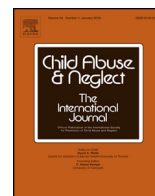




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## Child Abuse & Neglect



Research article

# Child advocacy center multidisciplinary team decision and its association to child protective services outcomes<sup>☆</sup>

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### ABSTRACT

Limited studies exist evaluating the multidisciplinary team (MDT) decision-making process and its outcomes. This study evaluates the MDT determination of the likelihood of child sexual abuse (CSA) and its association to the outcome of the child protective services (CPS) disposition. A retrospective cohort study of CSA patients was conducted. The MDT utilized an a priori Likert rating scale to determine the likelihood of abuse. Subjects were dichotomized into high versus low/intermediate likelihood of CSA as determined by the MDT. Clinical and demographic characteristics were compared based upon MDT and CPS decisions. Fourteen hundred twenty-two patients were identified. A high likelihood for abuse was determined in 997 cases (70%). CPS substantiated or indicated the allegation of CSA in 789 cases (79%, Kappa 0.54). Any CSA disclosure, particularly moderate risk disclosure (AOR 59.3, 95% CI 26.50–132.80) or increasing total number of CSA disclosures (AOR 1.3, 95% CI 1.11–1.57), was independently associated with a high likelihood for abuse determination. Specific clinical features associated with discordant cases in which MDT determined high likelihood for abuse and CPS did not substantiate or indicate CSA included being white or providing a low risk CSA disclosure or other non-CSA disclosure. MDT determination regarding likelihood of abuse demonstrated moderate agreement to CPS disposition outcome. CSA disclosure is predictive of the MDT determination for high likelihood of CSA. Agreement between MDT determination and CPS protection decisions appear to be driven by the type of disclosures, highlighting the importance of the forensic interview in ensuring appropriate child protection plans.

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### Introduction

An estimated 3.4 million referrals of possible child abuse or neglect, involving alleged maltreatment of approximately 6.3 million children, were made to child protective services (CPS) agencies across the United States in 2012. CPS agencies responded in the form of an investigation or alternative response to just over 60% of these referrals. An estimated 686,000

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children were determined by CPS to be a victim of abuse and neglect nationwide. Of those determined to have been abused, 9.3% were sexually abused (US Department of Health and Human Services, 2012).

As a matter of standard of practice, an allegation of child sexual abuse (CSA) initiates a law enforcement and/or a CPS investigation. Historically, CSA investigations had been perceived to cause additional distress to child victims and their caregivers due to redundancies in the investigative process resulting in multiple interviews (Cross, Jones, Walsh, Simone, & Kolko, 2007; Henry, 1997; Jackson, 2004; Whitcomb, Goodman, Runyan, & Hoak, 1994; Yeaman, 1986). Child advocacy centers (CACs) were initially developed in response to this criticism to reduce harm and discomfort by limiting redundant interviewing and improving prosecution outcomes with a coordinated investigative and therapeutic response to child abuse (Faller & Palusci, 2007).

Although the CAC model has been regarded as best practice in CSA investigations, outcome studies evaluating the effectiveness of the multidisciplinary team (MDT) in determining abuse is sparse (Jones, Cross, Walsh, & Simone, 2005). When taking into account implementation of the CAC model by incorporating the MDT and increasing training, improved outcomes would be anticipated, not only with respect to investigation, but also in increased interagency communication.

In 2007, a series of three articles as well as invited commentary were published in this journal, addressing the hypothesis that CACs lead to positive case outcomes (Cross, Jones, Walsh, Simone, & Kolko, 2007; Faller & Palusci, 2007; Jones, Cross, Walsh, & Simone, 2007; Walsh, Cross, Jones, Simone, & Kolko, 2007). Improved outcomes with the CAC model as compared to non-CAC investigation included increased number of CSA victims having a medical examination, increased forensic interviews occurring in a child friendly setting with improved coordination between multiple agencies, and better caregiver and child victim satisfaction with the evaluation process. These studies are touted as an initial first step in the much needed evaluation of CACs; however, the MDT decision-making process of CSA evaluations and relevant outcomes including CPS decisions were not evaluated (Faller & Palusci, 2007).

