

# Estimated Need for Intensive Care Coordination among Idaho Youth

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## Executive Summary

**Objective:** The State of Idaho is undergoing a comprehensive children’s mental health service system transformation pursuant to the Jeff D. Settlement Agreement. One important component of the system transformation is the development and delivery of Intensive Care Coordination (ICC) that uses high-quality wraparound. The wraparound approach is a specific method for delivering ICC that incorporates system of care values, well-specified procedures, and standardized quality monitoring. ICC using high-quality wraparound is a case management service designed to support youth with the most complex and severe mental health needs to remain in the community rather than being placed out-of-home. In order to monitor the State’s progress toward meeting the needs of this population, an estimate is needed of the number of Idaho youth who are likely to need/ utilize ICC. The purpose of this report is to provide such an estimate.

**Method:** Two methodologies were used to estimate the need for ICC in Idaho. The first methodology developed a predictive analytic model that projected the need for ICC in Idaho based on ICC utilization data from other States in combination with information on those States’ ICC program characteristics (e.g., level of program implementation) and youth population characteristics (e.g., percentage of youth living in poverty). The second methodology estimated the need for ICC in Idaho through an analysis of aggregated Idaho administrative data. Three Idaho service systems (Medicaid, Division of Behavioral Health, and Division of Family and Community Services), provided data on the number of Idaho youth who participated in publicly-funded, out-of-home mental health services (e.g., residential treatment, inpatient psychiatric hospitalization). These data were combined to form an estimate of the number of Idaho youth likely to need ICC based on demonstrated risk for out-of-home placement due to a mental health condition.

**Results:** Across the 11 States for which ICC utilization data were available, annual rates of ICC utilization per 100,000 youth ranged from 17 to 651. The best fitting predictive analytic model of annual ICC utilization per 100,000 youth included a single variable—level of program implementation—which reflected the extent to which the State’s ICC program was implemented regionally or statewide and had procedures in place for sustainable funding, ongoing outcomes monitoring, and continuous quality improvement. Application of the predictive analytic model to Idaho’s population characteristics resulted in three different projected levels of ICC utilization as Idaho’s ICC program develops from newly emerging to well-established. During the initial phase of ICC implementation, Idaho is projected to serve 65 youth per 100,000 annually (representing 284 youth based on 2016 Idaho population estimates). During the intermediate phase of ICC implementation, Idaho is projected to serve 144 youth per 100,000 annually (representing 628 Idaho youth based on 2016 population estimates). Once Idaho’s ICC program is fully implemented it is projected to serve 318 youth per 100,000 annually (representing 1,389 youth based on 2016 Idaho population estimates). The analysis of aggregated Idaho administrative data from State Fiscal Year 2016 yielded highly similar results. This analysis estimated that 1,344 Idaho youth would likely benefit from ICC using high-quality wraparound given their demonstrated risk for out-of-home placement due to mental health needs. The consistency of the two estimates (1,389 youth vs. 1,344 youth) derived through different methodologies increases confidence in their validity and utility.

**Conclusions and Recommendations:** In 2016, there were approximately 1,350 Idaho youth, or 309 youth per 100,000, who likely needed ICC. The estimates presented here provide benchmarks for monitoring Idaho’s progress toward meeting the needs of Class Members with intensive mental health needs. In order to improve these estimates, it is recommended that the State develop an integrated data management system to share information across public service systems (e.g., Medicaid, DBH, FACS, education, juvenile justice).  
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## Introduction

The purpose of this report is to estimate the number of Idaho youth who are likely to need Intensive Care Coordination in order to meet their mental health needs. Under terms specified by the Jeff D. Settlement Agreement, the State of Idaho is required to develop and implement a sustainable, accessible, comprehensive, and coordinated service array that meets the needs of children with serious emotional disturbance (SED). To fulfill this charge, the Idaho Department of Health and Welfare Division of Behavioral Health has initiated a comprehensive children's mental health system transformation called Youth Empowerment Services (YES) that includes the development and provision of an array of community-based services. One critical component of this new service array is Intensive Care Coordination (ICC) using high-quality wraparound. ICC is designed to meet the needs of youth with SED who experience the most severe levels of impairment in daily functioning and who require the most intensive support to remain in the community.

One important goal of developing and implementing YES services is monitoring the provision of ICC to ensure that all youth who need ICC are able to access it. In order to accomplish this, the Department needs a clear estimate of the number of Idaho youth who need ICC. The purpose of this report is to provide such an estimate.

The report is organized into three sections. Part 1 defines ICC using high quality wraparound as outlined by the Settlement Agreement and describes how this service fits within the overall YES service array for Idaho youth with SED. This section also describes the clinical profile of youth who are likely to need ICC as outlined in the Settlement Agreement and operationalized by the Idaho Department of Health and Welfare.

Part 2 presents estimates of the need for ICC in Idaho based on two complementary methodological approaches. The first estimate is based on a predictive analytic model incorporating ICC utilization data from 11 other States. Numerous States in the US have begun implementing ICC with high-quality wraparound and the experiences of these States provide a basis for developing a predictive analytic model that projects the

need for, or expected utilization of, ICC in Idaho. Using data on other States' ICC utilization, program characteristics, and youth population characteristics, an analytic model was developed and applied to Idaho characteristics to estimate the need for ICC in Idaho.

The second estimate of need for ICC in Idaho is based on an analysis of Idaho administrative data. This analysis integrates administrative data from three publicly-funded Idaho service systems (Idaho Medicaid, Division of Behavioral Health, and Division of Family and Community Services) that fund out-of-home mental health treatment for youth. This methodology estimates the number of Idaho youth who are likely to need ICC based on their demonstrated risk for out-of-home placement due to a mental health condition. Comparison of these two estimates provides a means of assessing their validity.

Part 3 presents conclusions and recommendations based on the predictive analytic model and the analysis of Idaho administrative data. This section highlights the need for standardized assessments of youths' mental health needs across Idaho's publicly-funded children's service systems and points out the need to develop new data management and sharing procedures to support the new service array and ensure that the needs of Class Members are met.

### Box 1. Definition of Intensive Care Coordination

#### Jeff D. Settlement Agreement (Appendix C)

**Intensive Care Coordination (ICC)** is a case management service that provides a single point of accountability for ensuring that medically necessary services are accessed, coordinated, and delivered consistent with the Principles of Care and Practice Model. ICC includes both assessment of service needs and service planning utilizing a facilitated CFT process. It includes assessing, reassessing, monitoring, facilitating, linking, and advocating for needed services for Class Members and their families.

