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## CIT in Context: The Impact of Mental Health Resource Availability and District Saturation on Call Dispositions

Amy C Watson<sup>\*</sup>, Victor C. Ottati, Jeff Draine, and Melissa Morabito

Jane Addams College of Social Work, University of Illinois at Chicago, 1040 W Harrison Street, MC 309, Chicago, IL, 60607

### Abstract

The goals of Crisis Intervention Team (CIT) programs include improving safety during encounters between police and persons with mental illnesses, diverting persons with mental illnesses away from the criminal justice system, and increasing referral and access to mental health services. CIT is a systemic intervention, and as such, its implementation and effectiveness are influenced by existing practices and infrastructures. However, little research has considered the context in which CIT programs are implemented. In this paper, we present research on CIT in four Chicago police districts that vary in terms of two contextual factors hypothesized to influence the impact of CIT training on how calls involving persons with mental illnesses are resolved. Using data from 112 patrol officers in four Chicago police districts, we consider the impact of mental health services availability and CIT saturation (the percentage of district personnel that are CIT certified). Findings indicate that CIT training increased direction to mental health services primarily in districts with greater availability of mental health services. In districts with low service availability, higher CIT saturation increased direction to mental services. The opposite pattern emerged for contact only or informal call resolution. No effects were found for arrest as a call outcome.

### Keywords

Crisis Intervention Teams; Policing; Mental Health Treatment Access

## INTRODUCTION

Crisis Intervention Team programs are being implemented by police agencies across the United States to improve police response to persons with mental illnesses. The goals of CIT programs include improving safety in encounters between police and persons with mental illnesses, diverting persons with mental illnesses away from the criminal justice system, and increasing access to mental health services. The limited, but growing body of literature suggests that CIT may be positively influencing these outcomes (see Compton, Bahora, Watson & Oliva, 2008 for review). CIT is a systemic intervention, and as such, it builds on existing practices and infrastructures. However, little research on CIT has considered such contextual factors and the extent to which they influence CIT effectiveness. In this paper, we consider two contextual factors (one community, one organizational) conceptualized on the police district level that are hypothesized to influence the impact of CIT training on how calls involving persons with mental illnesses are resolved by Chicago police officers. We examine the role of mental health services availability and CIT saturation, defined as the percentage of district personnel that are CIT certified.

<sup>\*</sup>Corresponding Author: Amy C Watson, PhD, acwatson@gmail.com, 312-996-0039 (phone).

## The CIT Model

CIT is a specialized police-based response model to improve police response to individuals experiencing mental health crises. The CIT model was first developed in Memphis, TN in 1988 following the fatal shooting of a man with a history of mental illness and substance abuse by a Memphis police officer (Dupont & Cochran, 2000). Following this tragedy, a community task force comprised of law enforcement, mental health and addiction professionals, and mental health advocates collaborated to develop what is now internationally known as the Memphis CIT model. The goals of CIT are to increase safety during mental health crisis calls and to divert individuals with mental illness away from the criminal justice system and to appropriate mental health services.

While the centerpiece of the model is 40 hours of specialized training for a select group of officers that volunteer to become CIT officers, proponents stress that CIT is more than just training. CIT is an organizational and community intervention that involves changes in police department procedures as well as collaboration with mental health providers and other community stakeholders. Officers volunteer to receive 40 hours of training provided by mental health clinicians, consumer and family advocates, and police trainers. Call dispatchers are trained to identify mental disturbance calls and assign these calls to CIT trained officers. If necessary, the CIT officer uses de-escalation techniques and assesses if referral to services or transport for mental health evaluation is appropriate. An important component of the model is a central designated psychiatric emergency drop off site with a no refusal policy (Steadman, et al, 2001). This allows the officer to transport an individual for emergency evaluation and treatment and get back out on the street to his or her other duties in a timely manner.

Enthusiasm about the CIT model has spread quickly as police agencies struggle to demonstrate greater responsiveness to the growing numbers of persons with mental illness they encounter. Current estimates suggest that worldwide, there are over 1,000 CIT programs being implemented (Compton, et al, in press). The evidence regarding CIT's effectiveness is limited, but guardedly positive. Initial reports from Memphis suggest that the CIT program has reduced arrests and increased safety and diversion to mental health services (DuPont & Cochran, 2000). Subsequent research supports an association between CIT and lower arrests rates of persons with mental illnesses (Steadman, Deane, Borum & Morrissey, 2000); increases in the number of mental health related calls identified; increases among CIT officers in transports to the hospital for psychiatric evaluation and increases in the proportion of transports that are voluntary (Teller, Munetz, Gil & Ritter, 2006). Only one study has examined outcomes for persons with mental illnesses beyond the immediate CIT encounter. Broner and colleagues (2004) found that diversion from arrest by pre-booking programs such as CIT increased mental health service utilization in the subsequent 12 months for persons with serious mental illnesses.

