

1 RUNNING HEAD: ENGAGEMENT WITH RISK MANAGEMENT PROTOCOL

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3 Adolescents' Engagement with Crisis Hotline Risk-management Services:  
4 A Report from the Emergency Department Screen for Teen Suicide Risk (ED-STARs) Study  
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## 30 Abstract

31 Objective: This study examines the feasibility of a risk-management protocol for adolescent  
32 research participants at risk for suicide that relies on engagement with telephone crisis  
33 counselors. The study also examines whether engagement is moderated by adolescent  
34 demographics and clinical characteristics.

35 Method: Participants were 234 adolescents (83% female; 63% White) ages 12-18 ( $M = 15.3$   
36 years) drawn from the national study, Emergency Department Screen for Teens at Risk for  
37 Suicide (ED-STARs) Study One sample of adolescents randomized for 3-month telephone  
38 follow-up ( $n = 2,850$ ). This study's sample was comprised of adolescents who completed the  
39 follow-up (69% retention), met study risk-criteria, and were transferred to a crisis-hotline for  
40 risk-management. Engagement with a counselor was assessed by successful call connection, call  
41 duration, and information sharing.

42 Results: Ninety-four percent of calls resulted in a successful call transfer and the majority of  
43 youth (84%) shared information with counselor about one or more coping strategies. Average  
44 call length was 12.6 minutes ( $SD = 9.9$ ). Engagement did not vary by gender, race, age,  
45 ethnicity, or clinical characteristics.

46 Conclusions: Adolescents' engagement with telephone risk-management services was strong,  
47 suggesting that this strategy can address safety. Further, findings suggest telephone risk-  
48 management services effectively engage youth across demographic and clinical subgroups.

49  
50 *Keywords:* Suicide risk management, adolescents, crisis-response engagement, crisis-call  
51 centers, telephone engagement

52 Suicide is the second leading cause of death among adolescents in the United States  
53 (U.S.; Center for Disease Control and Prevention [CDC], 2017). More than 1,900 adolescents  
54 13-18 years of age died by suicide in the U.S. in 2016 (CDC, 2017), and many more reported  
55 suicide attempts (Kann et al., 2016). Given these numbers, it is not surprising that suicide  
56 prevention is a national priority (U.S. Department of Health and Human Services & National  
57 Action Alliance for Suicide Prevention, 2012) and funding for suicide-related research has  
58 increased (NIMH, 2016).

59 Research related to youth suicide prevention often requires enrolling youth at risk for  
60 suicide and taking steps to ensure their safety. In such research, a risk-management protocol

61 specifies how to respond when a participant is at highly elevated risk (King & Kramer, 2008;  
62 National Institute of Mental Health [NIMH], 2017). To our knowledge, however, no studies to  
63 date have examined the extent to which suicidal adolescents engage in study-related risk-  
64 management services. To ensure that we are maintaining the safety of research participants, it is  
65 imperative to examine risk-management procedures, including their feasibility with youth  
66 participants. This may be particularly important in studies for which in-person assessment may  
67 not be viable (e.g., national data collection).

68 Past reports of study risk-management procedures have provided broad guidelines for  
69 including participants at high risk for suicide, emphasizing the importance of employing risk-  
70 management protocols to enhance the safety of research participants (NIMH, 2017). Detailed  
71 descriptions of risk-management protocols used in intervention research and clinical settings  
72 with adults are available (Brown, Bruce, Pearson, & Group, 2001; Linehan, Comtois, & Ward-  
73 Ciesielski, 2012), and some have even described how crisis hotlines or telephone-delivered  
74 assessments have been used with adult populations (Arias, Sullivan, Miller, Camargo, &  
75 Boudreaux, 2015; Belnap et al., 2015). However, while prior research has briefly described site-  
76 based clinical safety protocols for adolescents (Brent et al., 2009), to our knowledge, no previous  
77 published studies have reported study participants' engagement (e.g., duration of risk  
78 assessment, information sharing) with risk-management services.

