



The Treatment Outcome Package (TOP): A multi-dimensional level of care matrix for child welfare



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ABSTRACT

Child welfare level of care (LOC) tools have generally either failed to assess the multiple needs of children or failed to use this information to determine the most appropriate and least restrictive placement. LOC recommendations are usually presented on a uni-dimensional continuum, often masking divergent, multi-dimensional issues. We recommend a multi-dimensional LOC approach. Existing LOC measures are reviewed, a conceptual framework of four important dimensions of need (consisting of supervisory, psychological, medical and academic needs) is described, and the use of the Treatment Outcome Package (TOP; Kraus, Boswell, Wright, Castonguay, & Pincus, 2010) as a multi-dimensional LOC tool is illustrated. Other advantages of the TOP include its sensitivity to change, its use with multiple informants (including self-report) and its potential for identifying providers who are most appropriate for addressing a child's particular needs.

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1. Introduction

The purpose of level of care (LOC) tools is to guide placement of children and adolescents in the child welfare system into the least restrictive setting appropriate for the child's needs. Consistent with the U.S. Adoption and Safe Families Act (ASFA, 1997), of primary importance are child safety and family support, including helping parents provide a safe, permanent home for their children, as well as child and family well-being, including helping the family to ensure that the child's basic needs and opportunities for growth are met (Winterfeldt & Feild, 2003).

However, determining the appropriate placement of a child is a complex process. For example, agencies understandably try to avoid separating siblings, even when those siblings present with different needs. Moreover, an intake assessment may fail to capture the real needs of an adolescent who is reticent to disclose his/her true feelings to an unfamiliar caseworker completing a child protective services (CPS) investigation. While many children are known to the child welfare system prior to needing placement, due to having open, in-home cases, some children come to the system under emergency circumstances, with the system having very little knowledge of the child's needs. In these emergent situations, the caseworker may have little information at his/her disposal to accurately complete an LOC tool. By contrast, other informants, such as a grandparent or aunt/uncle, may have the most reliable information.

LOC tool development should strive for a complete appraisal of a child's needs and strengths. Strengths can help identify treatment strategies and techniques that help improve functioning. However, strengths are not nearly as important in making specific level-of-care decisions, which are made primarily based on needs. In other words, children are not placed into higher or lower levels of care based on their strengths and any number of strengths has little or no impact on what is required to deal with any single caregiving need. For example, an honors student who is depressed and suicidal should not be placed in a lower level of care because of her exceptional school functioning. Nonetheless, the program in which she is placed should ensure that she is provided maximum opportunity to continue to thrive, in order to prevent future depression and to provide her with pleasurable and rewarding experiences that will facilitate the treatment of her depression.

LOC tools are not immune to the risk of under-placement or over-placement of a child. For example, on the one hand, an LOC tool that does not thoroughly assess all of a child's needs may inadvertently miss the basis for specific placement needs (such as a teen without overt behavior problems who subsequently self-reports psychotic symptoms). On the other hand, a bias of over-placement may be attributable to an assessment that occurs at intake when a child is usually in crisis due to the prospect of removal. Moreover, states often have relatively low levels of funding for ancillary community-based services for children who remain in the home or with relatives, so caseworkers may complete an LOC tool in such a way so as to justify the use of residential care because of a lack of resources that may be required to support a less restrictive placement. A single-rater LOC tool will be susceptible to this bias. While an LOC tool cannot in itself drive state

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funding priorities, its lack of transparency can distort those priorities, contributing to harmful or inappropriate placement decisions.

Indeed, research points to the dangers of inappropriate placements, such as disruptions and placement failures (Lin, 2012), and the negative effects of deviant peer influences in more restrictive settings (Baker, Ashare, & Charvat, 2009; Kepper, van den Eijnden, Monshouwer, & Vollebergh, 2014). These placement failures are due in part to the inadequate assessment of a child's multitude of needs that results in negative outcomes such as placement instability. Instability is most notable among children and adolescents with specific needs such as physical disabilities (Chmelka, Trout, Mason, & Wright, 2011; Crettenden, Wright, & Beilby, 2014; Hill, 2012), behavioral problems and mental illness (Stewart, Baiden, Theall-Honey, & den Dunnen, 2014), and specific academic needs (Hagaman, Trout, DeSalvo, Gehringer, & Epstein, 2010). Children's and adolescents' needs become even more complicated when psychological problems interact with medical needs (Nelson, Smith, Hurley, Epstein, Thompson, & Tonniges, 2013; Nelson, Smith, Pick, Epstein, Thompson, & Tonniges, 2013). Reciprocally, placement instability itself leads to more behavioral issues (Chamberlain et al., 2006), creating a negative spiral that harms the child.