The purpose of this study was to evaluate the association of a CAC MDT determination of the likelihood of CSA to CPS dispositions. We hypothesized: (1) there would be high concordance between the MDT and CPS determinations and (2) specific demographic and clinical factors would be predictive of decision-making discordance between the CAC MDT and CPS determinations.

## Methods

### Study Setting and Population

The MDT in a CAC at a large Midwestern U.S. children's hospital consisting of a forensic interviewer, mental health advocate and a medical provider (physician or nurse practitioner) was the study setting. The role of the forensic interviewer was to perform non-leading interviews of children regarding child maltreatment and family violence for the purpose of medical diagnosis and treatment. The mental health advocate's role was to gather pertinent psychosocial information about the family and to provide recommendations regarding mental health services. The medical provider conducted a comprehensive history and physical examination of the patient, completed any necessary testing for sexually transmitted infections, and completed evidence collection in acute sexual assault cases as needed. Although not always present, due to the co-location of the local CPS agency and law enforcement within the CAC, most cases serviced by these agencies also had representatives present during the evaluation to provide background, case-specific information, observe the forensic interview, and gather results from the medical examination.

Patients were referred for CSA evaluations through several access points including CPS agencies, law enforcement agencies, emergency departments, primary care offices, schools, or parent request. Both acute and non-acute cases of alleged CSA were evaluated. Since 2005, each case evaluated for CSA by a MDT was rated by the MDT at the conclusion of the forensic interview and medical examination (Fig. 1). Although representatives from CPS agencies and/or law enforcement may have been present at the conclusion of the evaluation, the final determination for the rating of each case was driven by the forensic interviewer, mental health advocate and medical provider. A five point Likert rating scale to determine the likelihood of abuse was completed by MDT consensus. Although there are no known validated scales to assess likelihood of abuse, this scale was previously vetted by content experts within the various disciplines to establish content validity. For the purpose of this study, the likelihood of abuse was stratified into either high likelihood (score of 4 or 5) or low/indeterminate likelihood of CSA (score of 1, 2, or 3). All information available at the conclusion of the MDT evaluation was taken into consideration such as the patient's disclosures during the forensic interview, findings during the medical examination or known presence of an STI previously diagnosed by another provider prior to presentation at the CAC. Although the rating was assigned at the end of each case, it should be noted that in cases where an STI was diagnosed after the conclusion of the CAC appointment but as a result of testing performed as part of the CAC evaluation, this rating may have been changed to a score of 5 based on the criteria for likelihood of abuse. This only occurred if the presence of the STI was diagnostic of sexual abuse as determined by the medical provider such as the presence of an STI in a prepubertal child where vertical transmission was excluded (Adams et al., 2007). The rating otherwise was never changed once assigned.

Typically, children aged 3–18 years presenting to the CAC with a concern for CSA underwent a forensic interview by a trained social worker. In those close to but not quite 3 years, an interview was completed only if they were determined by the MDT to be developmentally capable of doing so. In addition, those 18 years or older with cognitive delays were also eligible for a CAC evaluation. Patients with only disclosures of sexualized behaviors between children under the age of 10 years were

Team Rating	Criteria Guidelines
1 – Very probably did not occur	Unanimous team decision; credible interview with no disclosure and prior information which is determined to be non-credible or evidence of coaching or no prior information, normal examination
2 – Probably did not occur	Interview with no disclosure provided, however, prior information concerning but vague; normal examination
3 – Indeterminate	Team is equally divided and unable to reach a majority impression; normal examination
4 – Probably did occur	Team has concern for abuse based upon information obtained, however, some details, missing in interview, or some minor inconsistencies in interview – normal examination
5 – Very probably did occur	Unanimous team decision; credible interview with disclosure providing detailed information and/or exam findings diagnostic of abuse (i.e. pregnancy, sexually transmitted infection, abnormal exam)

Fig. 1. MDT Likelihood of Abuse Scale.

