of social interactions, and minimal response to social overtures from others. For example, a person with few words of intelligible speech who rarely initiates interaction and, when he or she does, makes unusual approaches to meet needs only and responds to only very direct social approaches. | Inflexibility of behavior, extreme difficulty coping with change, or other restricted/repetitive behaviors markedly interfere with functioning in all spheres. Great distress/difficulty changing focus or action. | Autism \geq 2, & (Communication = 3 OR Maladaptive behaviors = 3) |
| Level 2 – "Requiring substantial support" | Marked deficits in verbal and nonverbal social communication skills; social impairments apparent even with supports in place; limited initiation of social interactions; and reduced or abnormal responses to social overtures from others. For example, a person who speaks simple sentences, whose interaction is limited to narrow special interests, and how has markedly odd nonverbal communication. | Inflexibility of behavior, difficulty coping with change, or other restricted/repetitive behaviors appear frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts. Distress and/or difficulty changing focus or action. | Autism \geq 2, & (Communication = 2 OR Maladaptive behaviors = 2) |
| Level 1 – "Requiring Support" | Without supports in place, deficits in social communication cause noticeable impairments. Difficulty initiating social interactions, and clear examples of atypical or unsuccessful response to social overtures of others. May appear to have decreased interest in social interactions. For example, a person who is able to speak in full sentences and engages in communication but who's to-and-fro conversation with others fails, and whose attempts to make friends are odd and typically unsuccessful. | Inflexibility of behavior causes significant interference with functioning in one or more contexts. Difficulty switching between activities. Problems of organization and planning hamper independence. | Autism \geq 2 |

Percent of Children with Intellectual Delay by Severity Level



Percent of Children with Language Impairments by Severity Level



ASD Specifiers

To assist in more precise evaluation and treatment planning, the CDR CANS also produces ASD specifiers, as called for in the DSM-5 (pages 51–53). These are bits of text that are triggered by the endorsement of certain CANS items, and these bits of text provide further clarification of the nature of the ASD that a person has.

1. ASD Specifier for "With accompanying intellectual impairment."
 - ▷ Triggered by: Intellectual Delay ≥ 1 & Autism ≥ 2

2. ASD Specifier for "With accompanying language impairment."
 - ▷ Triggered by: Communication ≥ 2 + Autism ≥ 2 .

Severity Score

The CDR CANS produces a Severity Score. A Severity Score assists the treatment team to understand a client's global severity in a way that is aligned with the specifications of Pennsylvania's Medicaid system.

The Pennsylvania HealthChoices contract (Appendix T, Part B (2)) states that BHRS is divided into 4 Severity Levels.

These levels are laid out in a clinico-legal language, which can be summarized as stating that each Severity represents an increase in "symptom severity" and "functional deficits."

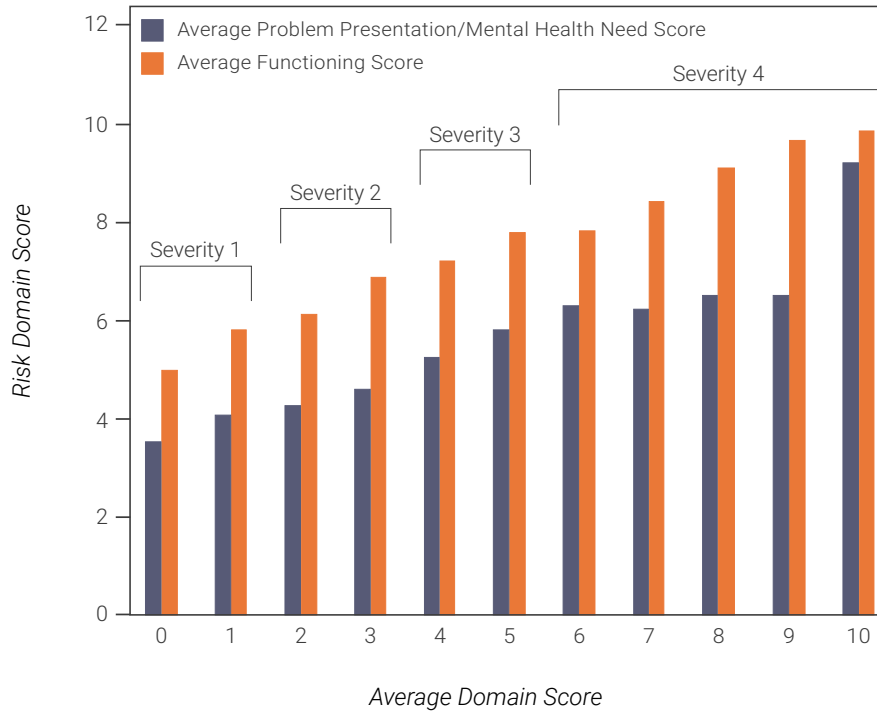
"Risk of endangerment allowed" is highlighted as a key issue differentiating the Severity Levels.