ICC is delivered through a single consistent Intensive Care Coordinator. The Intensive Care Coordinator is responsible for coordinating multiple services that are delivered in a therapeutic manner, allowing the Class Member to receive services in accordance with his or her changing needs and strengths. The Intensive Care Coordinator is also responsible for promoting integrated services, with links between child-serving agencies and programs. ICC also includes a treatment planning process that utilizes a formal CFT approach, as described in the Principles of Care and Practice Model.

The Intensive Care Coordinator is responsible for facilitating CFT meetings for the purpose of developing outcome-focused, strength-based activities that assist Class Members and their families. The Intensive Care Coordinator is specifically trained in the wraparound process for treatment planning. Intensive Care Coordinators shall maintain reasonable caseloads consistent with accepted industry standards for children's mental health systems of care based on intensity of their client's acuity, needs, and strengths.

## Part I: Defining Intensive Care Coordination and the Target Population

### Intensive Care Coordination

Intensive Care Coordination (ICC) is a case management service that incorporates assessment and service planning, accessing and arranging for services, coordination of services, advocating for services, and monitoring progress in meeting service goals for youth with complex and severe mental health needs (Centers for Medicare and Medicaid Services [CMS], 2013; Simons et al., 2014). In 2013, the US Centers for

### Box 2. Idaho Criteria for Identifying Youth who Need Intensive Care Coordination

Pursuant to the Jeff D. Settlement Agreement, the State of Idaho has developed the following criteria for determining which Class Members experience more intensive mental health needs that may benefit from ICC. Under the Agreement, Class Members with more intensive needs include any Class Member who **either**:

- a. Has a qualifying Child and Adolescent Needs and Strengths (CANS) tool score, as developed pursuant to the Settlement Agreement, **or**
- b. Meets one of the following criteria:
  - Is at substantial risk of out-of-home placement due to mental health needs;
  - Has experienced three (3) or more foster care placements within twenty-four (24) months for reasons related to mental health needs;
  - Is involved with multiple child-serving systems related to his or her mental health needs;
  - Is under age twelve (12) and has been Hospitalized for reasons related to mental health needs within the last six (6) months;
  - Is under age twelve (12), has been detained within the last six (6) months, and has unmet mental health needs;
  - Has experienced more than one hospitalization for mental health needs within the last twelve (12) months; or
  - Is currently in an out-of-home placement due to mental health needs and could be discharged safely to their home or community within up to ninety (90) days if adequate home and community-based supports were provided.

Medicare and Medicaid Services and the Substance Abuse and Mental Health Services Administration (SAMHSA) issued a federal bulletin recommending that States incorporate ICC using the wraparound approach as one component of an effective service array for youth with the most severe mental health conditions (CMS, 2013). Partially in response to this bulletin, several States have incorporated ICC into their community-based service array for youth.

The wraparound approach is a specific method for delivering ICC that incorporates clearly defined system of care values, adheres to well-specified procedures, and incorporates standardized staffing (e.g., caseload size) and quality monitoring procedures (Burns & Hoagwood, 2002; CMS, 2013). Wraparound is recommended as an effective approach for implementing ICC because of its emerging evidence base supporting its effectiveness and cost-effectiveness for meeting the needs of youth with the most severe mental health needs (Coldiron et al., 2017; Suter & Bruns, 2009).

Building on this evidence and the recommendations of SAMHSA, the Jeff D. Settlement Agreement incorporated ICC using the wraparound approach as one service to be provided to Class Members who meet specific criteria indicating a high level of need. Box 1 presents the definition of ICC from the Jeff D. Settlement Agreement. Notably, the Agreement specifically refers to wraparound as the targeted approach for implementing ICC in Idaho. Throughout the remainder of this report, the term ICC will be used to indicate ICC using high-quality wraparound, as specified in the Settlement Agreement.

### Target Population

In addition to defining ICC as a service for youth with severe mental health conditions, the Jeff D. Settlement Agreement also defines the target population of Idaho youth who should receive this service. As specified by the Agreement, the target population includes Idaho youth who are *Class Members* and whose mental health needs are severe enough to meet well-defined

criteria (described below). Class Members are Idaho residents under the age of eighteen (18), who experience a Serious Emotional Disturbance as defined in Idaho Administrative Code (IDAPA 16.07.37).

Criteria for determining whether Class Members require ICC to meet their needs are specified in the Settlement Agreement and reproduced in Box 2. These criteria are consistent with criteria used by other States to identify the target population of youth who need ICC (Simons et al., 2014). The criteria reflect the fact that ICC is most appropriate for youth whose mental health needs put them at significant risk of out-of-home placement unless the youth and her or his family receive intensive and coordinated services and supports from multiple sources across multiple domains of life functioning.

In Idaho, one critical method of assessing Class Members' need for ICC involves administration of the Child and Adolescent Needs and Strengths (CANS) assessment tool (Lyons et al., 1999). The CANS is a standardized measurement tool administered to the youth and

caregiver by a trained rater that provides a basis for assessing the youth's strengths and needs across multiple domains (e.g., life functioning, behaviors and emotions, risk behaviors). The CANS produces a profile score that indicates the youth's overall level of need for mental health services based on her or his unique clinical profile including strengths, needs, and risk factors. The CANS is currently used by 50 States to assess youths' mental health needs and has evidence of reliability and validity (Anderson et al., 2003; Cordell et al., 2016; Lardner, 2015; Lyons et al., 2003).

As part of the Settlement Agreement, the Idaho Department of Health and Welfare has collaborated with the developer of the CANS to generate a CANS profile that indicates the need for ICC in Idaho. Box 3 presents the CANS clinical profile that indicates the need for ICC as established by the Department in collaboration with the CANS developer. A primary feature of this profile is the need for intensive and immediate action across multiple areas in order to prevent

harm to the youth or others and to avoid out-of-home placement.

## Part II: Estimating the Need for ICC in Idaho

This section presents two estimates of the number of Idaho youth who are likely to need/ utilize ICC. The first estimate draws on ICC utilization data from several other States in combination with information about the characteristics of those programs and sociodemographic information regarding the youth populations within those States. Together, these data provide a basis for developing a predictive model that estimates the number of Idaho youth who are likely to utilize ICC. This predictive model can be applied to Idaho's program characteristics and youth population characteristics to generate an estimate of

ICC utilization in Idaho. This section presents information on ICC utilization from other States, results of the predictive models, the best fitting model, and Idaho's projected ICC utilization based on the results of this analysis.