79 In a study examining the effectiveness of a telephone-delivered intervention for treating  
80 depression in adults who had undergone coronary artery bypass surgery, risk-management  
81 procedures were implemented by trained research assistants (RAs) who were not mental health  
82 professionals (MHPs) (Belnap et al., 2015). During telephone-administered study assessments,  
83 RAs followed a risk-management protocol when the participant reported suicidal ideation or  
84 behavior. The protocol included automatic prompts for RAs when participants endorsed suicidal  
85 ideation or self-harm behavior that included suggested strategies and access to the study's  
86 psychiatrist consultation. If the risk for self-harm was moderate or high, a safety plan was  
87 developed, which included a follow-up call by the RA within 2 hours. In this study, 25% (74 out  
88 of 302) of participants expressed thoughts of death or self-harm during risk assessment, but no  
89 additional information was provided regarding what information participants shared. Similarly,  
90 Arias and colleagues (2015) described the use of a crisis hotline to provide risk management for  
91 adults participating in an emergency department (ED)-based clinical trial focused on suicide

92 prevention with a telephone follow-up assessment. Assessments were conducted by trained  
93 research staff members who were not MHPs, and participants were transferred to a crisis hotline  
94 if they screened positive for current suicidal ideation, a recent suicide attempt without seeking  
95 healthcare, any imminent risk for hurting self or others, or were in need of crisis-response  
96 resources. Findings indicated 16% ( $n = 135$ ) of research participants were transferred to the  
97 crisis hotline. Of the transferred calls, 97% ( $n = 131$ ) of research participants spoke with a crisis  
98 counselor, and calls were approximately 14 minutes in length. The extent to which participants  
99 shared coping strategies or sources of support with crisis counselors during calls and whether  
100 such a protocol is feasible for adolescents is unknown.

101 An improved understanding of possible variation in crisis response engagement related to  
102 participant demographics and clinical presentations could inform improvements to risk-  
103 management protocols, including whether adaptations are indicated for specific subgroups.  
104 Although not specific to research study risk management, previous research suggests possible  
105 differences in callers' risk-management engagement in relation to caller gender (Chandra &  
106 Minkovitz, 2006), race/ethnicity (Bardwell & Dimsdale, 2001), and symptom severity (De Leo,  
107 Cerin, Spathonis, Burgis, 2005; Gould, Kalafat, Harrismunfakh, & Kleinman, 2007). Previous  
108 research indicates that adolescent and adult males are less likely to report psychological distress  
109 compared to their female counterparts (Chandra & Minkovitz, 2006), and females are more  
110 likely than males to use crisis hotlines and other forms of mental health services (Chandra &  
111 Minkovitz, 2006), suggesting gender may be an important factor influencing caller engagement.

112 Similar findings have been found regarding race and socio-economic status (SES).  
113 Individuals from racial and ethnic minority groups are less likely to report negative affect  
114 (Bardwell & Dimsdale, 2001), and socially desirable responses have been found to be more  
115 common among lower SES adolescents (King, Hill, Wynne, Cunningham, 2012). In their study  
116 of suicide risk screening in the emergency department (ED), King and colleagues (2012) found  
117 that adolescents whose families received public assistance were less likely to report aggressive-  
118 delinquent behavior if randomly assigned to in-person follow-up (with discussion of screening  
119 results) rather than the provision of written resource information only (King et al., 2012). It also  
120 has been documented that adolescents with high symptom severity (i.e., multiple attempts and/ or  
121 high suicidal ideation) tend to possess less favorable attitudes about treatment providers (De Leo

122 et al., 2005). Such attitudes may negatively influence adolescents' willingness to engage with a  
123 crisis counselor as a part of a study's risk-management protocol.

124 The large-scale Emergency Department Screen for Teens at Risk for Suicide (ED-  
125 STARS; U01-MH-104311) provides a unique opportunity to address a gap in research on  
126 research study risk-management procedures. Using data from participants with broad U.S.  
127 geographic representation, this study makes use of crisis hotlines for managing youth suicide risk  
128 identified during telephone follow-up assessments. The primary aims of this secondary analysis  
129 are: (1) to describe adolescents' engagement in these crisis hotline services, and (2) to determine  
130 whether engagement is moderated by gender, race/ethnicity, severity of suicidal thoughts, history  
131 of lifetime multiple suicide attempts, impulsivity/aggression, drug use, and alcohol use. It was  
132 hypothesized that adolescents who are males, Black, or who show higher severity of suicidal  
133 thoughts and/or a lifetime history of multiple suicide attempts would engage less with telephone  
134 crisis hotline counselors. The analyses pertaining to impulsivity/aggression, drug use, and  
135 alcohol use were exploratory.