Several studies have examined safety outcomes with mixed findings. While DuPont & Cochran (2000) have reported an association between CIT implementation in Memphis and decreased use of high-intensity police units such as Special Weapons and Tactics (SWAT) teams, Compton and colleagues (2009) did not find an association between CIT implementation and SWAT call outs (Compton, Demir, Oliva & Boyce, 2009). A few studies have examined CIT's impact on use of force and injuries. Skeem & Bibeau (2008) found that CIT officers used force in only 15% of encounters rated as high violence risk and that when they did use force, they generally relied on low-lethality methods. In analysis of data from our Chicago study reported elsewhere (Morabito, Kerr, Watson et al., 2010), we found that CIT officers used less force as subject resistance increased than officers that were not CIT trained. We did not find a CIT effect on injuries (Kerr, Morabito, & Watson, 2010). However, in a qualitative study (Hanafi, Bahora, Demir & Compton, 2008) officers reported

that application of their CIT skills reduces the risk of injury to officers and persons with mental illness.

Additional research on CIT has shown CIT training is associated with improvements in attitudes and knowledge about mental illness (Compton et al., 2006) and officers' confidence in identifying and responding to persons with mental illness (Wells & Schafer, 2006). While the existing research suffers from a variety of methodological limitations, overall, it suggests that CIT may be positively impacting at least some of its intended outcomes. However, no research to date has examined how variations in model implementation or the context CIT is implemented influence the outcomes of calls involving persons with mental illnesses.

### CIT in Context

More than 40 years ago Reiss & Bordoau (1967) noted that police must regularly transact with external entities (such as hospitals, mental health agencies), many of which are antagonistic to the police. They asserted, and Klinger (2004) echoes, that these external entities, as well as the broader social context and the nature of the tasks officers are called on to perform, largely influence police behavior. In this vein, the availability and characteristics of mental health services, as well as other characteristics of the community police officers are working in may influence the nature of and frequency of mental disturbance calls, the resources available to officers for responding, and ultimately, the effectiveness of CIT programs. Despite the importance of context, there has been little discussion in the CIT literature of variations within or even between cities. This paper seeks to better understand how variations within a police department and across communities served by the department might affect the implementation of CIT and the subsequent outcomes of calls for service involving people with mental illness.

**The Mental Health System Matters**—Given that a key outcome espoused by CIT proponents is the diversion of persons with mental illness from the criminal justice system to appropriate mental health treatment, the availability of mental health treatment resources may be extremely important to CIT's success. There is extensive evidence dating back several decades that police officers find accessing crisis and emergency psychiatric treatment for persons with mental illness extremely frustrating and time consuming (Bittner, 1967; Green, 1997; Teplin & Pruett, 1992) and that they are dissatisfied with the available options (Wells & Schafer, 2006). In order to divert individuals with mental illnesses to mental health services, officers must interact with providers from the mental health system. This can only occur if responsive mental health services exist; and if officers are able to efficiently link individuals to treatment to resolve a mental health call. Additionally, police need access to community mental health resources to respond to individuals who are in need of services but do not meet criteria for emergency evaluation at the hospital.

**Organizational factors matter: CIT Saturation**—Organizational factors may also influence police officer behavior and the effectiveness of policing innovations such as CIT. One factor that has been discussed in the CIT literature pertains to optimal staffing, or the percentage of personnel (patrol and supervisory) that are CIT certified, necessary to maximize the effectiveness of a CIT program. We call this saturation. Initial recommendations for CIT saturation range from 15–25% of all patrol officers in order to ensure 24/7 CIT coverage (Rueland, 2004; Thompson & Borum, 2006). More recently, some departments have moved to have all officers complete CIT training (100% saturation). However, the optimal saturation level has not been empirically tested.

Saturation may be more complex than simply having enough officers trained to ensure 24/7 availability. Optimal saturation may be the point at which enough officers are trained to produce a self sustaining change in how the department responds to persons experiencing mental health crisis. Rogers (2003) provides an example of diffusion of innovation that is useful for understanding how the CIT saturation level at its critical mass may influence larger changes in department practice. A single log in a fireplace will not continue to burn by itself. A second log must be present so that each log reflects its heat onto the other (p. 349). Once enough logs are burning, the fire can provide heat for the entire organization. Thus, CIT trained officers may need a certain number of trained colleagues and supervisors in order to put CIT into practice and take a new approach to mental health crisis calls. However, it may not be necessary to have a large number of CIT trained personnel or 24/7 coverage in order to trigger an overall change in how officers in the organization approach and manage these calls. Using the log example, saturation could involve enough CIT trained officers to provide opportunities and support for other personnel to learn and practice new ways of responding to mental health crisis situations from their CIT trained colleagues.