While levels of care vary across child welfare jurisdictions, the definitions that are typically used are often a version of the following levels, or placement settings:

- Level 1: Foster home/kin with basic supports.
- Level 2: Foster home/kin with extra supports.
- Level 3: Therapeutic foster home, or foster home/kin with therapeutic supports.
- Level 4: Residential, or therapeutic foster home, or foster home/kin with intensive therapeutic supports.
- Level 5: Hospital or JCHO-accredited facility (100% Medicaid).

For the purposes of this paper, we will be defining "placement" as any living environment that was determined for the child by the child welfare system.

Although many variations of LOC tools are used, they are characterized by important limitations, including strict rater qualification requirements and insufficient attention to the medical and academic needs of children. Furthermore, even when multiple dimensions of needs are assessed, converting them to a uni-dimensional LOC recommendation can lead to inappropriate assignments, such as sending a child with no medical or psychiatric issues but who is developmentally or cognitively delayed and needs constant adult supervision (but not mental health treatment) to a higher level of care when a single-child, multiple-parent foster home may suffice.

Therefore, it is the purpose of this paper to introduce a multi-dimensional LOC tool that is empirically-based, easy to use and can be modified to meet the specific needs of different jurisdictions. Existing LOC tools will be reviewed, a conceptual framework of four important dimensions of need will be described, and the use of the Treatment Outcome Package (TOP; Kraus, Boswell, Wright, Castonguay, & Pincus, 2010) as a multi-dimensional LOC tool will be illustrated. The goal is to encourage the field to adopt a more nuanced LOC understanding that better meets each individual child's needs.

2. Existing LOC measures

Protocols for LOC decision-making vary by state, and even by jurisdiction, with some jurisdictions using internally created measures of LOC assessment and others using standardized LOC tools. Among this group of standardized LOC tools is a range of the level of establishment in the field and psychometric validation (Pires & Grimes, 2006). A report on the LOC decision-making protocol in a sampling of states and jurisdictions revealed that of the states that use a standardized LOC tool, three are arguably the most widely used (Pires & Grimes, 2006). They will be discussed in detail below.

2.1. CALOCUS

The Child and Adolescent Level of Care Utilization System (CALOCUS; Sowers, Pumariega, Huffine, & Fallon, 2003), also known as the Child and Adolescent Service Intensity Instrument (CASII) is an assessment tool with the purpose of aiding both clinicians and resource management teams in LOC decision making for youth 6–18 years of age (Fallon et al., 2006). The CALOCUS has demonstrated inter-rater reliability with intra-class correlation coefficients ranging from 0.57 to 0.95 for the subscales and 0.89 to 0.93 for the composite score. The convergent aspect of concurrent validity was established by comparing the CALOCUS to the Child and Adolescent Functional Assessment Scale (CAFAS; Hodges, 2000), with a Pearson correlation coefficient of 0.62 (Fallon et al., 2006). The discriminant dimensions of convergent validity have not been reported nor has the construct and predictive validity of the CALOCUS been published.

The CALOCUS contains eight dimensions: Risk of harm, functional status, comorbidity, environmental stress, environmental support, resiliency and treatment history, child/adolescent acceptance and engagement, and parents/primary caretaker acceptance and engagement (Fallon et al., 2006). Scoring should be completed by, or with supervision from, a highly trained clinician. The eight dimension scores are associated with an LOC recommendation in which four variables are considered: care environment, clinical services, support services, crisis stabilization and prevention services.

Hawaii has implemented CALOCUS as an LOC tool with positive results and observed strengths (Pires & Grimes, 2006). However, while the CALOCUS is an excellent tool for measuring level of mental health services needed, its level recommendations are solely focused on intensity of mental health treatment and fail to address the needs of children above and beyond mental health service need. The requirement of a highly trained clinician further limits child welfare application. Other dimensions, such as medical needs, are assessed with the CALOCUS comorbidity dimension only if they are co-occurring with another disorder of a different classification (psychiatric, developmental or substance use).

2.2. CAFAS

The Child and Adolescent Functional Assessment Scales (CAFAS; Hodges, 2000) measure functional impairment in children and adolescents ages 5 to 19 with psychiatric, behavioral, emotional, or substance use problems. The CAFAS consists of eight youth subscales: School/work, home, community, behavior toward self and others, moods/emotions, self-harmful behavior, substance use, and thinking. Additionally, there are two caregiver subscales: Material needs and family/social support. The CAFAS is designed to be administered by practitioners based on information from clinical evaluation. Inter-rater reliability of the CAFAS was assessed for agency workers, graduate students and naïve undergraduate students with intra-class coefficients for CAFAS total scores ranging from 0.84 to 0.89 (Hodges & Wong, 1996). CAFAS has also demonstrated partial concurrent validity based on correlations with subscales of the Child Behavior Checklist and the Burden of Care Questionnaire (Hodges & Wong, 1996).