## 136 Method

### 137 Participants and Procedures

138 This analysis sample includes 234 adolescents, ages 12- 18 years ( $M = 15.3$ ,  $SD = 1.5$ ),  
139 from the ED-STARS subsample of 2,850 adolescents who were randomized to 3-month follow-  
140 up interviews (enriched for suicide risk) and participated in these interviews ( $n = 1,957$ , 69% of  
141 adolescents designated for follow-up). Participants in ED-STARS were recruited from 13  
142 pediatric emergency departments (EDs) affiliated with the Pediatric Emergency Care Applied  
143 Research Network (PECARN) between June 26, 2015 and July 31, 2016. Adolescents in this  
144 study's sample met one or more suicide risk trigger criteria during their 3-month follow-up  
145 interview, requiring study risk management (referral for crisis hotline risk-management  
146 services). The pre-identified risk triggers included a suicide attempt or suicidal ideation with a  
147 plan or suicidal intent in the past three months (Figure 1).

148 This sample was comprised of predominately female (83%,  $n = 195$ ) and Caucasian  
149 (63%,  $n = 131$ ; 24%,  $n = 51$  Black or African American; 10%,  $n = 20$  Multi-racial; 2%,  $n = 4$   
150 American Indian or Alaska Native; 1%,  $n = 2$  Native Hawaiian or Other Pacific Islander; and  
151 0.5%,  $n = 1$  Asian) adolescents. In addition, nearly a quarter of adolescents (24%,  $n = 48$ )  
152 identified as Hispanic or Latino. Over half of youth (64%,  $n = 145$ ) were in high school or high

153 school graduates, and 36%, ( $n = 81$ ) of youth were in grades 5- 8. At baseline, nearly half (48%,  
154  $n = 107$ ) of participating families were receiving public assistance (i.e., food stamps, Medicaid).  
155 The majority of adolescents' mothers/stepmothers were either college graduates (40%,  $n = 87$ ) or  
156 had completed some college/technical training (31%,  $n = 68$ ). Regarding adolescents'  
157 fathers/stepfathers, 45% ( $n = 92$ ) had completed high school or less, 20% had completed some  
158 college/technical training, and 35% were college graduates. The number of adolescents who  
159 completed each study measure varied from 203 – 234.

160 At baseline, adolescents completed a self-report suicide risk survey and caregivers (or  
161 legal guardians) completed a brief survey about themselves and their adolescent (King et al.,  
162 under review, NIMH, 2014). Adolescents identified for follow-up (enriched for higher risk)  
163 participated in 3-month computerized telephone follow-up interviews. Procedural details are  
164 available in previously published work (King et al., under review). The risk-management  
165 protocol for telephone follow-up assessments included pre-specified risk triggers (Figure 1).  
166 When an adolescent was transferred to the telephone crisis hotline due to one of these triggers,  
167 information about the youth (name, location, etc.) was also sent to the crisis hotline via a secure  
168 online database and an effort was made to notify the parent of the transfer. A trained crisis  
169 counselor (CC) spoke with the youth (with option to speak with parent) to ascertain the extent of  
170 suicide risk, develop a safety plan, and provide resource information. If the call was  
171 disconnected during call transfer, the CC attempted (up to three times) to reconnect with youth  
172 and/or parent by telephone. If youth or parent did not answer, the CC left a message with  
173 information about mental health resources and the possible need to contact authorities if call was  
174 not returned in 15 minutes. Following this, the telephone interviewer's on-call supervisor was  
175 contacted to determine if any additional intervention was needed (see Figure 1). In each case, the  
176 on-call supervisor indicated that further intervention was not needed. During the call, crisis  
177 counselors sought information regarding the youth's use of coping strategies, availability of  
178 social support, history of multiple suicide attempts, and assisted youth in developing a plan for  
179 managing suicidal thoughts or behavior. Additionally, crisis counselors recorded if youth  
180 experienced a successful call transfer, defined as connection to CC with no intentional hang up  
181 during call transfer. Counselors completed call logs detailing adolescents' engagement in the  
182 crisis call, operationalized as: successful call transfer, duration of call (minute) as a continuous

183 variable, and youth information sharing about use of coping strategies and availability of social  
184 support.