The second estimate draws on Idaho administrative data from Idaho Medicaid, the Idaho Department of Health and Welfare Division of Behavioral Health (DBH), and the Idaho Department of Health and Welfare Division of Family and Community Services (FACS) to develop an estimate of ICC utilization in Idaho. Each of these service systems funds out-of-home mental health placements for youth with severe mental health conditions and the aggregation of service utilization data from these systems provide a basis for estimating the need for ICC in Idaho. The assumptions underlying this approach are (a) youth who need ICC are at high risk for out-of-home placement due to their mental health needs, and (b) youth who need ICC are most likely already participating in intensive mental health services.

Although there are limitations to the analysis of aggregate service utilization data, this analysis provides useful context against which to validate the results of the predictive analytic model.

At this time it is not possible to generate a complete, non-duplicated list of Idaho youth who receive out-of-home services due to technological, legal, and procedural barriers that restrict data sharing across Idaho's public child-serving systems. However, aggregate data from these systems can be compiled and analyzed to provide an estimate of the number of Idaho youth who are in out-of-home placements due to the severity of their mental health needs.

## Estimated Need for ICC in Idaho Based on Predictive Analytic Modeling

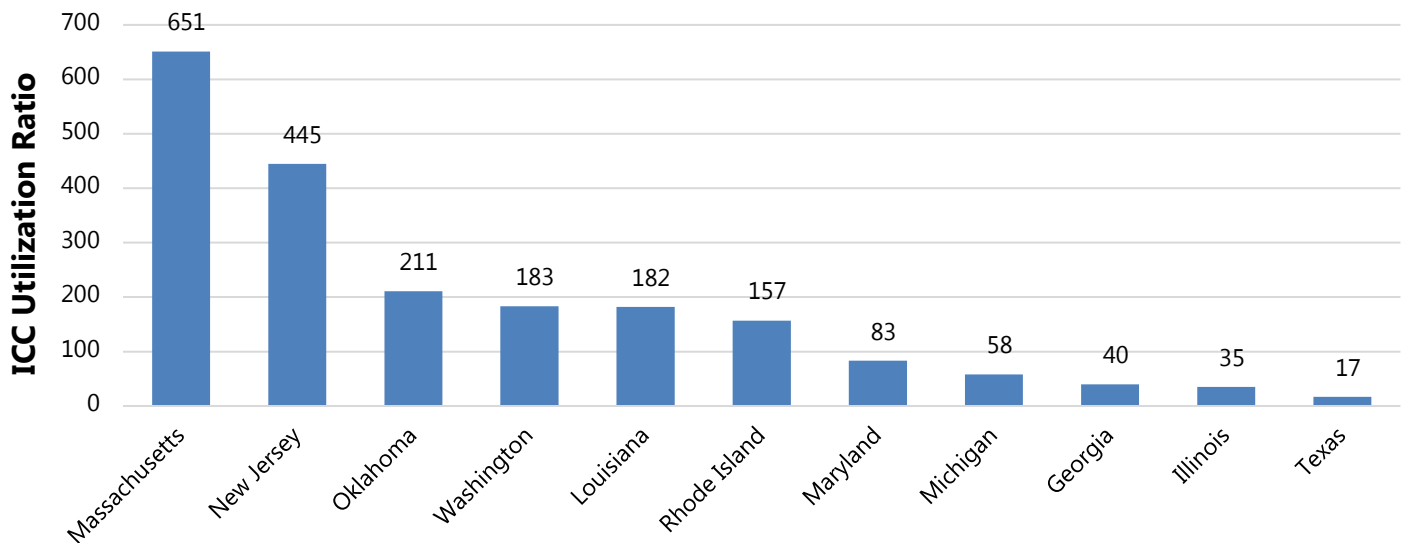
### Data Sources and Measures

**ICC utilization.** In order to develop a predictive analytic model that estimates the number of Idaho youth who are likely to utilize ICC, we drew on ICC utilization data from other States where ICC with high-quality wraparound has been implemented. Data on ICC

### Box 3. Clinical Profile of Youth who Need Intensive Care Coordination based on the CANS

Class Members who need ICC as measured by the CANS will have the following profile. *In all three CANS' domains of Life Functioning, Behavioral/ Emotional Needs, and Risk Behaviors, the youth will exhibit either (a) a need for immediate or intensive action on at least one of the specified items (this indicates an immediate safety concern such as harm to self or others), or (b) the need for action on two or more of the specified items (this level indicates the need for concerted action to address the identified problem/ need). Specified items include:*

1. Life Functioning Domain
  - Family or living situation
  - Social functioning
  - Recreational
  - Sleep
  - Medical or physical
  - Sexual development
  - Activities of daily living
  - School attendance
2. Behavioral/ Emotional Domain
  - Adjustment to trauma
  - Psychosis
  - Impulsivity
  - Depression
  - Anxiety
  - Oppositional
  - Triangulation/ manipulation
  - Conduct
  - Attachment difficulties
  - Somatization
  - Anger control
  - Mood disturbance
3. Risk Behavior Domain
  - Suicide watch
  - Self-mutilation
  - Other self-harm
  - Danger to others
  - Sexual aggression
  - Runaway/ flight risk
  - delinquency
  - Fire-setting
  - Intentional misbehavior
  - Sexually reactive behavior
  - Bullying
  - Exploitation
  - Bullied by others
  - Cruelty to animals

**Figure 1. Annual ICC Utilization per 100,000 Youth by State**

utilization in other States was collected through a systematic search process that incorporated the published research literature, published State reports, and published federal reports on ICC utilization with high-quality wraparound. The ICC utilization data published in these reports was most often provided by State officials as part of evaluation and grant reporting activities associated with the ICC program. In cases where a State appeared to have an ICC program but did not make information on ICC utilization publicly available, we directly contacted State officials and requested this information. The systematic search process yielded ICC utilization data for 11 States based on publicly available published State and federal reports.

In order to facilitate comparison of ICC utilization across States, we converted the number of youth who participated in ICC in each State into an *ICC utilization ratio*. The ICC utilization ratio is calculated as the number of youth who participated in ICC divided by the State's total youth population under age 18, multiplied by 100,000. The ICC utilization ratio describes the number of youth per 100,000 in the population who utilized ICC in the State during the year reported. Two States reported on ICC utilization for 2016 and nine States reported on ICC utilization for 2013. In all cases, we used the most recent utilization data in our analyses.

For each State that provided ICC utilization data, we collected information

on the ICC program's level of implementation and gathered data on the sociodemographic characteristics of the State's youth population under age 18 during the year in which ICC utilization was reported. These data were used as predictors of the ICC utilization ratio in our analytic models.

