Children Receiving Intensive Care Coordination: Initial CANS Data

Analysis based on completed CANS records entered between 6/30/2009 and 7/7/2010

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The CANS Tool

- The Child and Adolescent Needs and Strength (CANS) was developed by John Lyons Ph.D., and adapted by him for use in Massachusetts. The CANS includes multiple content domains, each with multiple items.
- Domains in the Massachusetts CANS include:
  - Life Domain Functioning (includes home, friends, community and school)
  - Behavioral/Emotional Needs
  - Risk Behaviors
  - Caregiver Resources and Needs
  - Acculturation
  - Transition to Adulthood
  - Child Strengths
  - Diagnoses
- This analysis looked at information from the following domains:
  - Life Domain Functioning (includes home, friends, community and school)
  - Behavioral/Emotional Needs
  - Risk Behaviors
  - Caregiver Resources and Needs
- CANS items are rated by CANS-certified clinicians, based on clinical information derived from interviewing the youth and family and from reviewing available records.
- Each item on the CANS with the exception of diagnoses is rated from 0 to 3
  - 0 indicates there is no evidence of any needs.
  - 1 indicates a need for monitoring, watchful waiting, or preventive activities.
  - 2 indicates that action is required to address this identified need or risk behavior.
  - 3 indicates that immediate or intensive action is required.
- For example, in the “Danger to Others” item in Child Risk Behaviors:
  - 0 indicates “No evidence of behavioral that could be dangerous to others.”
  - 1 indicates “History or suspicion of, or acts mildly aggressive or threatening behavior.”
  - 2 indicates “Recent Aggressive or threatening behavior, e.g. homicidal ideation, physically harmful aggression or dangerous fire setting, but not within past 24 hours.”
  - 3 indicates “Acute homicidal ideation with a plan, physically harmful aggression, command hallucinations that involve harm to others, or the child set a fire that placed others at significant risk of harm.”

Item Ratings and Summary Scores

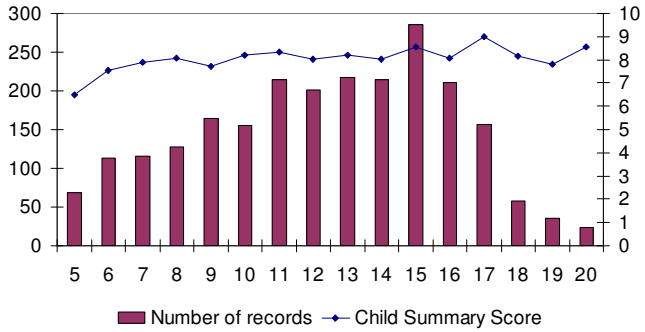
- The CANS is used in many states and counties. It varies from one jurisdiction to another in its item content and in the way the tool is used. Adapting the CANS to local needs provides flexibility, but also limits comparability of data across jurisdictions. John Lyons recommends that each state refine its own methodology for using the CANS tool and for analyzing CANS data.
- The preferred analytic approach depends on the questions being asked. Our methodology is likely to evolve over time as we become more familiar with the measurement characteristics of the CANS as it is used in Massachusetts, and with the strengths and limitations of the CANS data.
- The CANS is reliable at the item level, and some of the analysis below focuses on selected individual items.
- Most CANS items are rated based on behavior in the past 30 days. If a longer time period were used, many items would tend to have higher ratings.
- A rating of 1 usually identifies an area of concern where no action is currently required. A rating of 1 is meaningful, however, because it often signals an area where a need is about to emerge. In addition, ratings of 1 usually require monitoring or further investigation, and therefore require some effort on the part of the family and the treatment system.
- CANS items can also be grouped in various ways to produce summary scores.
- In summarizing groups of CANS items, one can choose to add (or, equivalently, to average) the ratings from the group of items, or to count the percent of items with ratings of 2 or 3 (that is, items that are rated as indicating a need for action). In summarizing items, we have chosen the first approach, by averaging the item ratings. For convenience we multiply the average by ten to eliminate decimal points, resulting in a scale ranging from 0 to 30.
- There are 3 CANS domains that provide critical information about the child's behavioral health and functioning. These are: Life Domain Functioning, Behavioral / Emotional Needs and Risk Behaviors. **We summarize these three domains by pooling the items from these domains, averaging their ratings, and multiplying by ten to obtain a Child Summary Score.**
- While Child Summary Scores may theoretically range from 0 to 30, they typically fall in the range from 1 – 15, and any rating over 8 (which is the average Child Summary Score for children at discharge from psychiatric hospitalizations) will generally represent a child with very significant and complex behavioral health issues.
- For the domain of Caregiver Resources and Needs, we comment here on selected items and do not compute a summary score.
- This analysis represents an initial look at CANS ratings of children in ICC, as a starting point to answer the question, "What level of clinical need is evident in children served in ICC as documented in the initial CANS?"