185 This study was approved by the Institutional Review Boards (IRBs) of participating sites.  
186 Written informed assent and consent were obtained from adolescents and parents/guardians,  
187 respectively. Exclusion criteria were: (a) ward of the state; (b) previously enrolled in study; (c)  
188 non-English speaking; (d) medically unstable; and (e) cognitive impairments that interfered with  
189 informed assent and completion of self-report survey. Each adolescent participant was given a  
190 \$15 online or mailed gift certificate for participation.

## 191 **Measures**

192 **Demographic characteristics.** Youth demographics (age, gender, racial and ethnic  
193 identification) were assessed by participant self-report at baseline in the ED.

194 **Youth engagement.** Youth engagement was assessed using telephone crisis hotline call  
195 logs. Counselors completed call logs detailing adolescents' engagement in the call,  
196 operationalized as: (a) successful call transfer (b) duration of call (minutes) as continuous  
197 variable; (c) and youth information sharing about use of coping strategies and availability of  
198 social support. Descriptions of successful telephone connection with crisis counselor (e.g., no  
199 intentional call disconnection), youth information sharing for adolescent identification of coping  
200 strategies, and availability of social support were coded as "present" or "not present." Each code  
201 was checked for reliability across three coders. A successful call transfer was defined as a  
202 telephone connection with the crisis counselor (CC) and participation in discussion with the CC  
203 without a participant-initiated disconnection. A successful call connection was coded as "not  
204 present" for any call where crisis counselors reported youth hung up during call transfer, even  
205 when crisis counselors called participants back and were able to speak with the parent, youth, or  
206 both. A random sample of call records (25%) indicated a match between 93% to 95% across all  
207 coders. All call records were coded by two or more coders.

208 **Suicidal ideation and history of lifetime multiple suicide attempts.** Columbia-Suicide  
209 Severity Rating Scale (C-SSRS) subscales (Posner et al., 2011) were incorporated into ED-  
210 STARS Study One baseline and 3-month follow-up surveys. We administered the 5-item  
211 Severity Rating scale to youth, which assesses the severity of suicidal thoughts. Scores on this  
212 scale range from 0 to 5 (none to suicidal intent with plan). The Severity Rating scale has  
213 documented excellent convergent validity and internal ( $\alpha = .95$ ) consistency (Gipson, Agarwala,

214 Opperman, Horwitz, & King, 2015; Posner et al., 2011). We also administered one C-SSRS  
215 Behavior subscale item to adolescents to assess lifetime history of multiple suicide attempts by  
216 3-month follow up. This consists of a yes/no question about history of multiple suicide attempts  
217 at 3-month follow up.

218  
219 **Impulsivity/aggression.** At baseline, youth were administered a one-item  
220 Impulsivity/aggression adapted screening measure. This measure was adapted from the  
221 Impulsive-Premeditated Aggression Scale (Standford et al., 2003), which has shown to have  
222 excellent internal consistency ( $\alpha = .92$ ) and good concurrent validity. The measure consists of  
223 one yes- or no-item which states, “Over the past 6 months, have you had times when you became  
224 angry and enraged with others in a way that was out-of-control or inappropriate?” Youth were  
225 also administered the UPPS Impulsivity Behavior Scale-Urgency (Lynam, Whiteside, Smith, &  
226 Cyders, 2006). The 4-item Urgency subscale of the UPPS Impulsivity Behavior Scale assesses  
227 the propensity to experience strong impulses, often associated with negative affect. Responses  
228 are given on a 4-point scale ranging from disagree strongly (1) to agree strongly (4). This  
229 subscale has demonstrated high internal consistency ( $\alpha = .91$ ).