The CAFAS has been adopted by several states for the purpose of LOC decision-making, including North Carolina, Michigan, and Hawaii. Since scoring the CAFAS does not directly result in an LOC recommendation, states such as North Carolina have converted CAFAS total scores into a corresponding level of dysfunction and an LOC recommendation (Pires & Grimes, 2006). The use of a total score rather than specific dimension scores is limiting in that it combines all areas of need into one score of dysfunction, and therefore does not take into account the possibility that different dimensions of need require different types of supervision and professional help. Like the CALOCUS, the CAFAS lacks adequate (comprehensive) assessment of medical needs. Also, like the CALOCUS, the CAFAS requires a trained clinician to administer and

score the items, limiting child welfare application. This restriction prevents other members of the child's network (e.g., parents, caregivers, and caseworkers) from having an active role in the decision making process.

2.3. CANS

The Child and Adolescent Needs and Strengths (CANS; Lyons, 2008) is a tool used to aid in treatment planning and level of care determination for a child population. The CANS consists of six subscales: problem presentation, risk behaviors, functioning, care intensity and organization, caregiver capacity, and strengths of the child (Anderson, Lyons, Giles, Price, & Estle, 2003). Retrospective chart review was used to assess inter-rater reliability between researchers and caseworkers with an intra-class correlation coefficient of 0.81 for the total CANS score (Anderson et al., 2003). CANS users must be trained and certified in administration and scoring with a minimum reliability of 0.70.

The CANS is owned by the Praed Foundation. Praed reports that the tool was “developed from communication theory rather than psychometric theory” (www.praedfoundation.org). As such, there is little validity data available. The CANS was developed from the Childhood Severity of Psychiatric Illness (CSPI) which has very poor construct validity (Leon, Lyons, & Uziel-Miller, 2000). Data regarding concurrent validity is also limited. For example, the CANS depression and anxiety scale has a correlation coefficient of 0.18 with the CAFAS Moods/Emotions scale and the CANS family functioning scale has a correlation coefficient of 0.26 with the home performance scale of the CAFAS (Dilley, Weiner, Lyons, & Martinovich, 2003).

CANS scores do not reflect a child's current level of functioning. For example, “a hyperactive child on stimulants is still rated a ‘2’ as long as you have to work to control symptoms with medications.” (www.praedfoundation.org). Consequently, there is little guidance to raters as to how one should estimate the level of pathology or need a child would evidence under the hypothetical scenario of no medical or psychiatric help. As a result, the CANS does not discriminate between children at lower levels of care from those placed in the higher residential levels of care. For example, at the initiation of care, children assigned to foster placement vs. residential care had average CANS scores of 1.644 and 1.725 respectively, a clinically insignificant difference (Lyons, Woltman, Martinovich, & Hancock, 2009).

Although the CANS does not require that a certified clinician administer the assessment, the lack of specificity of items may be difficult for a rater without mental health training to understand. For example, the CANS depression item refers to “clear evidence of disabling level of depression that makes it virtually impossible for the child to function in any life domain” (Lyons, 2008). Potentially serious floor and ceiling effects on CANS exist due to the construction of items and a scale ranging from 0 to 3. General population, clinical, and child welfare norms are also unavailable, limiting the interpretation of results.

Existing LOC tools vary widely in both structure and practice; however, a common theme throughout is the lack of a multidimensional LOC recommendation. While each of the LOC tools described is comprised of multiple subscales at the input level of assessment, none produces a multidimensional output in order to account for all aspects of a child's needs. Furthermore, existing LOC tools are limited by the perspective of a single rater, one who often must be a qualified and/or trained professional. It is essential to consider the perspectives of multiple informants, particularly those closest to the child (i.e., parent, foster parent, teacher, therapist, etc.) and the child him/herself in order to gain a well-rounded understanding of the child's needs and prevent raters from gaming the system to achieve the result they desire. By allowing assessments from professionally trained individuals as well as untrained members of the child's family, it is easier to administer frequent follow-up assessments and gain a full picture of the child's functioning in all relevant environments (e.g., home and school). Therefore, we propose an LOC tool that will consider the perspectives of multiple

informants, without the requirement of specific qualifications or training, and that will include a multidimensional output or LOC recommendation that takes into account four distinct dimensions of need: psychological, medical, supervisory, and academic.