Data Selection and Caveats

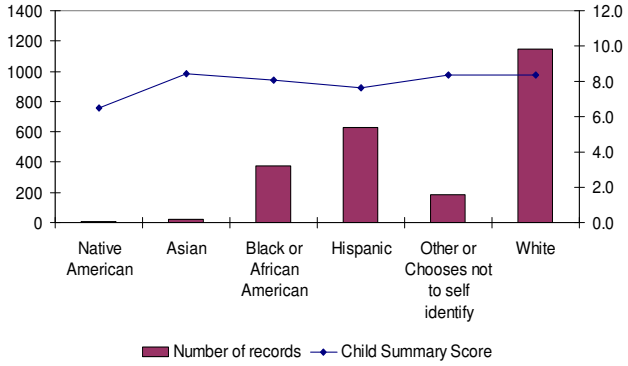
- Data includes CANS records entered into IT system between 6/30/2009 and 7/7/2010, where "Level of Care" is marked as Intensive Care Coordination, record is marked as "Complete" and items are from the CANS tool for members 5 and over. Under 5 is a much smaller sub-set, with a different set of questions, and will require separate analysis.
- Data was checked for duplicate records, and 12 records were deleted from the sample due to there being more than one record for the same member on the same day, with differing ratings.
- Data includes both those records where a check-box for ICC enrollment was selected, and those where the check-box was left blank. We found that the average ratings and standard deviations were the same between these two populations. We believe that leaving the check-box blank is likely due to data entry error. At a later point we may link these records to claims data, to verify that members included in this data set actually receive ICC services.
- This data set includes 2363 CANS records marked as "initial assessment." Records that were listed as a "reassessment" were not included in this analysis. In some instances, a member's only record in the database is listed as "reassessment", so the 2363 does not represent the unique number of members receiving ICC who have any CANS data in the system.
- The most recent utilization reports indicate 6678 members utilized ICC services between 6/30/2009 and 6/30/2010. Therefore the record set includes 35% of the population that received ICC services in that time period.
- The following records are not included in this analysis: Records where caregivers did not provide consent to enter the clinical data into the system; records where the member is under 5; records where the data entry operator incorrectly noted the first assessment as a reassessment; and records where the provider did not comply with the requirement to data enter the CANS.

Demographics from CANS for ICC Members

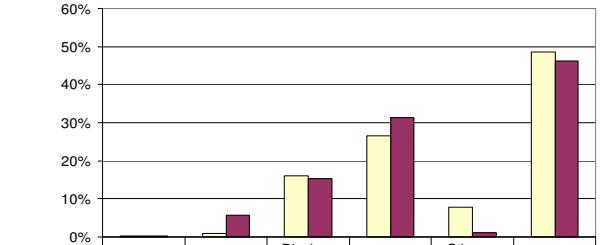
ICC Inital CANS by Age with Child Summary Score



Number of Initial ICC CANS by Race with Child Summary Score



Race of ICC members with CANS compared to Masshealth Eligibility

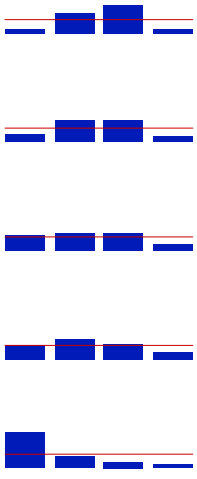


	Native American	Asian	Black or African American	Hispanic	Other or Chooses not to self	White
ICC	0%	1%	16%	27%	8%	48%
MassHealth	0%	6%	15%	31%	1%	46%

- Average CANS ratings appear relatively constant regardless of race or age (once children are over 6).
- Demographics are based on families who agreed to have data entered in the CANS IT system, and may not accurately represent the demographics of all children enrolled in ICC, as there may be some differences by demographics on whether families consent to share their clinical data.
- 39% of MassHealth members chose not to identify their race in their applications. Our analysis by race excludes those records, and calculates the percentages by race based on the population that does have race listed in MassHealth eligibility
- MassHealth data does not include an “other or declines to self-identify category”, but does include a “multiracial” category, not included in CANS data. For the purposes of analysis by race, two categories are considered the same and are given a combined name on this comparison chart.