#### **Level of Program Implementation.**

Data on the implementation status of each ICC program was derived from publicly available State documents which described the ICC programs in detail. Using this information, we categorized each program into one of three levels of program implementation based on criteria outlined by the Centers for Medicare and Medicaid Services (Simons et al., 2014). The three levels of program implementation reflect the program's duration of operation and level of development ranging from newly emerging programs to well-established programs with long-term sustainability. As outlined by the CMS report, the three levels of ICC program implementation were:

- *Emerging* – ICC using high-quality wraparound is being piloted or is in the early stages of implementation,
- *Evolving* – the ICC program is established within one or more jurisdictions (e.g., one or more counties or regions) and is either (a) expanding statewide, or (b) being revamped within

the context of new Medicaid funding guidelines or strategies,

- *Established* – the ICC program is fully established statewide and includes: sustainable funding streams, a full array of services and supports, outcomes data, and operational procedures for continuous quality improvement.

#### **Youth population characteristics.**

Descriptive information regarding the sociodemographic characteristics of each State's youth population was drawn from US Census Bureau data and nationally representative federal surveys accessed via the Kids Count Data Center portal maintained by the Annie E. Casey Foundation (available at <http://datacenter.kidscount.org/>). The Kids Count Data Center procures up-to-date information from the US Census Bureau, nationally-representative surveys conducted by the US federal government, and State level administrative databases on a wide range of youth characteristics. The Technical Appendix provides detailed information on the data sources for variables used in this analysis. Variables were selected for inclusion in the analysis based on research describing risk factors for serious emotional disturbance (Kessler et al., 2012; Merikangas et al., 2009). The following variables have been linked to increased risk for serious emotional disturbance among youth; consequently, we included the percentage of youth who experienced

these characteristics within each State as potential predictors of ICC utilization in our analysis:

- *living in poverty* – youth who live in poverty are at higher risk for experiencing serious emotional disturbance (Costello et al., 1998),
- *participation in Medicaid or other publicly-funded insurance programs* – youth who participate in publicly-funded insurance such as Medicaid are at increased risk for experiencing serious emotional disturbance relative to youth who are not insured or who have private insurance (Burns et al., 1997; Simon et al., 2015),
- *lack of health insurance* – youth who do not have health insurance are at increased risk for experiencing serious emotional disturbance relative to youth who are privately insured (Burns et al., 1997; Simon et al., 2015),
- *placement in foster care* – youth who are placed in the foster care system are at increased risk for experiencing mental health problems (Garland et al., 2001),
- *parental incarceration* – youth whose parents have been in contact with the criminal justice system are at increased risk for experiencing serious emotional disturbance (Costello et al., 1997),
- *residence in a single parent family* – youth who live in a single caregiver family are at increased risk for experiencing serious emotional disturbance (Kessler et al., 2012; Merikangas et al., 2009),
- *race/ ethnicity* – evidence is mixed regarding the relationship between race and youth risk for serious emotional disturbance (Kessler et al., 2012; Merikangas et al., 2010),
- *age* – older youth are at increased risk for experiencing serious emotional disturbance (Costello et al., 2005; Kessler et al., 2012; Merikangas et al., 2010).

In addition, we tested the *prevalence of SED* as a predictor of ICC utilization in our analyses. To the extent that ICC services are utilized based on youth need, we reasoned that States with higher SED prevalence may have higher rates of ICC

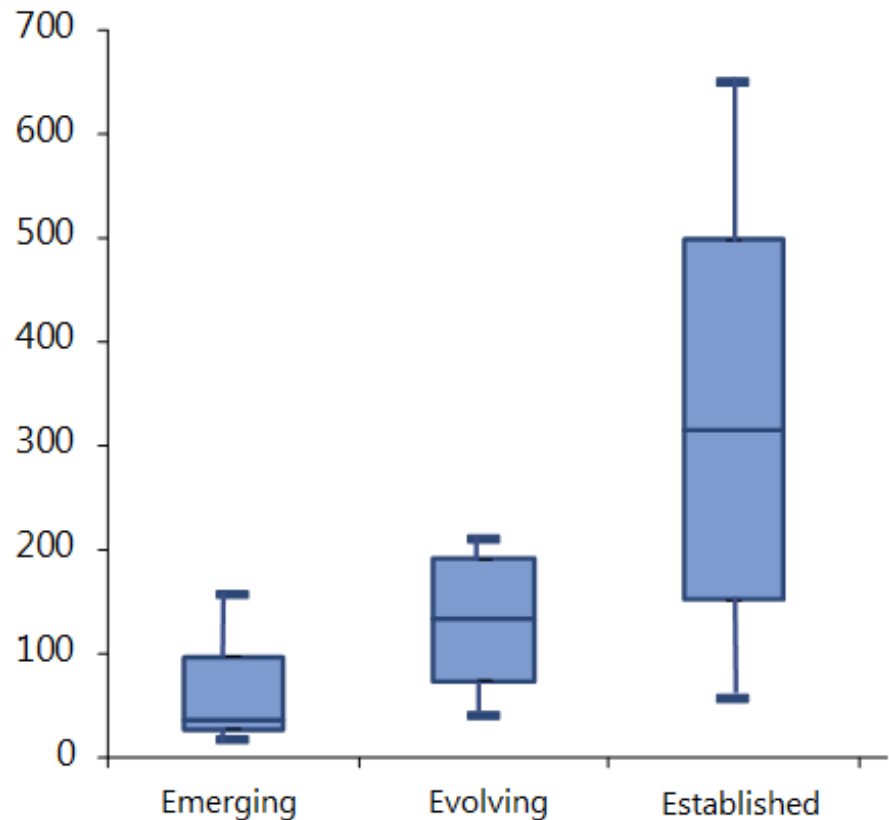
utilization. Estimates of SED prevalence for each State were based on the 2016 SAMHSA Uniform Reporting System (URS) output tables and ranged from 6% to 8% (SAMHSA, 2016).

**Statistical Analysis**

The statistical analysis had two goals. The first goal was to test whether any of the youth population characteristics or level of ICC program implementation predicted ICC utilization. To test these relationships, we ran a series of negative binomial regression models which estimated the bivariate relationship between each predictor and ICC utilization rate. Negative binomial regression is a member of the family of regression models known as the

generalized linear model and is appropriate for modeling rate data such as the rate of youth served per 100,000 in the population (Orme & Orme, 2009). The offset variable for these analyses was the log of the youth population under age 18 divided by 100,000. Results of these negative binomial regression models indicated whether there was a statistically significant bivariate relationship between each of the predictor variables (e.g., percentage of youth living in poverty) and ICC utilization adjusted for youth population. Put differently, each model tested whether the prediction of a State’s ICC utilization ratio could be improved through knowledge of the State’s status on a specific predictor variable (e.g., level of ICC program implementation or youth population characteristics).