3. Dimensions of need

The decision to remove a child from the home is based on a variety of factors — most notably, safety concerns, physical abuse, sexual abuse, emotional abuse and neglect. However, in addition to guaranteeing a child's safety in out-of-home care, child welfare agencies have a responsibility to assure the child's social and emotional well-being (ACYF, 2013), and to avoid retraumatizing the child through additional instances of neglect. Thus, a LOC measure must assess a child's needs, tackle the effects of prior maltreatment within the least restrictive environment, and avert any additional neglect of the child's needs while the child is in custody. The scope of services offered must be wide enough to handle the multifaceted needs of children. As noted by Winterfeld and Feild (2003), behavioral health needs and services can typically be represented on a continuum from low level to high level. In contrast, child welfare needs and services are much more complex in which the need for high intensity services in one area does not necessarily require the provision of high intensity services in another area. Therefore, a comprehensive and thorough analysis of those divergent needs is essential in order to determine how best to respond. The following is a description of four essential needs of children and youth who are served by child welfare agencies that should be assessed by LOC tools.

3.1. Supervisory needs

Supervisory neglect is the most prevalent type of child neglect (Mennen, Kim, Sang, & Trickett, 2010), accounting for the largest percentage of child fatalities (Damashek, Drass, & Bonner, 2014; Putnam-Hornstein, Cleves, Licht, & Needell, 2013; Welch & Bonner, 2013). It also leads to internalizing and externalizing behavioral problems as well as an increased risk for substance abuse (Clark, Thatcher, & Maisto, 2005; Knutson, DeGarmo, Koepl, & Reid, 2005; Na et al., 2014). However, supervisory neglect can also be elicited in part by psychological dysregulation in children and early adolescent substance abuse (Clark, Kirisci, Mezzich, & Chung, 2008), suggesting that a child's needs for supervision is a product of not only the child's age but also the child's behavior and psychological needs. As noted by Scott, Higgins, and Franklin (2012), “there is no universally accepted, all-encompassing definition of the concept of ‘neglect,’ and consideration of supervisory neglect suggests that there is no ‘one size fits all’ definition.” Therefore, while frequently the basis for removal, the child's evolving need for supervision should be an ongoing focus of LOC assessment throughout a child's involvement in the child welfare system.

3.2. Psychological needs

The short-term and long-term effects of maltreatment are indisputable as seen in substantially elevated rates of mental health problems in maltreated children and adolescents (Heneghan et al., 2013; Keller, Salazar, & Courtney, 2010; McMillen et al., 2005; Taussig, Harpin, & Maguire, 2014). These rates frequently differ by type of placement, suggesting both a selection effect due to pre-existing differences and a differential effect of foster care when rates of onset differ after entry into care (Keller et al., 2010). Furthermore, except for a diagnosis of PTSD which generally predates entry into foster care, the onset of other types of disorders tend to follow entry into care, suggesting that providers have a potentially large impact in preventing, addressing, or even exacerbating these emerging mental health concerns (Keller et al., 2010). Therefore, a more thorough analysis of the specific psychological risk factors characterizing individual children as well as an empirical basis for matching children with specific providers could help

ward off or mitigate many psychological problems characterizing youth in the child welfare system.

3.3. Medical needs

Children with medical needs tend to be labeled in child welfare administrative records as “disabled” whether due to emotional disturbance, intellectual and developmental disabilities, learning disabilities, a physical disability, or another non-behavioral medical need (Lightfoot, Hill, & LaLiberte, 2011). Therefore, state systems may not adequately differentiate medical needs from psychological needs or special education needs. However, disabilities overall appear to be associated with longer time in out-of-home placement and higher rates of placement instability (Hill, 2012). Also, as mentioned previously, medical needs may interact with psychological needs to complicate placement decisions. A diabetic child who needs close medical monitoring to adjust insulin levels (but who is otherwise behaviorally compliant and cooperative) will obviously need a different placement than a diabetic child who is also impulsive and violent. Therefore, it is imperative that a systematic assessment of a child’s medical needs be conducted in part to facilitate placement with foster parents or treatment facilities that are more able and willing to nurture and support children with special needs (Orme, Cherry, & Cox, 2013).

3.4. Academic needs

As noted above, research tends to group “educationally relevant” disabilities such as communication disorders or developmental delays with health or orthopedic disabilities (Sullivan & Knutson, 2000). Whether or not academic need is labeled as a disability, academic or learning problems of school-age children are more prevalent in out-of-home placement settings (Jonson-Reid, Drake, Kim, Porterfield, & Han, 2004; Scarborough & McCrae, 2010). The same can be said for the academic needs of maltreated children overall, with chronic maltreatment explaining a significant portion of the variance in children’s math and reading scores, perceptual reasoning, overall academic performance, and absenteeism (Coohey, Renner, Hua, Zhang, & Whitney, 2011; Leiter, 2007; Manly, Lynch, Oshri, Herzog, & Wortel, 2013; Mills et al., 2011). The long-term effects of these academic needs, when unmet, are substantial, contributing to delinquency (Mallett, 2014) and lower levels of employment and earnings as adults (Currie & Widom, 2010). On the other hand, child welfare involvement can help ameliorate the effects of maltreatment on school attendance, grades and cognitive engagement (Font & Maguire-Jack, 2013; Larson, Zuel, & Swanson, 2011; Leiter, 2007) which is improved with correct placement. Despite this importance, an assessment of a child’s academic needs is often missing from the decision-making process regarding his/her placement and ancillary support services. Indeed, a significant effect of the academic success of children in out-of-home placements is attributable to the placement itself, including therapeutic foster care (Cheung, Lwin, & Jenkins, 2012; Lewis-Morrarty, Dozier, Bernard, Terracciano, & Moore, 2012). Therefore, LOC decisions have a demonstrable impact on this very important need.