not rated by the MDT for determination of abuse as these cases could demonstrate normal behaviors between children. In addition, in the state where the study took place, children under the age of 10 years engaging in sexualized behaviors would not be considered perpetrators or determined to be sexual abuse by state agencies. Clinical and demographic data included: age, gender, race, history of prior sexual abuse, disclosures of sexual abuse prior to CAC evaluation, specific type of disclosure (such as genital-genital contact or ano-genital contact) and total number of disclosures (i.e. the total number of the different types of abuse as reported by the child) from the forensic interview, presence of sexualized behaviors as reported by the caregiver, speech/language delay, anogenital exam findings concerning for or diagnostic of CSA as determined by the medical provider, completion of evidence collection, and completion of any testing for sexually transmitted infections (Adams et al., 2007). These data were entered into an electronic tracking system at the time of the assessment. For children residing in the local county, the CPS agency’s disposition decision (substantiated, indicated, unsubstantiated) was similarly entered into the tracking system following completion of their investigation. CPS determined a report to be substantiated when the child disclosed and there was corroborative evidence; there was a credible witness supporting the allegation; and/or it involved other forms of confirmation deemed valid by the public CPS agency (professional judgment that the child has been abused or neglected). A report was indicated when CPS determined there was circumstantial, medical, or other isolated indicators of child abuse or neglect deemed valid by the public CPS agency but was lacking confirmation. A report was unsubstantiated when the investigation/assessment completed by the public CPS agency determined no occurrence of child abuse or neglect.

Study Protocol

This retrospective study was approved by our Institutional Review Board. Eligible study subjects included all patients reported to the local county CPS and evaluated by the MDT for concern of CSA between January 1, 2006 and December 31, 2007. All data were exported from the existing tracking database (which includes both the electronic health record for the assessment and the disposition tracking data) and entered into a research database. Insurance data were obtained via administrative billing records or from the paper chart where insurance information at the time of evaluation was recorded. The independent variables of interest in this study were demographic characteristics including age, gender, race and insurance status; known history of prior sexual abuse; disclosure of sexual abuse prior to CAC evaluation; history of sexualized behaviors; speech/language delay; type of abuse disclosure; number of abuse types; anogenital exam findings concerning for or diagnostic of CSA; presence/absence of forensic evidence collection; and if any testing for sexually transmitted infections was completed.

The type of abuse disclosure was categorized in terms of severity as either low risk CSA, moderate risk CSA, or high risk CSA; other disclosure not related to CSA such as being hit with an object or exposure to domestic violence; or no disclosure. Low risk CSA disclosures were categorized as: exhibitionism, exploitation, exposure to pornography, exposure to sexual abuse of others, fondling, kissing, masturbation, oral-breast contact, other sexually deviant activity or contact, and voyeurism. Moderate risk CSA disclosures included oral-genital, oral-anal, digital-anal, and digital-genital. Digital-anal and digital-genital contact were documented instead of fondling when penetration was described by the patient during the forensic interview. High risk CSA disclosures were categorized as: ano-genital and genital-genital contact. If a child

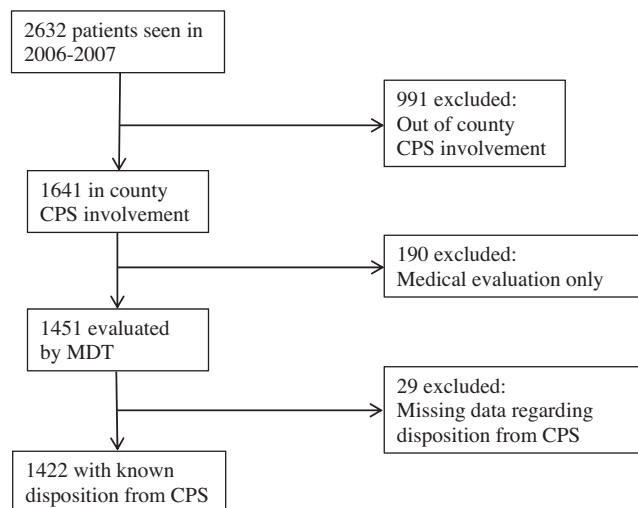


Fig. 2. Patient flow chart.

gave multiple disclosures (more than one type of disclosure) of CSA, they were then characterized based on the highest risk disclosure given. For instance, if a child gave a disclosure of fondling and genital-genital contact, that child, for study purposes, was considered to have given a high risk disclosure. MDT consensus determinations were dichotomized into a determination of high likelihood of abuse versus low/indeterminate likelihood of abuse.