**Figure 2. Annual ICC Utilization per 100,000 Youth by Level of Program Implementation**



Level of Program Implementation	ICC Utilization Ratio		N of States	Std. Deviation
	Mean	Median		
Emerging	69.66	35	3	76.03
Evolving	129.40	133	4	80.86
Established	334.04	314	4	266.05
<b>Total</b>	<b>187.52</b>	<b>157</b>	<b>11</b>	<b>196.14</b>

**Table 1. Results of Negative Binomial Regression Analyses Linking Annual ICC Utilization to Level of Program Implementation and Youth Population Characteristics**

Predictor	<i>B</i>	<i>SE</i>	<i>p</i>	BIC
Level of ICC Program Implementation*	0.79	0.37	0.040	198.67
% youth in foster care	0.72	1.42	0.604	202.63
% youth with a caregiver who has ever been incarcerated	-0.22	0.12	0.087	199.98
% youth who live in a single parent family	-0.06	0.05	0.288	201.78
% youth who are white	0.07	0.04	0.091	200.04
% youth who are African American	-0.03	0.03	0.243	201.53
% youth who are Latino	-0.04	0.04	0.434	202.29
% youth ages 0 to 4 years	-0.31	0.31	0.326	201.94
% youth ages 15 to 17 years	0.37	0.34	0.290	201.78
% youth who participate in public health insurance (i.e., Medicaid)	-0.07	0.05	0.144	200.78
% youth who do not have health insurance	-0.13	0.11	0.220	201.40
% youth who live in poverty (below 100% of federal poverty line)	-0.09	0.06	0.161	200.94
Prevalence of serious emotional disturbance	-0.88	0.53	0.099	200.19

*Note:* These are bivariate negative binomial regression models with a log link function. Offset variable =  $\ln(\text{youth population under age 18} / 100,000)$ .

\*  $p < .05$

The second goal of the analysis was to identify the best fitting predictive analytic model with which to estimate Idaho's ICC utilization ratio. In order to identify the best fitting model, we first calculated the Bayesian Information Criterion (BIC) value for each model and then compared these values across models to determine which model best fit the data. Models with lower BIC values represent better fitting models that more accurately reflect the data and are more likely to generalize to data beyond the observed sample (Orme & Orme, 2009). Accordingly, we selected the model with the lowest BIC value as the best fitting model.

Following the identification of the best fitting model, we projected ICC utilization in Idaho by applying the results of the predictive analytic model to Idaho. This process involved inserting Idaho values into the predictive model and solving the model to derive the estimated or projected ICC utilization ratio for Idaho. The end result was a model-based estimate of the expected

ICC utilization in Idaho based on the best-fitting predictive analytic model.

## Results

Figure 1 shows the distribution of annual ICC utilization ratios across the 11 States included in our sample. The average annual ICC utilization ratio was 188 youth per 100,000 ( $SD = 196$ ) with a range of 17 ICC utilizers per 100,000 in Texas to 651 ICC utilizers per 100,000 in Massachusetts.

Results of the bivariate analyses testing each predictor of ICC utilization are presented in Table 1. Of the 13 predictors tested, only one exhibited a statistically significant relationship with ICC utilization. Consistent with expectations, higher levels of program implementation were associated with increased ICC utilization ratios. Figure 2 shows the distribution of annual ICC utilization ratios across levels of program implementation along with the average and median annual ICC utilization ratios at each level. For new, emerging ICC

programs, the average annual ICC utilization ratio was 70 youth per 100,000. For evolving programs, the average annual ICC utilization ratio was 129 youth per 100,000. For well-established ICC programs, the average annual ICC utilization ratio was 334 youth per 100,000. Results of the negative binomial regression analysis confirm that ICC utilization relative to the youth population increases as a State's ICC program develops.

None of the youth population characteristics were significantly related to ICC utilization ratios (see Table 1).

In order to identify the best fitting model, we compared BIC values across models and selected the model with the lowest value on this criterion (see Table 1). The model with the lowest BIC value, and consequently the best fitting model according to this information criterion, was the model incorporating the level of program implementation as the sole predictor (Likelihood ratio  $\chi^2 = 4.23$ ,  $df = 1$ ,  $p = .040$ ). Given that the level of program implementation was the only statistically significant predictor of ICC utilization and given that this model exhibited the best fit to the data based on the BIC, we selected it as the best fitting model for estimating the need for ICC in Idaho.

The last step in the analysis was to apply the best fitting predictive analytic model to Idaho State population data and ICC program characteristics in order to estimate the number of Idaho youth who are likely to need ICC. Results of this analysis are presented in Table 2. The predictive analytic model takes into account the size of Idaho's youth population and Idaho's level of ICC program implementation to project the expected level of ICC utilization in Idaho.

As is shown in Table 2, Idaho's projected ICC utilization is expected to increase as the program moves from a newly emerging program to a mature, well-established program. In its first stages of development (i.e., level of implementation = emerging), Idaho is expected to have 65 youth per 100,000 participate in ICC annually. In terms of Idaho's 2016 youth population under age 18 this represents 284 youth who are projected to participate in ICC per year. Once Idaho's ICC program matures and

becomes well-established, Idaho is projected to have 318 youth per 100,000 participate in ICC annually. Again using Idaho’s 2016 youth population estimates, this translates into 1,389 Idaho youth who are likely to need/ utilize ICC annually.

Figure 3 shows how Idaho’s projected annual ICC utilization ratio based on the analytic model compares to other States’ annual ICC utilization ratios at each level of ICC program implementation.

**Discussion and Limitations**

Results of this predictive analytic model have some limitations that are important to note. First, the sample size of States included in the analysis was limited because only some States use ICC with high-quality wraparound not all of those States make their ICC utilization data publicly available. The use of a small sample decreases statistical power, diminishes the precision of statistical estimates, and precludes the analysis of multivariate models that incorporated multiple predictors. It is possible that multivariate models may have identified

a combination of predictors that exhibited better model fit than the best fitting model identified here. However, this concern is mitigated by follow-up exploratory analyses conducted with the current data set. Specifically, several different multivariate models were fit to the data and none of these models achieved better model fit (based on the BIC) than the more parsimonious model that relied on level of program implementation. Should more data on ICC utilization in different States become available, analyses could be re-run with a larger sample to produce more precise statistical estimates and achieve higher statistical power; however, in the interim, the best fitting model selected here provides a reasonable basis for projecting ICC utilization in Idaho.