Given that the needs of children and adolescents within the child welfare system are complex, a single-dimensional output from an LOC tool is insufficient. Instead, it is necessary to use an LOC tool that assesses a large number of domains and that captures the potentially extensive span of functioning within these domains. The Treatment Outcome Package, or TOP, represents such a tool.

4. The TOP as an LOC tool

The Treatment Outcome Package (TOP; Kraus et al., 2010) is a behavioral health assessment of 13 different domains of well-being for children (ages 3–18), and 11 domains for adolescents (ages 11–21), including behaviors frequently associated with a history of maltreatment.

Excellent fit statistics on diverse samples document the TOP’s exceptional construct validity with 11–13 established well-being domains that cover behavioral and mental health symptoms, functioning, and quality of life (Kraus, Seligman, & Jordan, 2005; Kraus et al., 2010). Depending on the age versions these well-being domains are assessed with 48–58 simple and easy to understand questions — all of which ask about behaviors exhibited in the last two weeks on the same Likert scale from “None of the time” to “All of the time”. In child welfare, everyone involved in the child’s care (including the child him/herself) is encouraged to answer the questions to which they readily know the answer. Questionnaires are processed in real time with reports returned almost immediately, allowing for the comparison of each rater’s responses to the general (normal) population and to the child over time.

In addition, 17 medical symptoms and needs are assessed as are items related to life stress, academic performance, and items assessing risks and strengths with regard to supervisory needs. The TOP has different versions for children, adolescents, and adults (Kraus et al., 2005). It typically requires 15–20 min for the initial assessment to be completed with no special training, and less time for subsequent assessments.

The TOP has been used for over 20 years in behavioral health agencies across the United States (Kraus, Wolfe, & Castonguay, 2006). With the TOP, clinicians and clients are able to track client outcomes and determine what particular domains of functioning the client is struggling with. More recently, the TOP has been used in child welfare jurisdictions in Ohio, Colorado, North Carolina, and Delaware to measure the well-being of kids in care (both in-home and out of home), to encourage involvement of multiple stakeholders, and to facilitate case planning. The TOP can be used to track well-being for all kids in care, including those remaining in-home. However, the TOP as an LOC tool will provide a placement recommendation only for out-of-home children (i.e. once the decision has been made to remove the child from his/her home).

4.1. Psychometric properties

The TOP has excellent test–retest reliability, with intra-class correlation coefficients for all subscales (with the exception of mania) ranging from 0.87 to 0.94 (Kraus et al., 2005). Confirmatory and exploratory factor analyses on the TOP demonstrated that it has excellent construct validity (Kraus et al., 2005; Kraus et al., 2010). Concurrent validation with both convergent and discriminant results has also been substantiated with the Beck Depression Inventory (BDI), Brief Symptom Inventory (BSI), Minnesota Multiphasic Personality Inventory–2 (MMPI-2), the Basis 32, the SF-36, CAFAS, BASC, Devereaux, and CBCL (Kraus & Seligman, 2006; TOP Manual). The TOP has also demonstrated excellent predictive validity in predicting the need for treatment (Kraus et al., 2005), future behavioral health hospitalizations (Youn, Kraus, & Castonguay, 2012), therapist effectiveness (Kraus, Castonguay, Boswell, Nordberg, & Hayes, 2011), and response to treatment (Nordberg, Castonguay, Fisher, Boswell, & Kraus, 2014).

The TOP is highly sensitive to change, with Cohen’s *d* effect sizes ranging from 0.27 to 0.91 after an average of 7 therapy sessions with an adult mental health population (Kraus et al., 2011). Put another way, the TOP is able to detect reliable change on more than 96% of individuals measured (Kraus et al., 2005). This sensitivity to change is particularly relevant in a child welfare population when, for example, a child in residential treatment improves to the point of no longer needing such a restrictive level of care. Although this child may still score outside of the normal range on problem domains, even his/her small but significant improvement may warrant consideration of a lower level of care and less restrictive setting. The inability of an LOC tool to measure small changes in a child’s level of functioning, particularly at the extreme ends of measurement, precludes a recommendation of the most appropriate level of care. For example, published CANS data (Sieracki, Leon, Miller, & Lyons, 2008) suggests that a child would need to change more than 2 scale points (a “3” changed to “1”) in

order to confirm reliable change outside of the tool's measurement error (Jacobson & Truax, 1991). Requiring this level of change could mean the child remains in a highly restrictive placement longer than necessary.