**Understanding CIT in Context**—In a previous paper (Watson, et al., 2010), we examined the effect of “individual officer CIT training” on various outcomes while simply controlling for the effect of the police district in which the individual officer works. Results indicated that CIT training increased direction to mental health services as a call disposition. In contrast, the present approach distinguishes police districts along two dimensions. These are “district mental health resource availability” (low versus high) and “district saturation” (low versus high). This enables us to examine the degree to which these two contextual variables moderate the effect of “individual officer CIT training” on key outcome variables (e.g., direction to mental health services). We hypothesize that the “individual officer CIT training” effect of increasing direction to mental health service (and decreasing informal dispositions) will be enhanced in contexts with high levels of mental health resource availability, as officers will have a greater number of mental health options to direct call subjects toward. Additionally, we expect greater CIT saturation to enhance the CIT effect. CIT trained officers in highly saturated contexts may feel more supported by peers and supervisors in putting their CIT training into practice. Finally, we examine the interaction between mental health resource context and CIT saturation. Presumably, if the prior hypotheses are supported, call dispositions will be the impacted the most in high resource and high saturation contexts.

## METHOD

CIT was first implemented in 2005 as a pilot program in two of the Chicago Police Department’s 25 districts. The Department began planning city-wide expansion of the program in 2006. Given this unique opportunity, we sought to examine CIT in districts where it was already established (high saturation) and districts where it was just recently being implemented (low saturation). We also had the opportunity to examine districts with greater access to mental health treatment and those with less access to mental health treatment.

The Chicago Police Department serves a population of approximately 2.9 million residents in an area of 228.5 square miles. Chicago is divided into 25 police districts—each containing 9 to 15 beats. At the end of 2007, the Department had 13,616 sworn/exempt officers (Chicago Police Department, 2008). All officers receive training on mental health issues during their pre-service academy training. In 2005, the department held two 40 hour CIT trainings and began pilot implementation of CIT in two districts that vary significantly in terms of demographics and availability of mental health services, District A and District B. Officers in these districts were encouraged to apply to the program. In each district 30–40

officers and supervisors were trained and certified. Beginning in July 2006, the Department began program expansion, training approximately 30 officers from across the city each month (rather than rolling out one district at a time). By February of 2008, when data collection for this study began, 532 officers from across the city had completed CIT training.

The 40 hour curriculum, described in greater detail elsewhere (Watson, et al., 2010), is presented by mental health clinicians from the community, police academy trainers, representatives from the prosecutor's office, advocates, consumers and family members. The curriculum incorporates lectures, role-play training, and panels of consumers, family members, and providers. Topics covered include recognizing signs and symptoms of mental illnesses, co-occurring disorders, medications, and legal issues and procedures. A significant portion of the training time is devoted to realistic role-play exercises in which officers practice their de-escalation skills while being videotaped. Role play actors are consumers from a local community mental health center theatre group. Actors review video tapes of the role play scenarios with officers and provide feedback. Call takers and dispatch staff in the pilot districts received informal training related to their role in CIT implementation. Formal citywide training is being discussed but has not been conducted to date.

Significant efforts supported successful collaboration between the police and the mental health system and are ongoing on a citywide as well as district by district basis. Given the size of the city, a single point of access/no refusal crisis drop-off point was impractical. Thus, Chicago's CIT program relies on memorandums of understanding (MOUs) with designated hospitals throughout the city that establish no-refusal policies and give police transports priority to reduce the time that officers spend waiting in emergency rooms. These MOU arrangements and corresponding departmental Special Orders directing officers to transport persons in need of psychiatric evaluation and care to the designated facilities predate the CIT program by several decades (personal communication, Lt. Jeff Murphy, 6/19/2010). There is some variation across the city in how well the MOUs are implemented, and occasionally the police department and hospital administrators need to revisit or renegotiate the process. The local NAMI affiliate has provided officers with resource cards that list information about mental health and other social service resources that they can give to persons with mental illness and their families or use to make referrals (NAMI of Greater Chicago, 2008). As with the distribution of mental health services across the city, mental health resources listed on the card are not evenly distributed across the city.