230 **Drug use and alcohol use.** At baseline, adolescents’ drug use was assessed using the  
231 Drug Use Scale (DUS). The DUS assessed the frequency over the past 3 months on a 5-point  
232 scale ranging from never (1) to almost daily (5) for the following categories: Tobacco products,  
233 Alcoholic beverages, Nonprescription cough or cold medicine, Cannabis, Cocaine,  
234 Methamphetamine, Inhalants, Hallucinogens, Street Opioids, Prescription Drug Abuse, and illicit  
235 drug use. Adolescents’ alcohol use was assessed using the Alcohol Use Disorders Identification  
236 Test- Consumption (AUDIT-C). The AUDIT-C is comprised of the first three items of the 10-  
237 item AUDIT, which assesses at-risk drinking and alcohol consumption in the past year. The  
238 AUDIT demonstrated strong internal consistency ( $\alpha = .80$ ) and, compared to other brief  
239 screening tools, has shown excellent discrimination in identifying adolescents with alcohol use  
240 disorders using a cut-off of four or more (Liskola et al., 2018).

#### 241 **Data Analyses**

242 Descriptive statistics are used to describe participant baseline characteristics, responses to  
243 risk management trigger questions at follow-up, and engagement with crisis hotline services.  
244 Fisher’s Exact Test and the Kruskal-Wallis test were also used to analyze differences in crisis



245 response engagement in relation to adolescents' age, gender, race, ethnicity, severity of their  
246 suicidal thoughts, history of multiple suicide attempts, impulsivity/aggression, and drug and  
247 alcohol use. Due to the low numbers in several racial subgroups, comparisons involving race  
248 were conducted between those who identified as White (versus all others) and those who  
249 identified as Black (versus all others). Data analyses were generated using SAS software,  
250 Version 9.4. Copyright © [2013] SAS Institute Inc.

## 251 Results

### 252 Baseline Risk Triggers for Transfer to Crisis Hotline of Sample

253 Regarding risk triggers for transfer to the crisis hotline, the majority of transferred  
254 adolescents (57%) reported thoughts about how they might kill themselves in the past 3 months  
255 (see Figure 1). Seventy-six participants (32%) reported a suicide attempt in the past 3 months,  
256 and almost half (45%) reported that there had been a time when they started to do something to  
257 end their life but stopped before they actually did anything in the past 3 months.

### 258 Participant Engagement: Overall and by Demographic and Clinical Characteristics

259 Ninety-four percent of calls resulted in a successful call transfer of the adolescent from  
260 the telephone follow-up interviewer to a crisis hotline counselor (see Figure 1). For four  
261 participants (2%), the call transfer was successful, but youth abruptly disconnected the call and  
262 there was no additional contact with youth or parent. Nine youth participants (4%) disconnected  
263 the call after call transfer or immediately gave phone to parent and the CC reconnected with  
264 parent/or adult only. A total of 17 youth participants (7%) disconnected after call transfer and the  
265 CC reconnected with youth only. Participants engaged in crisis calls for an average of 13  
266 minutes ( $M = 12.6$ ;  $SD = 9.9$ ), and the substantial majority of youth (84%) shared information  
267 about one or more coping strategies they could use with the CC. In addition, 35% of youth  
268 shared a specific source of support during the call (see Table 1).

269 There were no significant differences in crisis response engagement with youth based on  
270 gender, race, ethnicity, or age. Regarding clinical characteristics, there were no significant  
271 differences in crisis response engagement with youth based on severity of suicidal thoughts,  
272 history of multiple suicide attempts, impulsivity/aggression, drug use, or alcohol use.

## 273 Discussion

274 In this report, we describe the risk-management protocol used for telephone follow-up  
275 interviews with adolescents in ED-STARS, a large-scale multi-site study. The risk-management

276 protocol involved the transfer of youth who met pre-specified risk triggers to a telephone hotline  
277 service where a crisis counselor was available to assess the severity of suicide risk and assist the  
278 youth in considering how to manage suicidal thoughts and impulses. Findings indicate most  
279 participants (84%) shared information with the CC about one or more coping strategies they  
280 could use and spoke with the CC for approximately 13 minutes ( $SD = 9.9$ ). Prior research  
281 examining the effectiveness of suicide prevention interventions that ask patients to identify  
282 coping strategies and sources of support, have found patients participating in these interventions  
283 experience reduced suicidal behavior (Stanley et al., 2018) and increased treatment engagement  
284 when compared to usual care or no intervention (Stanley et al., 2018). The present findings,  
285 coupled with previous research findings, depict active engagement from youth participants and  
286 suggest the study's risk-management protocol is likely to be achieving the larger goal of  
287 enhancing safety among participants at risk for suicide.