The TOP is able to identify the needs of each child with item-specific level of detail. For example, supervisory needs are identified by an elevated score on items such as “felt that you were going to act on violent thoughts” or “run away”. Academic needs are triggered by elevated scores on items relating to school functioning (e.g., “been slow at completing homework”, and/or “had trouble paying attention in class”). Medical needs are identified with a checklist of 17 medical symptoms with responses ranging from “no medical issues in this category” to “affecting one's health” to “on medication” to “been hospitalized in the past year” for the medical issue. In addition, the TOP assesses overall health and medical utilization (e.g., “how many times was a physician seen for medical reasons in the past 2 months?”). With item level specificity, the TOP is able to pinpoint the specific needs of the child in order to make an individualized level of care recommendation.

Validity of TOP domain scores within child welfare samples is indicated by the significant association of symptom severity on the TOP with placement type. Namely, children and adolescents in residential treatment settings exhibited more severe problems on the majority of TOP domains as compared to those in relative care and foster care (Kraus, 2015). In as yet unpublished data from a sample of children and adolescents in a Colorado child welfare jurisdiction, independent reports of trauma experiences were significantly associated with elevated scores on TOP domains such as sleep problems, depression, suicidality, violence and worrisome sexual behavior. In recently analyzed data from the Ohio child welfare jurisdiction, TOP scores were able to predict placement disruptions in children ($N = 380$) above and beyond demographic and placement characteristics.

4.2. Other potential advantages of the TOP

4.2.1. The use of multiple raters

The TOP incorporates the perspectives of multiple informants, including the child or adolescent him/herself. There are inherent advantages of eliciting the views of all those who have had significant interactions with the child during the past month. Each informant brings a unique perspective and usually knows something important about the child's life. For example, a foster parent will likely be the most reliable informant about the child's sleep functioning, while a teacher is likely to know more about behavioral and functional issues at school. Including the child's (and especially the adolescent's) voice allows for the earliest possible disclosure of emerging problems such as suicidal thoughts, depression and other severe psychological issues.

Collecting diverse perspectives through multiple informants can help avoid placement disruptions, facilitate the emerging autonomy of youth transitioning into adulthood, improve children's safety and promote feelings of well-being among/within children who are being evaluated (Rauktis, Kerman, & Phillips, 2013; Strijker, van Oijen, & Knot-Dickscheit, 2011; Vis, Strandbu, Holtan, & Thomas, 2011). Including parents in the assessment process increases their engagement and positive contacts with their child (Crea, Wildfire, & Usher, 2009; Hojer, 2011), and may increase the chances of positive reunification. Including the adolescent's perspective helps to foster empowerment and provides the teen with an outlet to voice his/her concerns.

In the absence of much-needed research as to whose perspective is most predictive of placement success, the report of high-risk behavior by any respondent on the LOC tool could signal the need for a more detailed follow-up assessment. For example, TOP data from one child welfare jurisdiction revealed that caseworkers were unaware of suicidal ideation in 50% of the adolescents who self-reported that they were feeling suicidal (Kraus, 2015). Thus, the use of multiple informants with a LOC tool would permit the most comprehensive assessment of a child's needs and reduce the risk of single-rater bias.

4.2.2. Real-time feedback and emergency alerts

TOP assessments are automatically scored and reports are generated within 15 min of submission. Results are presented in easy-to-read graphs and are sent directly to the caseworker's email. If a child scores in the severe range on a given domain, whether through self-report or the report of any rater, the caseworker is immediately alerted so that he/she is able to respond to the potential crisis as quickly as possible.

4.2.3. Matching children with specific providers

In addition to placing children in the appropriate level of care, children should be matched with a provider whose strengths are aligned with the child's needs. Simulations using effectiveness-based matching suggest that positive outcomes could increase from 20% with poor matching to 80% with good matching (Wampold & Imel, 2015). The TOP has been used to determine the problem-specific effectiveness of therapists by assessing the degree of improvement in their previous clients in the behavioral health population (Kraus et al., 2011). Like client-therapist matching, children and youth with specific needs would ideally be matched with the best available provider who has a successful track-record of helping children with similar needs. Foster parents or clinicians who are most effective in dealing with a child's internalizing problems, for example, may not be equally effective in addressing externalizing problems (Orme et al., 2013). The TOP offers the potential to develop measures of effectiveness, such as ability to handle internalizing vs. externalizing problems, as the basis for matching children and youth in the child welfare system with appropriate providers.