Selected CANS items - Life Domain Functioning

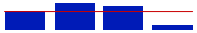
Item	0	1	2	3
	rating distribution			
Family	8%	35%	49%	8%
Social	15%	37%	39%	10%
School Behavior	27%	32%	29%	11%
School Achievement	25%	35%	28%	13%
School Attendance	63%	19%	10%	7%



For each item, the distribution of responses is shown in percentages (adding to 100% for each item) and graphically. The thin line through each graph shows the 25% level. N = 2363

- Children frequently have difficulties functioning within the family and with peers (the "Social" item). For both of these items the most frequent rating is 2.
- A rating of 2 in Family Functioning is described in the CANS as, "child is having significant problems with parents, siblings and/or other family members. Frequent arguing, difficulty maintaining positive relationships may be observed."
- A majority of the children have difficulty in school, primarily with behavior and achievement, rather than attendance. The difficulties in school are somewhat less than the difficulties within the family.
- A rating of 2 in School Behavior is described in the CANS as, "Child is having moderate behavioral problems at school. He/she is disruptive and may have received sanctions including suspensions."
- A rating of 2 in School Achievement is described as, "Child is having moderate problems with school achievement. He / she may be failing some subjects.".
- While not shown here, 23% had at least a 2 for Learning Disability.

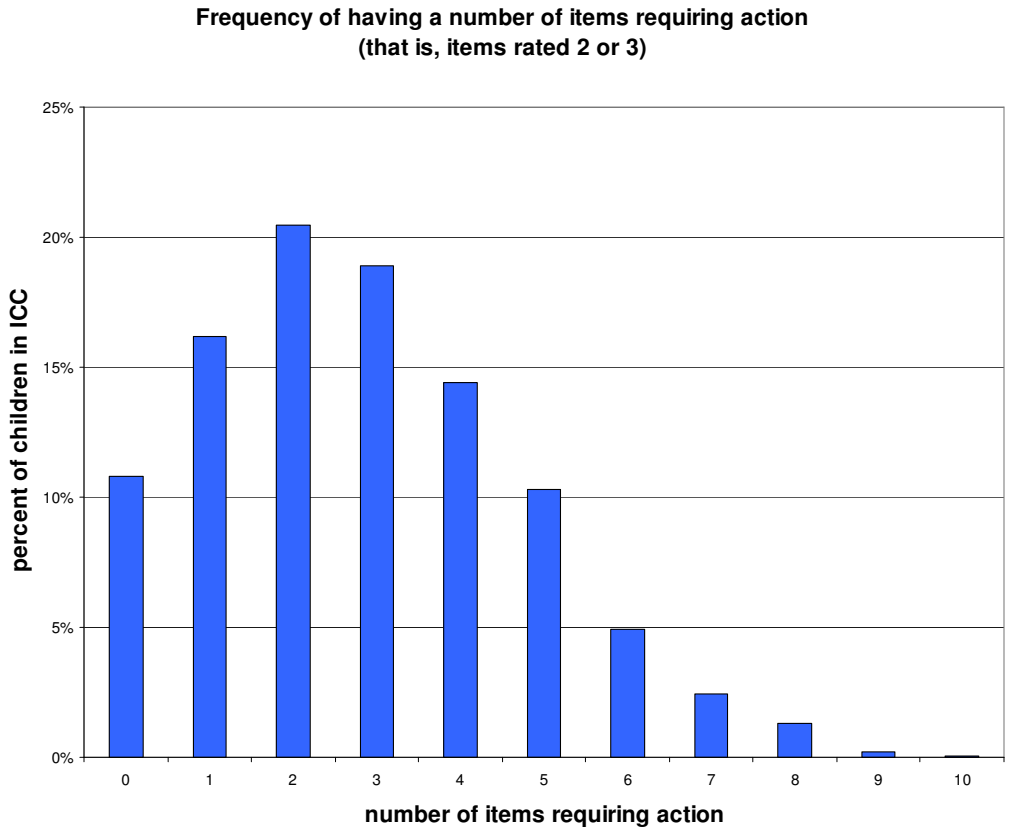
Selected CANS items –
Child Behavioral / Emotional Needs