288 Our hypotheses regarding an association between crisis call engagement and adolescent  
289 gender, race, ethnicity, and age were not supported. Findings related to adolescent participants'  
290 gender, race, ethnicity, and age, did not yield differences in engagement with the suicide risk-  
291 management services. While males are less likely to report psychological distress than females  
292 (Chandra & Minkovitz, 2006), the study's use of a crisis hotline, where youth do not have to  
293 speak face-to-face with CC, may make it easier for male participants to report their experiences  
294 of distress and engage with CC. Similarly, adolescence is a developmental period where the use  
295 of social media and mobile technology are more common means of communication than in-  
296 person meetings (Yonker, Zan, Scirica, Jethwani, & Kinane, 2015). This may explain  
297 adolescents' familiarity, and possibly, increased comfort with communicating with crisis  
298 counselors via telephone compared to in-person interviews.

299 Findings related to race and ethnicity did not reveal a difference in participants'  
300 engagement with CC. This finding is inconsistent with past studies demonstrating disparities in  
301 mental health service use between racial and ethnic minority youth and their White peers  
302 (Caldwell, Assari, Breland-Noble, 2016). Despite the historical maltreatment of Blacks in the  
303 U.S. by medical providers (Boulware, Cooper, Ratner, LaVeist, & Powe 2003), the current  
304 study's risk-management protocol (i.e., transfer to CC and speaking to CC by phone) may help  
305 minimize mistrust, a common barrier to mental health service use among Black youth and  
306 families (LaVeist, Nickerson, & Bowie, 2000). However, prior research has demonstrated that

307 the perceived race of the telephone-interviewer has effects on participants' survey responses  
308 (Liu, 2016). Future research should investigate how perceptions of crisis counselors'  
309 demographic characteristics may impact caller engagement. Moreover, future research should  
310 recruit larger samples of Black youth to examine facilitators to treatment engagement so that  
311 future risk-management procedures effectively safeguard participants across racial and ethnic  
312 subgroups.

313       Regarding clinical characteristics, findings related to severity of suicidal thoughts, a  
314 history of multiple suicide attempts, impulsivity/aggression, drug use, and alcohol use did not  
315 yield differences in engagement with the suicide risk-management services. Youth with greater  
316 severity of suicidal thoughts and with a history of multiple suicide attempts may be in such great  
317 need of intervention that they are also able to effectively engage with CC when following risk-  
318 management protocol. Similarly, youth who endorse greater impulsivity/aggression or engage in  
319 drug or alcohol use may also be in need of additional support, enhancing ones' ability to engage  
320 with a CC. These findings suggest current risk-management services are effectively engaging  
321 these clinical subgroups of youth.

322       Previous studies suggest safety planning that includes the identification of practical  
323 coping strategies for suicide risk are vital for maintaining safety and decreasing suicide risk  
324 (Glenn, Franklin, & Nock, 2015). In ED-STARS, a centralized crisis hotline service was  
325 incorporated into the risk-management protocol for 3-month telephone follow-up interviews.  
326 Although an in-person risk-management strategy is recommended for studies that involve in-  
327 person follow-up assessments (NIMH, 2017), hotline crisis counselors' training specific to  
328 immediate coping strategies, available resources, and safety planning make them well-suited for  
329 conducting telephone-based risk-management services.

330       Despite this study's notable strengths, including addressing a significant gap in our  
331 understanding of research study risk management, findings should be considered in the context  
332 of study limitations. Although the study sample was drawn from 13 pediatric emergency  
333 departments in the United States with broad geographic representation, it was not a nationally  
334 representative sample. Further, the relatively small sample size for certain demographic  
335 subgroups presented limitations in examining crisis-response engagement for these subgroups  
336 (e.g., American Indian) due to limited statistical power. In addition, although the qualitative data  
337 available from crisis call records enriched our study, the variability in crisis counselors' call-

338 content data, particularly related to information shared by adolescents, required us to collapse  
 339 call content data into two categories (i.e., youth reported coping strategy, youth reported source  
 340 of support) for which highly reliable coding was possible. Additionally, the current study did not  
 341 examine whether or not participants' suicidal ideation and/or behavior improved or worsened  
 342 after speaking with a CC. Future research should examine how high-risk adolescents' symptoms  
 343 change following a crisis hotline intervention, within the context of a research study's risk-  
 344 management protocol.