The outcome variables included the MDT determination of high likelihood of CSA and CPS disposition decision of substantiated/indicated. Concordance (i.e. MDT determined high likelihood for abuse and CPS substantiated/indicated abuse) and discordance (i.e. MDT determined high likelihood for abuse and CPS did not substantiate/indicate abuse) rates between MDT and CPS were calculated.

### Analysis

Descriptive statistics for continuous variables such as age were summarized by the median and interquartile range. Categorical variables such as gender, ethnicity, insurance type, disclosure type, and physical exam findings were summarized as frequencies. MDT decision regarding likelihood of CSA and CPS disposition outcome were summarized by frequencies. A kappa coefficient was calculated in order to assess the level of concordance between the MDT determination of abuse and the CPS decision. Univariate analysis of categorical variables was tested using Chi-square to test for the significance of associations between the dependent (CAC MDT determination and CPS decision) and independent (clinical and demographic) variables. Unadjusted odds ratios were calculated with 95% confidence intervals. Multivariable logistic regression models were developed with inclusion of independent variables if univariate analyses were significant using a  $p$  value  $<0.05$ . Adjusted odds ratios were calculated using 95% confidence intervals. Statistical analyses were performed using STATA statistical software, version 11.1 (Stata Corp, College Station, TX) and SAS statistical software, version 9.3.

### Results

#### Characteristics of CSA Study Population

Among the 2632 patients evaluated at the CAC during the study period, 1422 met the study criteria (Fig. 2). Nine hundred ninety-one were excluded due to the CPS agency being out of county and therefore disposition decisions were unknown; 190 patients had a medical exam only without a forensic interview and were not evaluated by the entire MDT; and 29 had missing data, leaving 1422 subjects for the study.

The majority of the patients were female (69.5%), Caucasian (53.9%), and had public insurance (68.5%). The age ranged from 2 years to 20 years with a median age of 8.2 years and an interquartile range 5.4–12.8 years. Four patients were under the age of 3 years and 4 patients were 18 years or older. One hundred ninety patients (13.4%) had a prior history of CSA. Over two-thirds (71.9%) of the 1422 patients gave a disclosure of CSA during the forensic interview. Of the patients who disclosed CSA, the total number of disclosures of CSA per patient ranged from 1 to 13 total types of abuse. Low risk CSA disclosures were provided by 321 patients (22.6%); medium risk CSA disclosures were provided by 249 patients (17.5%); and high risk sexual abuse disclosures were provided by 452 patients (31.8%). Two hundred fifty-seven patients (18.1%) had a history of sexualized behaviors as reported by their caregivers. A speech or language delay was noted either by the caregiver or the forensic interviewer in 304 patients (21.4%). The median age of patients with a history of sexualized behaviors or speech delay was 6.0 years and 7.6 years respectively, lower than the median age of the entire cohort. Fifty-one patients (3.6%)