Item	rating distribution 0	1	2	3	
Impulsive / hyperactive	21%	30%	41%	8%	
Depression	25%	37%	33%	5%	
Anxiety	29%	37%	30%	4%	
Oppositional	26%	31%	36%	7%	
Adjustment to trauma	31%	35%	25%	9%	
Emotional control	12%	35%	43%	10%	

For each item, the distribution of responses is shown in percentages (adding to 100% for each item) and graphically. The thin line through each graph shows the 25% level. N = 2363

- Many of the items in the Behavioral and Emotional Needs domain reflect symptoms. A rating of 2 on these items means that the behavioral or emotional issue has a negative impact on the child's functioning.
- The most prominent Behavioral / Emotional Needs in this population include Impulsivity / Hyperactivity, Emotional Control, Oppositional, and Depression.
- Typically members have ratings of at least 2 in multiple areas of emotional needs, with most members having these high ratings on 3 areas.
- A rating of 2 on Impulsivity / Hyperactivity is described as, "Clear evidence of problems with impulsive, distracted or hyperactive behavior that interferes with the child's ability to function in at least one life domain.".
- A rating of 2 in Depression is described in the CANS as, "Clear evidence of depression that is disabling for the child in multiple life domains."
- A rating of 2 on Emotional Control is described in the CANS as "Moderate emotional control problems. Child's labile mood and/or extreme mood swings have gotten him/her in significant trouble with peers, family and/or school. Others are likely quite aware of unstable emotions."

Selected CANS items –
Child Behavioral/Emotional Needs



Items rated 2 or 3 are considered "actionable"; that is, they indicate needs that should be addressed through action. This graph counts the number of actionable needs across three domains: Life Domain Functioning, Child Emotional / Behavioral Needs, and Child Risk Behaviors. The maximum number of possible items across these three domains is 33. N = 2363

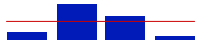
Selected CANS items – Child Risk Behaviors

	rating distribution				
Item	0	1	2	3	
Suicide	67%	24%	9%	1%	
Self-mutilation	78%	14%	7%	1%	
Dangerousness to others	47%	33%	18%	1%	
Delinquent	75%	17%	6%	2%	
Judgment	28%	37%	29%	7%	

For each item, the distribution of responses is shown in percentages (adding to 100% for each item) and graphically. The thin line through each graph shows the 25% level. N = 2363

- Actionable items occur less frequently in the Child Risk Behavior domain than in the Behavioral / Emotional Needs and Life Domain Functioning domains. This is expected as Child Risk Behaviors tend to be lower-frequency behaviors.
- Ten percent of the population shows evidence of suicide ideation or intent (rated at least 2).
- Nineteen percent shows evidence of being a danger to others around them (rated at least 2). A rating of 2 in Danger to Others is described as, "Recent aggressive or threatening behavior: e.g. homicidal ideation, physically harmful aggression, or dangerous fire setting, but not within the past 24 hours."
- Eight percent of the population shows risk of delinquency.
- A smaller portion of the population shows risk for fire setting, sexual aggression or running away.
- Thirty-six percent of the population demonstrates poor judgment (rated at least 2).