### 345 **Conclusion**

346 This study describes and examines use of a telephone crisis hotline for risk management  
 347 with adolescent research participants at elevated risk for suicide, addressing a gap in research on  
 348 risk management in research studies with adolescents at elevated risk for suicide. Study results  
 349 indicate that adolescents actively engaged in crisis hotline services when they were referred for  
 350 these services during telephone follow-up interviews. These findings lend empirical support to  
 351 the recommendations that crisis hotlines can play an integral part in the risk management of  
 352 youth participants at high risk for suicide, particularly in a study that incorporates telephone  
 353 follow-up interviews where an in-person risk-management protocol is less feasible.

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Table 1: Risk management engagement by demographic characteristics

	Successful	<i>P</i>	Coping	<i>P</i>	Source of	<i>P</i>	Duration of call	<i>P</i>
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	call transfer	strategy	support	(minutes)
	%	%	%	Median (IQR)
Overall	94%	84%	35%	9.8 (6.5,15.9)
Age Group	.57 <sup>1</sup>	.29 <sup>1</sup>	.41 <sup>1</sup>	.49 <sup>2</sup>
12-14	96%	87%	32%	10.4 (6.6, 16.8)
15-17	93%	82%	38%	9.7 (6.3, 15.8)
Gender	.24 <sup>1</sup>	.47 <sup>1</sup>	.86 <sup>1</sup>	.76 <sup>2</sup>
Male	90%	79%	36%	10.4 (6.9, 16.6)
Female	95%	85%	34%	9.8 (6.4, 15.9)
Race: White	.06 <sup>1</sup>	.25 <sup>1</sup>	.37 <sup>1</sup>	.67 <sup>2</sup>
Yes	97%	86%	36%	9.7 (5.9, 16.3)
No	90%	79%	29%	9.8 (6.9, 15.8)
Race: Black	.08 <sup>1</sup>	.28 <sup>1</sup>	.87 <sup>1</sup>	.43 <sup>2</sup>
Yes	88%	78%	31%	11.7 (6.4, 16.9)
No	96%	85%	34%	9.6 (6.3, 15.9)
Ethnicity	.74 <sup>1</sup>	.83 <sup>1</sup>	1.00 <sup>1</sup>	.83 <sup>2</sup>
Hispanic /Latino	96%	81%	33%	9.3 (6.6, 15.3)
Not Hispanic/ Latino	93%	83%	32%	9.8 (6.3, 16.2)

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369 *Note.* <sup>1</sup> Fisher's exact test; <sup>2</sup> P-value is based on the Wilcoxon rank-sum test; N varied from 203-234 for  
370 adolescents responding to these questions.

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374 Table 2: Risk management engagement by clinical characteristics

	Successful call transfer	<i>P</i>	Coping strategy	<i>P</i>	Source of support	<i>P</i>	Duration of call (minutes)	<i>P</i>
	%		%		%		Median (IQR)	