The CANS provides quantitative substance to this concept, helping with clinical and planning purposes.

Quantitative Communimetric Severity Model

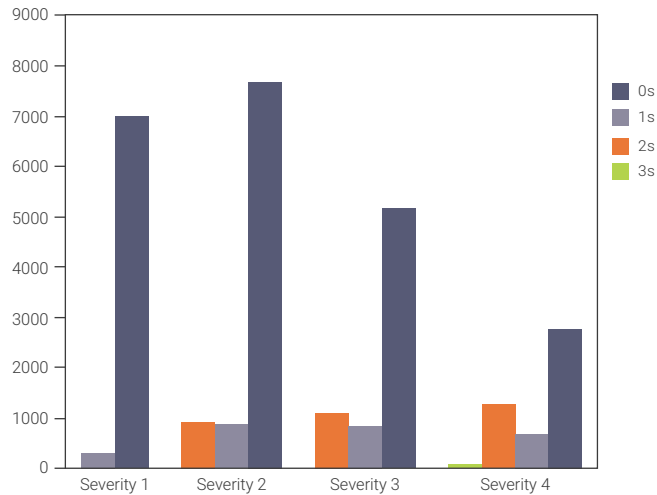
| Severity Score | Risk Domain Score | Explanation | % CANS with this criteria in our sample |
|------------------------|-------------------|-------------------------------------------------------------------------------------------|-----------------------------------------|
| 1 – "Least" | 0–1 | No risky behavior in last 30 days | 30% |
| 2 – "Moderate" | 2–3 | 1 risky behavior in the last 30 days, typically "Danger to Others" | 29% |
| 3 – "Intensive" | 4–5 | 2 risky behaviors in the last 30 days, typically "Danger to Others" and "Social Behavior" | 22% |
| 4 – "Highly Intensive" | 6 \leq | More than 2 risky behaviors in the last 30 days | 19% |

Risk Domain is the Driver of Overall Severity



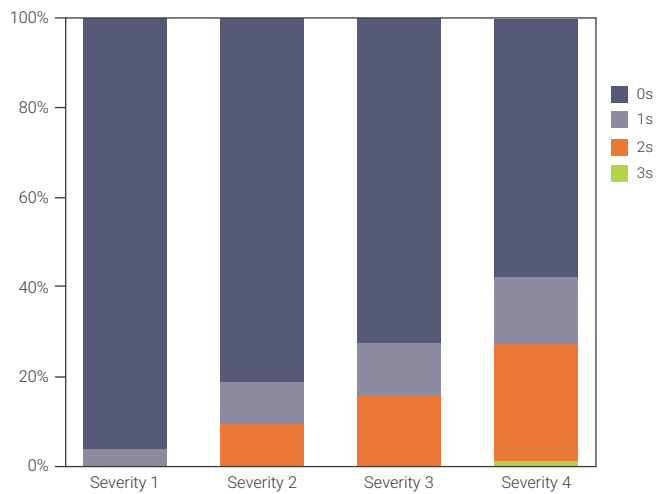
As can be seen in the chart above, as the risk score on the X axis gets higher, so does the average score of the Problem Presentation (which is a measure of the child's mental health needs) and the average score of the Functioning score (which is a measure of the child's overall functioning). This demonstrates the meaningfulness of using the increasing Risk score to represent the rise in Severity. Note that Severity 4 is anything that is 6 or above on Risk. This is a lot more possible scores, but overall represents the smallest actual people (~19%).

Count of Risk Item Scores by Severity Level



These are two graphs of the same information. They look at the actual action levels of the risk items leading to the different Severity Scores. As can be seen, for the most part, 0s are the most common action level for risk items at all Severity levels. What most grows from one Severity Level to the next, is the amount of 2s ("action needed") found on risk items. 1s, which represent risk items needing "watchful, waiting" stays pretty consistent. The amount of 3s, or items needing "immediate or intensive" action also rises as Severity rises. 3s are always rare, and are most likely to show up with Severity 4 children, which is what we would expect to see.

Percent of Risk Item Scores by Severity Level



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