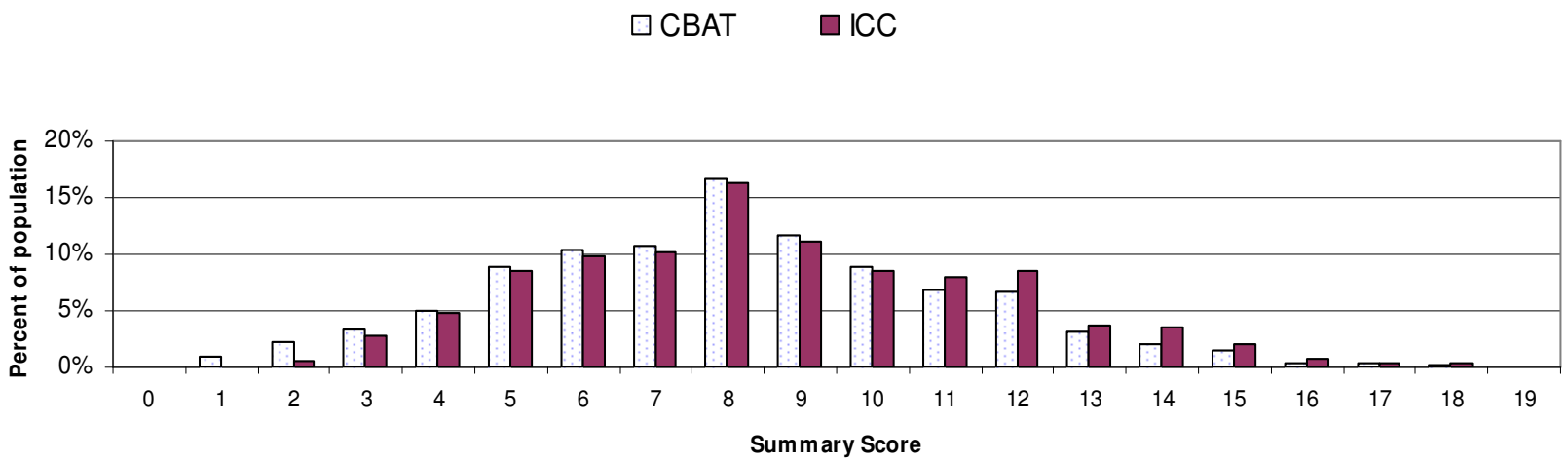
Selected CANS items – Caregiver Needs

	rating distribution				
Item	0	1	2	3	
Caregiver Mental Health	49%	33%	18%	1%	
Family Stress	12%	50%	33%	4%	

For each item, the distribution of responses is shown in percentages (adding to 100% for each item) and graphically. The thin line through each graph shows the 25% level. N = 2288

- In addition to Child Needs, caregivers of members in ICC also have various needs.
- 19% of caregivers had a rating of at least 2 on mental health needs.
- A rating of 2 in Caregiver Mental Health is described in the CANS as, "Caregiver has some mental health difficulties that interfere with his or her capacity to parent."
- 37% of caregivers had a rating of at least 2 on Family Stress related to being a caregiver (a rating of at least 2).
- A rating of 2 in Caregiver Family Stress is described in the CANS as "Caregiver has notable problems managing the stress of child/children's needs. This stress interferes with his or her capacity to provide care."

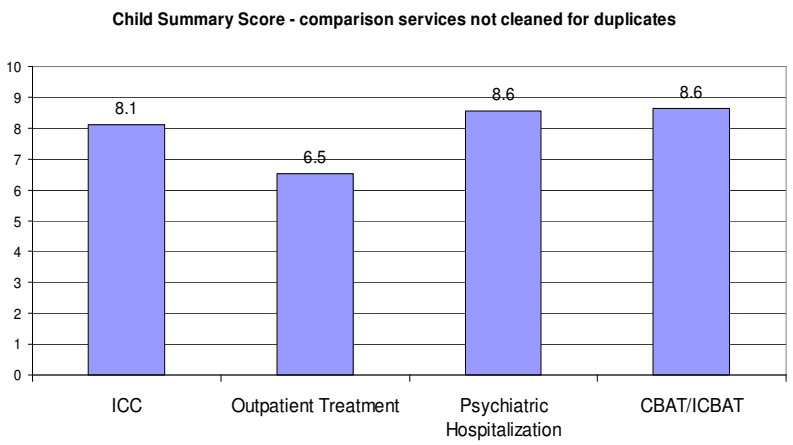
Child Summary Scores for ICC and for CBAT