5. The use of a multifaceted LOC model

Table 1 illustrates a four-dimensional LOC recommendation system where each child is rated on a 1–6-point scale within each dimension. An assessment tool like the TOP can be used to generate this output and/or it can be supplemented by a caseworker's investigation and professional ratings. The model makes no assumption that the level of need in one area will necessarily be correlated with level of need in another.

These LOC recommendations are less a reflection of problem severity and more a reflection of the amount of professional and caregiver involvement. In essence, “it is not how severe the issue is. It is how much the issue affects the caregiving needs of the child” (T. Feild, personal communication, August 25, 2014). Relating this concept to TOP domain scores, some assessed needs such as a child's significantly elevated score on domains of incontinence, assertiveness or separation anxiety might only require extra supports within a foster home/kin LOC. On the other hand, elevated violence and suicide scores may require more intensive supervision from a therapeutic foster home, or residential treatment facility.

In many cases, the LOC recommendation must take into account the number and severity of problem areas as these may exacerbate the problem and make it harder for adults to care for a child's needs. For example, the same psychosis domain score may lead to different LOC recommendations especially if they co-exist with other elevated domain scores. For one child, the LOC output might recommend a therapeutic foster home, or foster home/kin placement with therapeutic supports. In contrast, another child with the same elevated psychosis score might require a residential treatment placement with intensive therapeutic supports because of other elevated domains such as conduct problems and violence.

Age and a child's developmental state should also be taken into consideration. For all of these psychological needs as well as the supervisory, medical and academic needs of the child, algorithms have been developed to suggest the most appropriate and least restrictive setting for a child as well as the ancillary services required in order to meet the child's needs for safety and the family's needs for support.

In order to make the LOC output of Table 1 actionable, each LOC provider would need to be rated for their intake criteria and service array. Table 2 provides a hypothetical example of how this multi-

Table 1
Four-dimensional level of care recommendation.

Level	Supervision The level of adult supervision necessary to keep the child (or others) safe	Psychological The level of licensed psychological treatment or consultation required to manage or treat emotions or behavior	Medical Level of MD or RN treatment or monitoring required	School Learning limitations or requirements
1	Fully independent: able to check in with adults as needed	None known	None known	None/age appropriate needs
2	Normal: age appropriate level required	As needed	As needed	Special education teacher or consultation required
3	Intermittent: occasionally child needs more supervision than others his/her own age	Monthly	Monthly	Special education classroom required
4	Hourly: frequent monitoring required	Weekly	Weekly	Special education school required
5	Constant daytime supervision required	Daily	Daily	
6	Overnight and daytime supervision required	Hourly	Hourly	

dimensional LOC system might be used in a small jurisdiction (as mentioned previously, the TOP will only be used as an LOC tool with out-of-home children). Each provider would be evaluated for its capacity and intake criteria on each of the four dimensions (e.g., using the dimensional scores from Table 1). For most providers the output would yield a range with the lowest number in the range representing the threshold intake criteria for the provider, and the highest score in the range representing the most disturbed or involved child that the provider could manage on that dimension.

For example, the two psychiatric residential providers in Table 2 have a mission of providing services to children who need around-the-clock supervision and behavioral healthcare. Therefore, their scores go up to the maximum (6) on these dimensions. At the same time, these residential providers will not accept children who do not require this high-level of care which is reflected by the floor of their range. However, these providers are not equipped to handle serious medical problems and this limitation is recorded in the limited range of the medical dimension. Residential Provider A, who only has access to an MD sporadically, can only care for children who need monthly medical supervision, while Residential Provider B has a pediatrician who comes to the program weekly to handle basic medical needs. For this small jurisdiction, a child who requires more serious medical attention will need to be placed in a hospital or a nursing-assisted foster-care placement. As such, the result of these rating efforts can illustrate potential gaps in service on these continua of care. Given sufficient demand, the jurisdiction might consider contracting with one of the residential programs to hire a staff pediatrician or engage daily pediatric and nursing support.

As another example, the assessment of a specific child who is evaluated with a multi-dimensional LOC tool may reveal moderate-severe behavioral and supervisory needs (Supervision = 5; Psychological = 3) but no special medical requirements, and minimal educational needs (Medical = 1; School = 2). This is a child who has received minimal supervision from her biological family, who cannot be left unattended for more than an hour without consequences, and who needs weekly therapy or consultation to help her control her anger and

other impulsive behavior. However, when given proper supervision, this child does engage in school, learns appropriately and appears to thrive in a more structured environment. Using the levels and corresponding service capability in Table 2, it is clear that there is no ideal placement for this child, and she will likely need to be placed outside the jurisdiction to obtain the least restrictive environment. The least restrictive environment that can handle all of this child's needs is a Therapeutic Foster-Care placement where parents are trained to handle more dysregulated children. If possible, this jurisdiction should look to engage foster families that can commit to rather constant daytime supervision when the child is not in school.