Second, the small sample size included in the analysis increases the potential for outliers to influence the results. Procedures for checking whether the model adequately represents the data and whether outliers influenced the model results include examination of standardized deviance residuals and measures of influence such as Cook’s D

(Orme & Orme, 2009). In the present analysis, no standardized deviance residuals exceeded the recommended cutoff value of +/- 2 and no Cook’s D value exceeded the recommended cutoff value of 1. Examination of the model’s residual plots and influence statistics provided additional confirmation that the final fitted model did not violate any key assumptions of the generalized linear model. These results increase confidence in the validity of the model results.

The third issue that is important to consider in interpreting these results pertains to the wide range of factors beyond youth need that are likely to influence ICC utilization. Ideally, ICC utilization is driven exclusively by youth need such that States with higher proportions of youth who need ICC exhibit higher ICC utilization ratios. The failure to find a statistically significant relationship between any of the youth population characteristics and ICC utilization calls into question whether the use of ICC is driven by youth need or other factors such political climate, policy priorities, funding constraints, and other factors unrelated to youth need. No

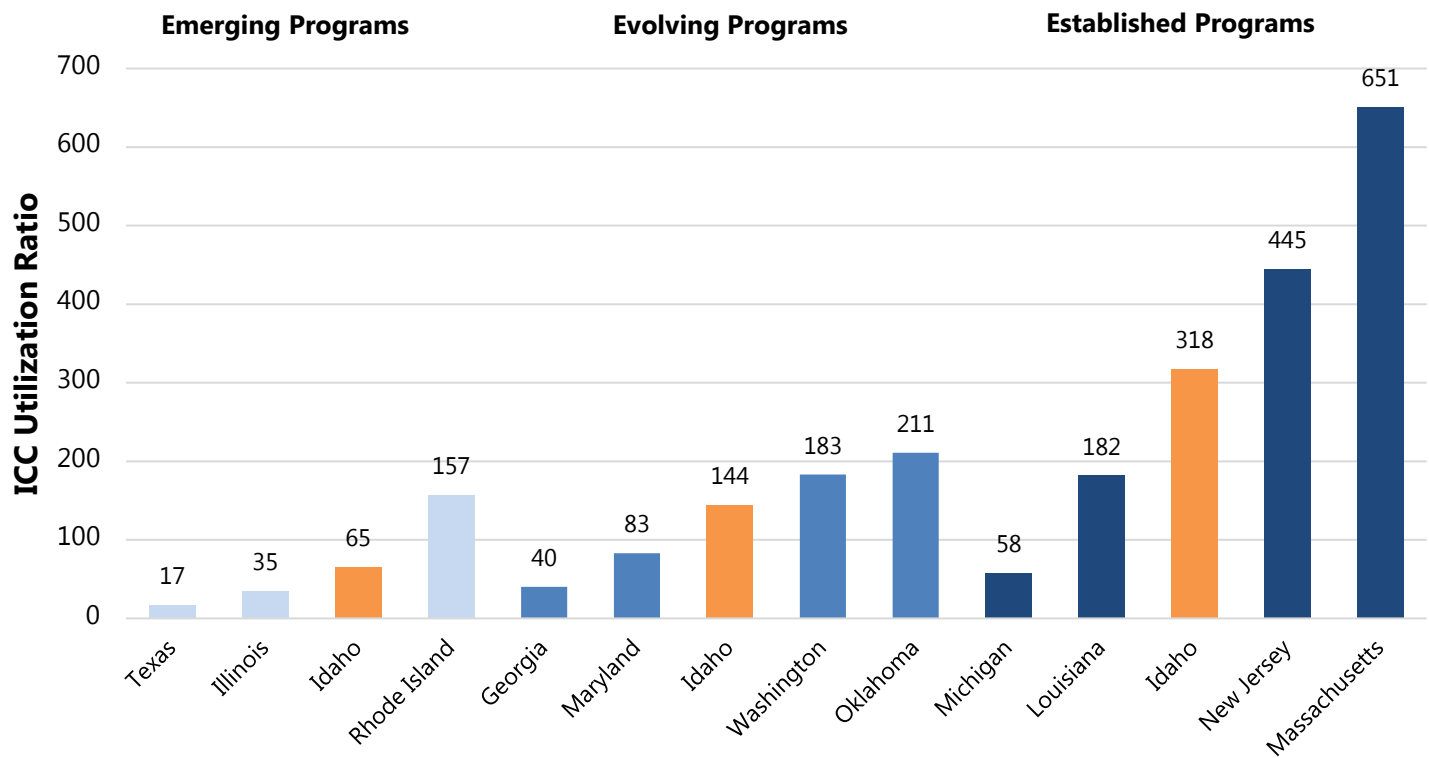
**Table 2. Projected Number of Idaho Youth Who Will Utilize ICC per Year by Level of Program Implementation**

Level of Program Implementation	Implementation Benchmarks	Projected Number of Idaho Youth to Utilize ICC per year, per 100,000 <sup>a</sup>	Projected Number of Idaho Youth to Utilize ICC per year <sup>a</sup>
Emerging Program	ICC program using high-quality wraparound is being piloted or is in the early stages of implementation	65	284
Evolving Program	ICC program is established and is either: <ul style="list-style-type: none"> <li>▪ Expanding statewide, or</li> <li>▪ Revamping approach within the context of new Medicaid guidelines or strategies</li> </ul>	144	628
Established Program	ICC program is fully established statewide and includes: <ul style="list-style-type: none"> <li>▪ Sustainable funding streams</li> <li>▪ A full array of services and supports</li> <li>▪ Outcomes data, and</li> <li>▪ Procedures for continuous quality improvement</li> </ul>	318	1,389

<sup>a</sup> Estimates are based on the best fitting predictive analytic model incorporating ICC utilization data from 11 other States at varying levels of ICC implementation (i.e., emerging, evolving, established). Estimates presented here incorporate 2016 Idaho population estimates from the U.S. Census Bureau (total Idaho population under age 18 = 437,173).



**Figure 3. Projected Idaho Annual ICC Utilization by Level of Program Implementation Relative to Other States**



statistical analysis can change the realities of these extraneous factors that undoubtedly influence ICC utilization; however, it is worth noting their potential influence on the model results and interpretation.