**Table 1**  
 Demographic and clinical characteristics of overall cohort and MDT high likelihood for abuse sample.

Characteristic	Overall cohort (N = 1422)		MDT high likelihood for abuse (N = 997)	
	n (%)	n (%)	n (%)	OR (95% CI)
Age (median 8.2 years) <sup>a,b</sup>	–	–	–	1.1 (1.12–1.19)
Gender				
Male <sup>c</sup>	433 (30.5)	274 (27.5)		0.6 (0.50–0.81)
Female <sup>b</sup>	989 (69.5)	723 (72.5)		1.5 (1.23–2.00)
Race				
White	767 (53.9)	545 (54.7)		1.1 (0.87–1.38)
Black	473 (33.3)	331 (33.2)		0.9 (0.77–1.26)
Other	182 (12.8)	121 (12.1)		0.8 (0.59–1.15)
Insurance <sup>d</sup>				
Public <sup>e</sup>	974 (68.5)	667 (66.9)		0.8 (0.06–0.99)
Private	327 (23.0)	243 (24.3)		1.3 (0.98–1.72)
Self pay	119 (8.4)	87 (8.7)		1.1 (0.73–1.70)
Prior history of CSA <sup>b</sup>	190 (13.4)	155 (15.5)		2.1 (1.39–3.01)
Prior disclosure <sup>b</sup>	1191 (83.8)	940 (94.2)		11.4 (8.21–15.90)
Abuse types				
Any disclosure of CSA	1022 (71.9)	922 (92.5)		–
Low risk CSA <sup>f</sup>	321 (22.6)	266 (26.7)		33.1 (20.77–52.81)
Moderate risk CSA <sup>f</sup>	249 (17.5)	238 (23.9)		148.2 (73.13–300.26)
High risk CSA <sup>f</sup>	452 (31.8)	422 (42.3)		96.3 (57.27–162.06)
Other <sup>g</sup>	141 (9.9)	38 (3.8)		2.5 (1.50–4.26)
No disclosure (ref)	259 (18.2)	33 (3.3)		–
Total number of CSA disclosures <sup>f</sup>				
No sexualized behaviors <sup>b</sup>	1165 (81.9)	844 (84.7)		1.8 (1.35–2.38)
No speech/language delay <sup>e</sup>	1118 (78.6)	799 (80.1)		1.3 (1.03–1.78)
Concerning/diagnostic exam finding <sup>b</sup>	51 (3.6)	46 (4.6)		4.0 (1.60–10.29)
Evidence collection completed <sup>h</sup>	40 (2.8)	36 (3.6)		3.9 (1.40–11.10)
Any testing completed <sup>f</sup>	595 (41.8%)	509 (51.1%)		4.1 (3.15–5.37)

Note: MDT indicates multidisciplinary team; CSA, child sexual abuse; OR, odds ratio; 95% CI confidence interval; ref, reference.

<sup>a</sup> Median age was 8.2 years in study cohort.

<sup>b</sup>  $p < 0.001$ .

<sup>c</sup>  $p = 0.0002$ .

<sup>d</sup> Insurance information was missing in 2 patients.

<sup>e</sup>  $p < 0.05$ .

<sup>f</sup>  $p < 0.0001$ .

<sup>g</sup>  $p = 0.0005$ .

<sup>h</sup>  $p = 0.005$ .

had a finding on exam documented as either concerning or diagnostic for CSA and 40 patients (2.8%) had forensic evidence collection completed.

### MDT Determination of CSA

Nine hundred ninety-seven (70%) of the 1422 patients evaluated were determined by the MDT to have a high likelihood of CSA. There were no differences in race or insurance type among those with a high likelihood of CSA compared to the entire study population. One hundred fifty-five (15.5%) patients had a prior history of CSA. Most (922 patients, 92.5%) gave a disclosure of CSA. The remaining 7.5% who did not disclose CSA but were determined by the MDT to have a high likelihood for abuse represent those cases where other information, including the presence of a sexually transmitted infection in a prepubertal child, history of witnessed CSA, or known perpetrator confession of CSA, contributed to the MDT decision. Total number of CSA disclosures per patient ranged from 1 to 13. Abuse disclosures were noted to be low risk (266 patients, 26.7%), moderate risk (238 patients, 23.9%), and high risk (422 patients, 42.3%). The number of subjects with an absence of sexualized behaviors or speech or language delay was found to be similar to the entire cohort at 84.7% and 80.1% respectively. The presence of an anogenital exam finding concerning for or diagnostic of CSA was identified in 46 patients (4.6%) and the completion of forensic evidence collection occurred in 36 patients (3.6%). Demographic and clinical characteristics of the overall cohort as well as those determined by the MDT to have a high likelihood of abuse are presented in Table 1.