As yet another example, without at least one medically specialized foster care setting, this small jurisdiction may be ill-prepared to place a child with significant medical problems (e.g., an insulin-dependent child whose blood sugar levels are not stable, and who frequently runs away). Such children may be otherwise alert, engaged, happy and cooperative. The jurisdiction may have tried to address the medical needs of similar children by engaging a few nurses to become foster parents, but the foster parents cannot provide the level of care necessary for this specific child's increased vulnerability at night. By contrast, one of the psychiatric hospitals (Hospital B) in the jurisdiction is able to provide this level of medical need but is primarily equipped to address needs of medically involved children (like those with serious seizure or other neurological issues) who also have serious behavioral dysregulation. This dilemma clearly requires a creative solution in order to avoid the twin dangers of either under-placement (with regard to the child's medical needs) or over-placement (with regard to the child's psychological needs). One possibility would be to employ a home health aide to stay with the child during the evening at a fraction of the cost of hospitalization. Thus, whatever the resources of the jurisdiction, this LOC tool would highlight the multiple needs of the child, giving the jurisdiction an informed opportunity to customize the least restrictive and most appropriate placement.

In the ideal model, the LOC evaluation system would be computerized and a list of best-matched placements would be available to the

Table 2
Level of care resource and service capabilities for a hypothetical child welfare jurisdiction by dimension of need.

Level of care	Supervision The level of adult supervision necessary to keep the child (or others) safe	Psychological The level of licensed psychological treatment or consultation required to manage or treat emotions or behavior	Medical Level of MD or RN treatment or monitoring required	School Learning limitations or requirements
Traditional foster care	1–3	1–4	1–3	1–3
Experienced, medically specialized or foster care	1–4	1–4	4–5	1–3
Treatment foster care	1–4	1–4	1–3	1–3
Psychiatric residential treatment A	3–6	5–6	1–3	1–2
Psychiatric residential treatment (accredited) B	3–6	5–6	1–4	1–3
Psychiatric in-patient Hospital A	6	6	1–5	1–4
Psychiatric in-patient Hospital B	6	6	4–6	1–4

Sample Level of Care Results	
John Doe DOB: 4/5/2001 DOE: 2/1/2014	
Assessed Need	
Supervision	Intermittent — occasionally needs more than others his age
Psychological	Monthly
Medical	Monthly
School	Special Education Classroom
Placement Options that Meet These LOC Needs	
• Specialized or a level 2 foster home, somewhat more skilled and supported than a traditional foster family* • Traditional foster care with behavioral health treatment addressed	
* Warning: This child is at the ceiling for the limits for traditional foster care on 3 of 4 level-of-care categories and may require additional supports.	

Fig. 1. Sample TOP level of care output.

caseworker or placement team without requiring a manual search through lists of providers. As such, the LOC assessment would provide a multi-dimensional analysis of a specific child's needs such as that shown in Fig. 1. The LOC database would designate a list of providers that are currently available to treat this child's needs. In time, and with more data, this same system could also be supplemented by the outcome track-record of each provider when treating similar types of children (Kraus et al., 2011). These providers would then be rank ordered based on their actual outcomes, thereby assuring the optimal match between a specific child, available providers and proximity to family.

6. Conclusion

In conclusion, a multi-dimensional LOC recommendation system could address the limitations frequently reported by child welfare jurisdictions. The TOP is ideally suited to assess the multiple needs of children and adolescents, to elicit the perspectives of multiple informants, and to use this information to meet children's complex needs in the most appropriate and least restrictive manner. It also has the potential to be used to match a child with the most effective provider(s) available.

This review should be considered in light of several limitations. First, the policies and practices discussed are limited to child welfare systems in the United States and do not necessarily mirror the practices of child welfare agencies internationally. Furthermore, we acknowledge that even within the United States, policies and practices will vary by state and county, and therefore the information presented here should be considered a general summary of LOC decision-making practices that are commonly adhered to. However, even given this variability, we believe the TOP can provide the customization and flexibility to fit the needs and service capabilities of any child welfare jurisdiction.

In the next article in this progression, we will present the expert model and the algorithms derived from TOP scores and recommend the type of LOC supports that a specific child will need for each of the four LOC dimensions. We are currently collecting data from the multiple child welfare jurisdictions that are using the TOP in states such as Ohio, North Carolina, Delaware and Colorado. These data will be used to fine-tune these expert algorithms with actual child welfare specific data to create a learning system that generates recommendations based on outcome data. We then plan to conduct a randomized controlled trial that compares the use of these LOC recommendations in a new jurisdiction with a sister jurisdiction making placements as usual to accurately

assess just how much children's lives can be improved with this type of LOC system.

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