In conclusion, results presented here provide a benchmark or standard of care against which to compare and evaluate the utilization of ICC in Idaho. Results of the predictive analytic model suggest Idaho’s annual ICC utilization ratio should increase over time as the program matures. Furthermore, the analytic model results indicate Idaho’s annual ICC utilization ratio should fall near the middle of the utilization ratios observed in other States once Idaho’s program is fully implemented. These estimates appear to provide an adequate basis for predicting ICC utilization among Idaho youth.

**Estimated Need for ICC in Idaho Based on Administrative Data**

**Data Sources**

Data for this analysis were derived from the administrative databases of three publicly-funded Idaho service systems that fund out-of-home mental health treatment for youth—Idaho Medicaid, Idaho Department of Health and Welfare Division of Behavioral Health (DBH), and Idaho Department of Health and Welfare Division of Family and Community Services (FACS). Each system provided aggregate data on the number of Idaho youth who received out-of-home mental health services in State Fiscal Year 2016. The types of out-of-home placements included:

- *Residential treatment facility* – youth who experience the most severe mental health conditions are sometimes placed in residential treatment facilities that provide mental health treatment and supervision 24 hours per day, 7 days per week. According to data provided by DBH, the average length of stay in these placements is 141 days (Idaho Youth Empowerment Services Data and Reports Committee [IYESDRC], 2017). Both DBH and FACS fund residential treatment placements and both systems provided data on the total number of

Idaho youth placed in residential treatment facilities in SFY 2016,

- *Therapeutic foster care* – Idaho youth who are currently placed in the foster care system and who experience intensive mental health needs are sometimes placed in a therapeutic foster home. This out-of-home placement includes specially trained foster caregivers and an array of services and supports to maintain the youth in the foster placement. Data on the average length of stay was unavailable as of the writing of this report; however, anecdotally, these placements typically last at least several months. The Division of Behavioral Health maintains data on the number of Idaho youth placed in therapeutic foster care,
- *State Hospital South* – some youth who experience intensive mental health needs are placed in Idaho’s only publicly-funded long-term State Hospital for persons who experience symptoms of severe mental illness—State Hospital South. On average, these placements typically last between 24 to 41 days (IYESDRC, 2017). Through the statewide electronic health record, DBH

is able to report on the number of youths placed in this setting.

- *Out-of-State psychiatric residential treatment facility* – some youth who need inpatient psychiatric care are placed out-of-state in psychiatric residential treatment facilities. Idaho Medicaid maintains data on the number of youth in these placements,

- *Inpatient psychiatric hospitalization* – some youth who experience intensive mental health needs receive short-term inpatient psychiatric hospitalization. These placements typically last 7 days or less (IYESDRC, 2017). Information on the utilization of this medical service is available through Idaho Medicaid claims data which reports on inpatient psychiatric hospitalizations for Idaho youth who participate in Medicaid.

### Statistical Analysis

For each of the services listed above, aggregate utilization data were provided to the investigator in the form of tables. Each table identified the total number of Idaho youth who utilized the service in State Fiscal Year (SFY) 2016. These numbers were summed to produce an overall estimate of the total number of Idaho youth who participated in out-of-home services to address their mental health needs in SFY 2016.

### Results

Figure 4 shows the total number of Idaho youth who participated in publicly-funded out-of-home placements due to a mental health condition in SFY 2016. Combining these aggregate data across systems results in an overall estimate of 1,344 Idaho youth who participated in publicly-funded out-of-home mental health treatment of some type in SFY 2016. Inpatient psychiatric hospitalizations accounted for the largest percentage of out-of-home placements ( $n = 933$  youth, 69% of total out-of-home placements) whereas therapeutic foster care ( $n = 6$  youth) and out-of-state psychiatric residential treatment placements ( $n = 7$ ) accounted for less than 1% of all publicly-funded out-of-home placements.

### Discussion and Limitations

Several caveats are important for interpreting these results. First, some youth may have participated in more than one of the services for which aggregate data was provided to the investigator. If so, the youth would be present in the aggregate service use data provided by multiple systems and consequently would be counted multiple times in this analysis. These concerns are alleviated to some extent based on information provided by content experts at DBH who indicated that overlap in placements of these types is likely to be small.

A second caveat concerning this analysis is that it does not include youth who were *at-risk* for out-of-home placement but who were currently living in their homes with intensive supports. Such youth may need ICC and may be eligible for ICC under the terms of the Jeff D. Settlement Agreement but were not captured in this analysis.

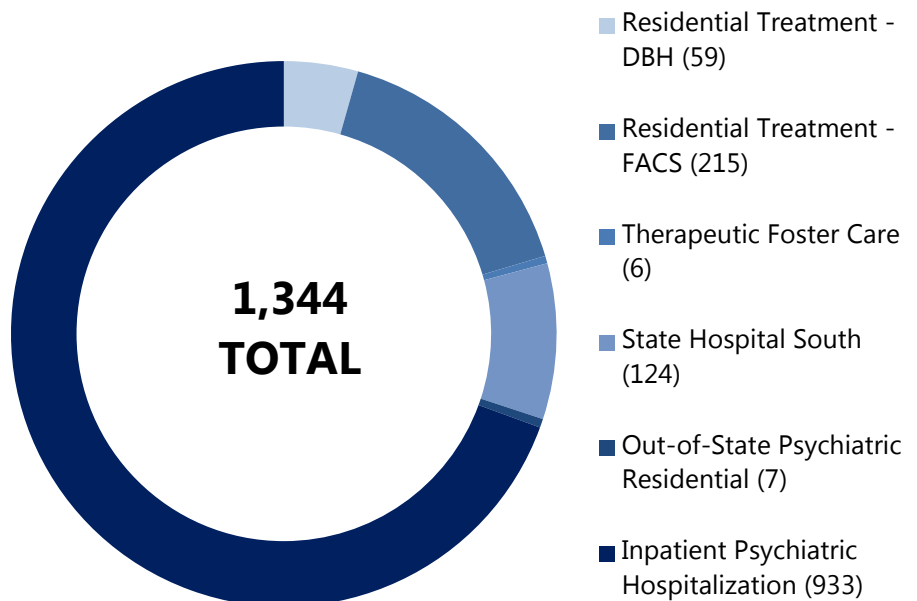
A third caveat pertains to youth who needed and utilized intensive out-of-home mental health services during SFY 2016 but who did so outside of Idaho's publicly-funded service systems. Youth who needed intensive mental health services in SFY 2016 but who funded those services through private insurance

or other, non-public sources were omitted from this estimate. These concerns are alleviated to some extent by research on youth mental health service utilization which indicates that privately insured youth have much lower rates of severe mental health needs compared to youth who have public insurance (Simon et al., 2015).