### Study Districts

Four districts were selected for this study. Two were the CIT pilot Districts, District A and District B. A comparison district with very few CIT trained officers but similar in other characteristics was selected for each of the pilot districts using information on availability of mental health resources, community demographics and crime rates, compiled from US Census 2000, Chicago Department of Public Health (2006) listings of mental health providers and service capacity, the Chicago Police Department Annual Report for 2007 (Chicago Police Department 2008) and personnel lists provided by the CIT training program and the study District commanders. Characteristics of study districts are described in detail elsewhere (Watson, et al., 2010; Morabito, et al., 2010). Here, we briefly describe the districts in terms of mental health resources and saturation.

District A serves a predominately African American and disadvantaged population. The density of mental health services is low relative to the North part of the city (See Figure 1). At the time of baseline data collection for this study, a total of 41 officers working in District A, including six supervisors, had completed CIT training. Thus, 17.4% of the

supervisory (Sgt and above) staff and 10.14% of nonprobationary patrol officers were CIT certified.

District B, serves a more racially and ethnically heterogeneous and less disadvantaged population. Bordering on the lakefront, District B's area includes both a number of affluent neighborhoods and areas dense with mental health services (See Figure 1) and housing facilities serving persons with mental illnesses that are sometimes referred to as the "mental health ghetto." At the time of baseline data collection for this study, a total 40 officers working in District B, including eight supervisors, had completed CIT training. Thus, 19.5% of the supervisory (Sgt and above) staff and 13.9% of nonprobationary patrol officers were CIT certified.

District C was selected because it was very early in the CIT implementation process, but similar to District A in terms of population demographics, crime and a low level of resource availability. At the time of baseline data collection, District C had only 13 CIT trained officers, including one supervisor. Thus, 2.0% of the district's supervisory staff and 4.7% of patrol officers were CIT certified.

District D was selected because it was early in the CIT implementation process, but similar to District B in terms of other characteristics. District D is similarly dense with mental health resources and shares a designated hospital for police transports for psychiatric evaluation. At the time of baseline data collection, District D had only 16 CIT trained officers, including four supervisors. Thus, 10.81% of the district's supervisory staff and 3.95% of nonprobationary patrol officers were CIT certified.

**Sampling**—Using district personnel lists provided by the District commanders and CIT officer lists provided by the CIT training unit, we selected a total of 80–86 officers from each study district to invite to participate in the study. The resulting list included officers of all ranks and district assignments. All CIT trained officers (41, 40, 13 & 16 respectively from Districts A, B, C & D) were invited to participate. We used proportionate random sampling based on the number of officers assigned to each watch to select enough non-CIT officers to make 80–86 in each district for a total of 333 officers invited.

**Recruitment:** Members of the research team visited roll calls for each watch (shift) to announce the study. The next day, we delivered letters to selected officers at their district. The recruitment letter further described the study and invited the officers to participate. It also gave a phone number for the officers to call by a given date if they did not want to be contacted further about the study. All other officers were contacted in person while on duty via their watch commander, who asked them to meet with one of the researchers to learn more about the study and if they consented, complete the interview. Including six that declined by phone prior to meeting with the researchers, a total of 58 officers declined participation. We were unable to meet with 59 of the selected officers due to medical leaves, military leaves, and retirements that were not reflected on our initial personnel lists. Our response rate was 65% if the officers we were unable to contact are included in the denominator or 79% if they are not.

**Interview:** The interview consisted of four sections. The first section asked the officers to briefly describe their most recent call involving an adult with mental illness. We specifically instructed officers: "This call does not have to necessarily include a hospitalization of the subject but could have other outcomes, such as arrest, referral to services or informal action. Additionally, this does not have to be a call that you documented or did paper work on." The definition of mental illness relied solely on the perceptions of officers, as it is the officer's perception of illness that matters in identifying a potential subject for CIT intervention.

After the officers described the call, we asked them a series of questions about how the subject came to their attention; characteristics of the subject; the subject's level of resistance; officer's use of force; injuries to the officer and subject; other situational characteristics; the outcome of the call; perception of mental health system resources if used; and officer use of skills in the call. Many of the items and scales were adapted from existing measures. The items used in the analysis reported here are described further below in the measures section. The complete interview instrument is available from the first author on request.

The second section of the interview asked officers to think about all of the calls involving adults with mental illnesses they responded to in the past month. The same series of questions was repeated, however, instead of describing a single call, they were asked to indicate how many subjects/calls in the past month had the subject or situational characteristics; outcomes; etc. Interviewers carefully crosschecked the numbers with the total number of calls reported and clarified inconsistencies with the officers.