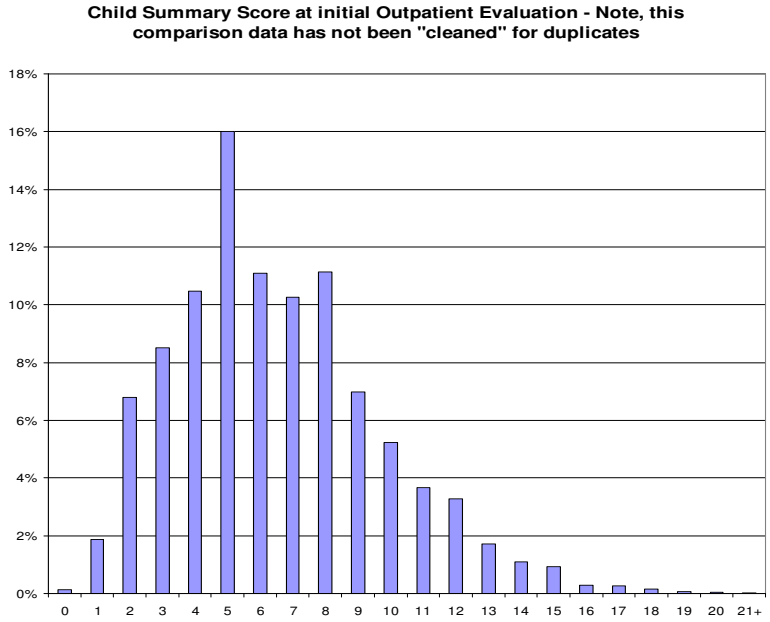


- The CANS is done as part of discharge planning for Community Based Acute Treatment (CBAT), a service in which the youth receives 24-hour supervision, and it is done as part of the assessment at the beginning of ICC. This graph shows the distribution of CANS Summary Scores for both services. Youth on the right hand side of the graph display more severity or complexity than youth on the left.

- The distribution of Summary Scores for these two services is very similar. Youth entering ICC appear to have a similar level of need to those being discharged from CBAT. In both services, the most frequent rating (the mode) is 8.

Comparison to Outpatient and Other Services





- The population being served by ICC appears to have significantly more severe and complex needs than the population served by traditional outpatient services, as indicated by the average Child Summary Score, and range of Child Summary Scores.
- The population served by ICC is much closer to those served by psychiatric inpatient and CBATS, with the slightly lower average Child Summary Score driven by slightly lower Risk ratings (since a 3 in several of those ratings result in hospitalization), and by the presence of a very small number of members with low CANS ratings.

- The Child Summary Score for members receiving outpatient is 6.5, compared to in ICC, 8.1. the most frequent rating in Outpatient (the *mode* of the distribution) is 5. Recall that the mode for CBAT and for ICC was 8.

Four Sample Cases

Instances showing how Child Summary Scores relate to clinical presentation of children in ICC

- CANS Index Score = 2: This 13 year old girl has an initial CANS that depicts relatively few concerns, even though she is enrolled in ICC. Not all clinical information is captured in the CANS ratings. For this reason, the narrative fields are important. In this case, the narrative fields conveyed multiple emerging needs, which were confirmed in a subsequent CANS. It is common for clinicians to gain more information that results in a more complete clinical picture in a subsequent CANS.

- Child Summary Score = 6: This 15 year old boy has many strengths noted in the CANS but the narrative comments show evidence of a risky downward trajectory, including delinquency charges, declining grades, negative peers, drug use, increased anger and depressive feelings. The notes and ratings in the CANS indicate an intensive intervention such as Intensive Care Coordination or In-Home Therapy is indicated to move this adolescent onto a more positive track.

- Child Summary Score = 9: This 9 year old boy has serious emotional / behavioral challenges, and is difficult to manage in the home. He has been tried on stimulants without positive response. The family is under a lot of additional stress related to living in a shelter, finances and health of mother. Primary language of both child and parent is Spanish. Evident need for linguistically and culturally appropriate supports to the family around concrete needs, mother's health, and child's behavior.

- Child Summary Score = 17: This 13 year old boy has significant learning and cognitive limitation as well as serious behavioral challenges, and is barely manageable at home and living in a family seriously stressed in a variety of ways. The CANS ratings reflect both the extent of his own behavioral emotional needs and the strain on the caretaking system. The child and family needs clearly are very significant and cross multiple domains, and could involve multiple helping systems. This appears to be a child who is at serious risk of out of home placement.