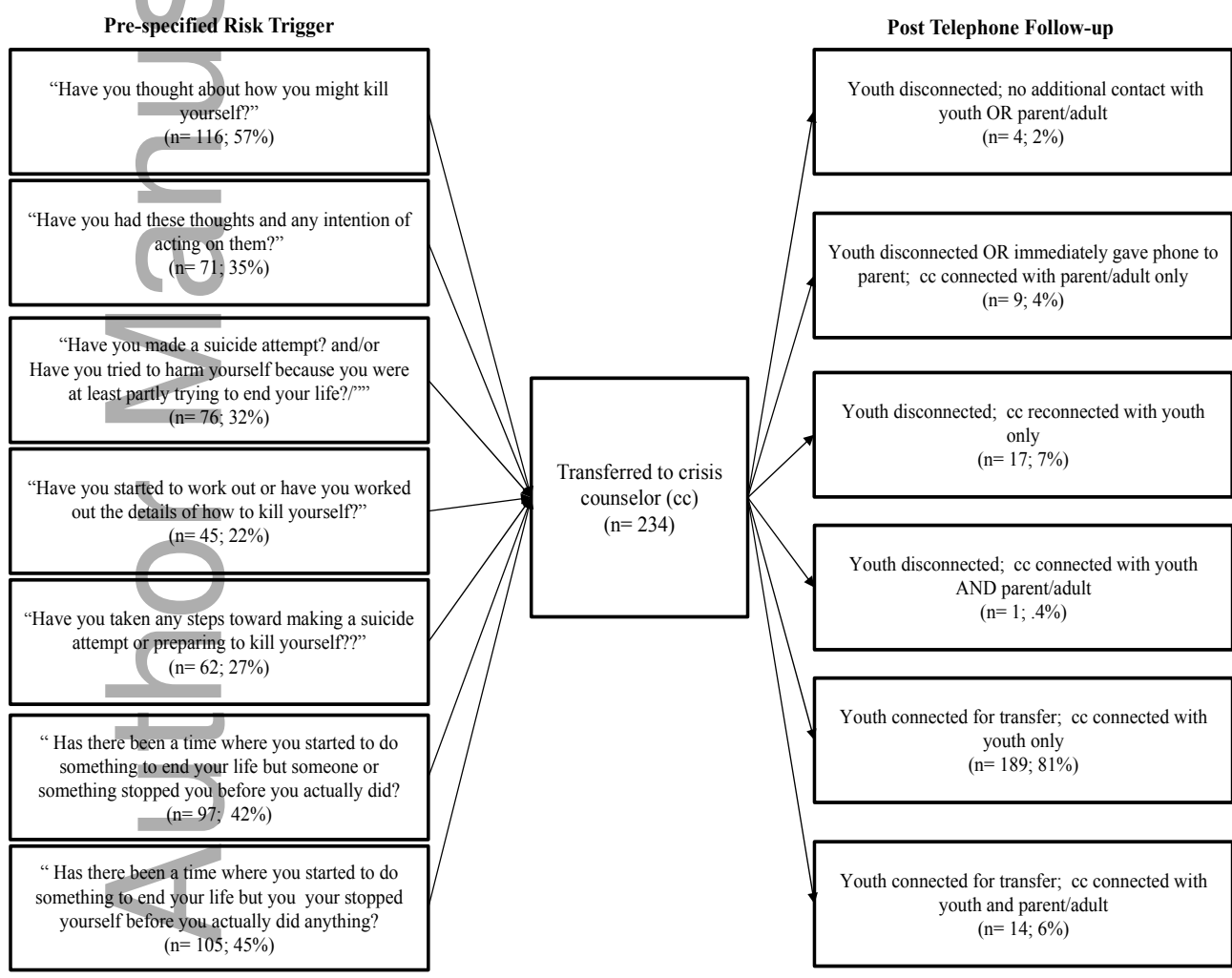
Impulsivity/ aggression- baseline		.58 <sup>1</sup>	1.00 <sub>1</sub>	1.00 <sup>1</sup>	.15 <sup>2</sup>
Yes	95%	85%	35%	9.0 (6.4, 14.0)	
No	93%	84%	35%	10.4 (6.9, 17.3)	
Drug use- baseline		.15 <sup>1</sup>	.72 <sup>1</sup>	1.00 <sup>1</sup>	0.45 <sup>2</sup>
Yes	96%	85%	34%	9.7 (6.6, 15.4)	
No	91%	83%	35%	10.1 (6.4, 16.8)	
Risky Alcohol use-baseline		.53 <sup>1</sup>	.44 <sup>1</sup>	1.00 <sup>1</sup>	0.052 <sub>2</sub>
Yes	92%	77%	31%	7.4 (5.5, 8.5)	
No	95%	85%	35%	10.0 (6.6, 16.2)	
History of lifetime multiple suicide attempts- 3-month		.26 <sup>1</sup>	.58 <sup>1</sup>	.07 <sup>1</sup>	.78 <sup>2</sup>
Yes	96%	85%	39%	9.8 (6.3, 16.2)	
No	92%	82%	27%	9.7 (6.9, 15.8)	

375 *Note.* <sup>1</sup> Fisher's exact test; <sup>2</sup> P-value is based on the Wilcoxon rank-sum test; N varied from 203-234 for  
376 adolescents responding to these questions

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400 Figure 1. Risk management protocol at 3-month telephone follow-up for ED-STARS Study



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Note. N varied from 203-234 for adolescents responding to these questions; cc = crisis counselor

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