Characteristics associated with the MDT determination of a high likelihood of CSA include increasing age, female gender, and not being enrolled in public insurance. In addition, a history of prior CSA, disclosure of CSA prior to the CAC evaluation, absence of sexualized behaviors or speech/language delay, an increasing number of CSA disclosures, all types of CSA disclosures, other abuse disclosures not related to CSA, a diagnostic or concerning anogenital exam finding, completion of any testing including for sexually transmitted infections, and completion of evidence collection were all associated with MDT determination of a high likelihood of CSA. Factors that were independently associated with MDT determining a high likelihood of abuse are reported in Table 2 and include: giving a disclosure of CSA prior to the CAC evaluation, providing any

**Table 2**  
 Characteristics associated with MDT high likelihood of abuse.<sup>a</sup>

Characteristic <sup>b</sup>	AOR (95% CI)	p
Prior disclosure	2.1 (1.36–3.35)	<0.001
Total number of CSA disclosures	1.3 (1.11–1.57)	0.002
Abuse types		
Low risk CSA	28.1 (13.05–60.72)	<0.0001
Moderate risk CSA	59.3 (26.50–132.80)	<0.0001
High risk CSA	17.5 (10.08–30.44)	<0.0001
Other	2.5 (1.48–4.28)	0.0007

Note: MDT indicates multidisciplinary team; CSA, child sexual abuse; AOR, adjusted odds ratio; 95% CI, confidence interval.

<sup>a</sup> All characteristics clinically significant in univariate analysis were included in multivariable analysis.

<sup>b</sup> Only clinically significant characteristics in multivariable analysis are shown.

**Table 3**  
 Concordance and discordance between MDT determination and CPS disposition.<sup>a</sup>

	CPS Substantiated/Indicated (N = 879)	Not Substantiated/Indicated (N = 543)
MDT determination: High Likelihood (N = 997)	789 (79.1%)	208 (20.9%)
MDT determination: Low/Indeterminate Likelihood (N = 425)	90 (21.2%)	335 (78.8%)

Note: MDT indicates multidisciplinary team; CPS, child protection services.

<sup>a</sup> Kappa = 0.53 (p < 0.001), moderate agreement

type of CSA disclosure during the evaluation, increasing number of total CSA disclosures, and any other type of disclosure not related to CSA.

*Correlation of MDT Decision-Making to CPS CSA Determinations*

The MDT determination of the likelihood of CSA and CPS disposition decisions are presented in Table 3. Of the 997 cases determined by the MDT to have a high likelihood for abuse, 789 (79.1%) were substantiated or indicated by CPS. In cases where the MDT determined a low or indeterminate likelihood of abuse (425 patients), CPS did not substantiate or indicate CSA in 78.8% (335 patients). A Kappa coefficient of 0.53 was calculated (p < 0.001), indicative of moderate agreement between the MDT determination and CPS disposition.

Concordance between MDT determination of high likelihood for CSA and CPS disposition decision of CSA (either substantiation or indication) identified several clinically significant characteristics including: female gender, public insurance, increasing age in years, no speech/language delays, no sexualized behaviors, completion of evidence collection, making a disclosure of CSA prior to CAC evaluation, history of prior CSA, examination finding documented as concerning or diagnostic for CSA, completion of STI testing, an increasing number of CSA disclosures, and the presence of any disclosure of CSA. The factors that remained independently associated with this outcome following multivariable logistic regression included: the absence of sexualized behaviors; disclosure made prior to the MDT evaluation; an increasing number of CSA disclosures; and any disclosure of CSA including low risk, moderate risk and high risk disclosures (Table 4).

Discordance between MDT determination of high likelihood for CSA but CPS not substantiating or indicating CSA identified the following associated characteristics: white race, increasing age in years, STI testing, low or moderate CSA disclosures, and any other disclosure not related to CSA. All of these factors remained independently associated with this outcome following multivariable logistic regression except for increasing age and STI testing (Table 5).