Given the above considerations, the estimate of ICC utilization based on Idaho administrative data is considered somewhat conservative; that is, it may underestimate the need for ICC in Idaho by undercounting the number of Idaho youth who are likely to need/ utilize ICC but who were not currently placed out of home or did not receive publicly-funded services.

Despite the limitations of this estimate, it provides an important data point for estimating the number of Idaho youth who are likely to need ICC and important context for evaluating the validity of the predictive analytic model estimate. The estimate of 1,344 ICC utilizers based on Idaho administrative data is within 45 youth of the estimate of 1,389 ICC utilizers developed through the predictive analytic model. The concordance between the two estimates provides increased confidence in their validity and utility.

**Figure 4. Number of Idaho Youth who Participated in Out-of-Home Mental Health Treatment in SFY 2016**



## Part III: Conclusions & Recommendations

This report provides two different estimates of the need for ICC among Idaho youth based on two complementary methodological approaches. Importantly, the two methods yielded largely consistent estimates of the need for ICC in Idaho, increasing confidence in their validity. Based on an analysis of ICC utilization data from 11 other States, the projected annual ICC utilization ratio in Idaho is 318 youth per 100,000 once Idaho's ICC program is fully implemented. Using 2016 Idaho youth population estimates, this translates into 1,389 Idaho youth who are likely to participate in ICC. Based on an analysis of aggregate Idaho administrative data on youth out-of-home placements, the estimated need for ICC utilization in SFY 2016 was 1,344 Idaho youth. Together, these estimates suggest that approximately 1,350 Idaho youth are likely to utilize ICC annually once Idaho's ICC program is fully implemented.

Based on the findings presented here this report makes the following recommendations:

❖ **Recommendation 1: The Idaho Department of Health and Welfare should use the projected ICC utilization ratios presented in Table 2 as benchmarks for monitoring its success in reaching the population of Idaho youth (i.e., Class Members) who need ICC until such a time as better estimates can be developed based on standardized assessment procedures and integrated data management systems implemented as part of the Youth Empowerment Services (YES) initiative.**

An important finding from the analysis of other States' ICC utilization data is that the penetration of ICC services in the population depends upon the level of program implementation. Results of the analyses presented here indicate that programs at different levels of implementation have different ICC utilization ratios.

It is recommended that Idaho use the different ICC utilization ratios derived from the predictive analytic model as benchmarks to evaluate service delivery as Idaho's ICC program is implemented statewide. Specifically, during the initial phase of ICC implementation, it is recommended that a target be set to serve 65 Idaho youth per 100,000, per year (representing 284 total Idaho youth in 2016 population numbers). As Idaho's ICC program matures, an increased benchmark should be set of 144 youth per 100,000, per year (representing 628 Idaho youth in 2016 population numbers). Finally, once Idaho's ICC program is fully operational, a benchmark should be set of serving 318 Idaho youth per 100,000, per year (representing 1,389 Idaho youth in 2016 population numbers). These benchmarks provide a way of monitoring progress toward meeting the needs of this population while also acknowledging the realities of implementing ICC with high-quality wraparound on a large scale. During program implementation every effort should be made to triage youth and prioritize ICC service delivery for youth who would most benefit from the program as it is rolled out statewide.

This recommendation acknowledges that improved estimates of the need for ICC in Idaho can be developed in the future based on the use of consistent assessment tools and integrated data capture systems across Idaho's publicly-funded youth service systems.

❖ **Recommendation 2: In order to improve the delivery, monitoring, evaluation, and continuous quality improvement of ICC and other Youth Empowerment Services for Class Members, Idaho State should develop and implement an integrated information and data management system that captures standardized CANS assessment and outcome data and permits effective and efficient data sharing across systems.**

The State of Idaho does not currently have an integrated data management system that permits the State's numerous publicly-funded agencies to efficiently and effectively share information on Idaho Class Members' strengths, needs, and services as assessed by the CANS or

any other assessment tool. The lack of such a system severely undermines Idaho's ability to provide integrated mental health services to Class Members and to monitor the quality and outcomes of services delivered. Developing data systems and procedures to efficiently and effectively monitor the utilization, quality, and outcomes of mental health services for class members should be a top priority for the State. Development of such systems is a hallmark of mature, well-established ICC programs that use high-quality wraparound and arguably provides a necessary basis for ensuring that publicly-funded mental health services are cost-effective.

### Conclusion

This report suggests 1,350 Idaho youth would have benefited from ICC to meet their mental health needs in 2016. The report highlights the importance of developing an integrated data management system to monitor services for this population in Idaho. ■

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## Technical Appendix

The following table provides information on the data sources used by the Annie E. Casey Foundation Kids Count database ([datacenter.kidscount.org/](http://datacenter.kidscount.org/)). For each variable, the Kids Count database provides the number and percentage of youth who meet the criterion of interest.

Variable Name	Data Source
% youth in foster care	Adoption and Foster Care Analysis and Reporting System (AFCARS), made available through the National Data Archive on Child Abuse and Neglect
% youth with a caregiver who has ever been incarcerated	National Survey of Children's Health (NSCH)
% youth who live in a single parent family	Population Reference Bureau, analysis of data from the U.S. Census Bureau, Census 2000 Supplementary Survey, 2001 Supplementary Survey and 2002 through 2016 American Community Survey (ACS)
% youth who are white	Population Division, U.S. Census Bureau
% youth who are African American	Population Division, U.S. Census Bureau
% youth who are Latino	Population Division, U.S. Census Bureau
% youth ages 0 to 4 years	Population Division, U.S. Census Bureau
% youth ages 15 to 17 years	Population Division, U.S. Census Bureau
% youth who participate in public health insurance programs (i.e., Medicaid)	Population Reference Bureau, analysis of data from the U.S. Census Bureau, 2009, 2010, 2013, 2014, 2015, and 2016 American Community Survey. These data are derived from data available in American Fact Finder table B27010
% youth who do not have health insurance	Population Reference Bureau, analysis of data from the U.S. Census Bureau, 2009, 2010, 2013, 2014, 2015, and 2016 American Community Survey. These data are derived from data available in American Fact Finder table B27010
% youth who live in poverty (below 100% federal poverty line)	Population Reference Bureau, analysis of data from the U.S. Census Bureau, Census 2000 Supplementary Survey, 2001 Supplementary Survey, 2002 through 2016 American Community Survey. These data were derived from American Fact Finder table B17001