**Table 4**  
 Characteristics associated with MDT high likelihood of abuse and CPS substantiating/indicating for CSA (concordance).<sup>a</sup>

Characteristic <sup>b</sup>	AOR (95% CI)	p
No sexualized behaviors	1.7 (1.17–2.44)	0.005
Prior disclosure	2.9 (1.71–4.84)	<0.0001
Total number of CSA disclosures	1.2 (1.07–1.30)	0.001
Abuse types		
Low risk CSA	12.2 (6.88–21.90)	<0.0001
Moderate risk CSA	21.2 (11.26–40.13)	<0.0001
High risk CSA	23.1 (11.66–45.64)	<0.0001

Note: MDT indicates multidisciplinary team; CPS, child protective services; AOR, adjusted odds ratios; 95% CI, confidence interval.

<sup>a</sup> All characteristics clinically significant in univariate analysis were included in multivariable analysis.

<sup>b</sup> Only clinically significant characteristics in multivariable analysis are shown.

**Table 5**  
 Characteristics associated with MDT high likelihood of abuse and CPS not substantiating/indicating for CSA (discordance).<sup>a</sup>

Characteristic <sup>b</sup>	AOR (95% CI)	p
White	1.6 (1.10–2.26)	0.01
Abuse types		
Low risk CSA	4.9 (2.72–7.17)	<0.0001
Moderate risk CSA	3.9 (2.12–6.65)	<0.0001
Other	4.4 (2.29–8.55)	<0.0001

Note: MDT indicates multidisciplinary team; CPS, child protective services; AOR, adjusted odds ratios; 95% CI, confidence interval.

<sup>a</sup> All characteristics clinically significant in univariate analysis were included in multivariable analysis.

<sup>b</sup> Only clinically significant characteristics in multivariable analysis are shown.

**Discussion**

Despite increasing quality standards set forth by the National Children’s Alliance (2011) for accreditation and the widespread assumption that an alleged CSA victim is best served in the context of a CAC, there is limited outcomes data in evaluating the overall impact of CACs as well as the MDT process in determining the likelihood of CSA (Faller & Palusci, 2007; Jones et al., 2005; National Children’s Alliance, 2011). From a health services perspective, it is important to systematically assess the quality of health care delivery, as these processes are being adopted by the child welfare system and law enforcement as well as medical providers as best practice.

This is the first study to evaluate characteristics of a CAC population that are associated with the MDT determining CSA and the correlation between the MDT determination and CPS disposition. In our study, MDT consensus regarding likelihood of CSA demonstrated moderate agreement to CPS disposition. Unfortunately, CPS documentation was not available to help better understand this discrepancy in the 208 cases where the MDT determined a high likelihood of abuse but CPS did not agree. It is possible this result may be secondary to the results of CPS’s completed investigation following the MDT evaluation during which more information may have been obtained or a child may have retracted a given disclosure leading to unsubstantiation of CSA.

Conversely, in a recent study, Everson and Sandoval (2011) unexpectedly found that among professionals in the field of child maltreatment, CPS workers were more concerned about “overcalling” abuse and more skeptical of child disclosures than other professionals including law enforcement officials, attorneys and forensic interviewers. The CPS workers gave responses that were associated with an increased probability of disbelieving CSA allegations. Our results could possibly be explained by this observation. In an effort to explore this discrepancy further, a chart review of the 208 patients where the MDT determined a high likelihood for CSA and CPS did not substantiate or indicate, 24 (11.5%) returned to the CAC over the next 5 years (2008–2012) due to further concerns of child maltreatment (23 for sexual abuse concerns, 1 for physical abuse concerns). In addition, 8 of the 24 patients presented due to concerns for sexual abuse involving the same alleged perpetrator. This suggests the potential challenges within the child welfare system in their disposition decision-making process and the substantiation or indication of CSA.

The MDT determination of a high likelihood of CSA was strongly associated with an increasing total number of CSA disclosures and any disclosure of CSA, regardless of abuse severity. Other factors, however, such as sex, age, race, and socioeconomic status based on insurance type were not associated with this determination. This finding suggests a non-biased approach to the MDT determination of CSA. In addition, although not as highly significant, other disclosures of abuse which were unrelated to CSA, were associated with the MDT determination for high likelihood of CSA. This may be secondary to external information available from CPS and law enforcement at the time of the assessment, including reports of perpetrator confession, presence of a sexually transmitted infection in a prepubertal child, or reports from witnesses to the abuse.

The MDT determination of high likelihood of CSA resulting in CPS substantiation or indication of CSA was highly associated with all risk disclosure categories of CSA. This highlights the importance of the forensic interview in CPS decisions of CSA and the potential role for the CAC in providing trained professionals to conduct a high quality interview during the initial assessment. In addition, the presence of sexualized behaviors, which often may be the presenting complaint leading to an evaluation for CSA, was independently associated with the MDT and CPS agreeing on the low likelihood risk for CSA. Although this result could be confounded by the possibility that younger children may be more likely to present with sexualized behaviors, and they may be less likely to provide a credible disclosure due to developmental stage, this result is consistent with the existing literature suggesting the normalcy of many sexualized behaviors in young children (Kellogg, 2009; Johnson, 2013).

The results in this study also suggested that without a high risk disclosure, MDT and CPS are more likely to disagree in regards to abuse likelihood and subsequent CPS disposition. However, the presence of a low or moderate risk CSA disclosure or other disclosure not related to CSA was associated with disagreement between the MDT determination and CPS decision. This again may be due to additional information gathered as CPS completes their full investigation for CSA or perceived statutory limitations of CPS when deciding on substantiation or indication without a high risk disclosure and no physical evidence of CSA. For instance, CPS may feel that a disclosure such as fondling is insufficient to determine CSA, especially in a younger child. Finally, white race was associated with the MDT determination of high risk for CSA and CPS not substantiating or indicating

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CSA. This suggests there may be inherent, unmeasured biases either within the MDT regarding their determinations of CSA or within the child welfare system regarding their dispositions.

This study highlights the importance of conducting research which evaluates the outcomes of the MDT approach to CSA, given the paucity of CAC outcomes research to date. Future research on other CAC outcomes such as law enforcement actions (i.e. arrest warrant) and judicial decisions is critical to comprehensively evaluate this best practice. Additionally, this study provides a potentially useful tool for MDTs to assess the likelihood of CSA, given the interview and medical information. Validation of this tool could provide a standard measure for MDTs to assess the risk of CSA and advocate for the appropriate protection plan in children evaluated in a CAC.

### Limitations

There are several limitations in our study. First, as a retrospective study, variations in quality and completeness of the data collection exist. For instance, insurance data was missing in two patients. Second, these findings were seen in a single hospital-based CAC and involve dispositions of CSA made by a single child protection agency and may not be applicable to other institutions working with different agencies. Third, CPS investigation notes following the MDT evaluation were not available. This information may have been useful in understanding the reasoning behind their dispositions, especially when they were not congruent with the MDT determinations.

Fourth, given the assumption that CPS may be involved in the MDT determination and may also consider the opinions of and facts uncovered by the MDT in making its disposition decisions, the possibility of circular logic exists. Although we agree there is potential for circular logic, we believe this potential is minimal given the way in which the MDT functions. From our group's experience, while brief team discussion does occur, the CPS member is not driving the decision in determining the likelihood of abuse during the CAC evaluation. The forensic interviewer, mental health provider, and medical provider are typically the group members leading the discussion. The CPS caseworker present at the time of the CAC evaluation typically only comprises one fifth of the MDT representation in formulating this opinion, and may or may not be the assigned caseworker for the case. Additionally, prior to making a final disposition, the CPS caseworker must staff all cases with a supervisor who was not present during the evaluation.

Finally, with the exception of a few ano-genital examination and/or STI findings, there is no true "gold standard" for MDTs in determining if CSA is likely in all literature published within the child maltreatment field. As a result of this limitation in the field, we attempted to standardize our criteria for the MDT in determining the likelihood of CSA. If this scale were used and validated in another setting, it could be a step closer to the development of a gold standard for the MDT process.

### Conclusion

In conclusion, the type of the disclosures made seem to be the primary driver in agreement between MDT determination and CPS protection decisions. These results further demonstrate the importance of the child interview in ensuring appropriate child protection plans. Future directions include validating this MDT scale within different CACs and CPS agencies to assess its generalizability with the CAC MDT process.

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