The third section of the interview included items tapping officers' perceptions of the mental health services available in their area; their district's ability to effectively respond to persons with mental illnesses; their own skills for responding to persons with mental illnesses; their perception of the CIT program; and District level and organizational support of the CIT program. The final section of the interview asked officers to provide personal demographics, job assignment, and personal familiarity with mental illness. The data used in the analysis to follow was collected within a five-week period during March & April of 2008. Study procedures were approved by the Behavioral and Social Sciences Institutional Review Board at the University of Illinois at Chicago. The data on past month calls is the focus of this paper.

### Measures

**Dependent Variables:** Officers indicated the number of past month calls involving an adult with mental illness that had each of the following outcomes: arrest only; arrest and transport to hospital for medical treatment; arrest and transport for psychiatric evaluation; voluntary transport for psychiatric evaluation; involuntary transport to psychiatric evaluation; transport for medical treatment; transport to mental health facility other than hospital; referred to mental health/social services; and contact only. For purposes of the analysis, we collapsed the ten categories into three mutually exclusive call outcome categories. These were number of Calls Directed to Mental Health or Social Services without arrest, number of calls resulting in Contact Only, and number of calls resulting in Arrest. The number of past month calls involving an adult with mental illness varied among officers, thus, we converted the number reported in each of these three outcome categories into a proportion by dividing by the total number of calls reported. Theoretically, these proportions can range from .00 to 1.00.

**Control variables:** To select the control variables for the analyses, we first examined bivariate relationships between the outcome variables and numerous officer, subject, and situational variables. Theoretically relevant and significantly correlated variables were retained and constituted the control variables in the design.

Prior research suggests that officer characteristics influence decisions in mental health related calls (Green, 1997). Here, two officer characteristics were included as control variables in the design. These were officer age and race. Officer Age was centered at zero and re-scaled so that one scale unit reflects the full range of age from the youngest to oldest officer in the sample. Officer Race was coded as 0 for "non-white" and 1 for "white." This variable was then centered at zero by subtracting the sample mean from the raw score.

Three Subject Characteristics were also included as control variables. The first two were the number of calls in which the subject appeared to have a co-occurring substance abuse disorder (Subject SA) and the number of calls in which the subject was female (Subject Female). Dividing by the total number of calls, each of these scores was converted to a proportion. “Substance Abuse Disorder” (Subject SA) and “Subject Female” proportions were centered at zero by subtracting the mean. The third characteristic was Subject Resistance. Officers rated Subject Resistance using the categories in the Chicago Police Department Continuum of Force (Chicago Police Department, 2003). These categories are “cooperative,” “passive resister,” “active resister,” and “assailant.” Officers reported the number of past month calls in which the subjects’ highest level of resistance fell into each of these categories. These numbers were converted to proportions by dividing by the total number of past month calls reported. These proportions were used to calculate a past month resistance index in which higher scores indicate greater resistance. Using a linear transformation, these scores were re-scaled such that  $-.5$  equals one standard deviation below the mean,  $0$  equals the mean, and  $+.5$  equals one standard deviation above the mean.

Finally, one situational characteristic was included as a control variable. Prior policing research suggests that complainant requests influence police decisions for resolving mental health related calls (Bittner, 1967). Thus, Complainant Requested Action reflected the number of all past month calls reported by the officer in which there was a complainant (family member, business owner, etc.) that requested a specific outcome. Dividing by the total number of calls, this was converted to a proportion. Using a linear transformation, these scores were re-scaled such that  $-.5$  equals one standard deviation below the mean,  $0$  equals the mean, and  $+.5$  equals one standard deviation above the mean.

**Independent Variables:** Officer CIT Training was coded as a dichotomous variable that distinguished “Non-CIT Officer” from “CIT Officer.” District Resources represents the relative availability of mental health resources in the district. Officers within District B and D were coded as residing in the “high resource district” condition, whereas officers within Districts A and C were coded as residing in the “low resource district” condition. District Saturation pertains to the percentage of district personnel that are CIT trained. Officers within District A and B were coded as residing in the “high saturation district” condition, whereas officers within Districts C and D were coded as residing in the “low saturation district” condition.

## RESULTS

We limited our analysis of call outcomes to patrol and field training officers (FTOs), excluding supervisory personnel (Sergeants & Lieutenants) who have limited involvement in individual calls. The sample included 183 patrol and 7 FTOs. One FTO and 74 patrol officers reported no calls involving adults with mental illness in the past month, thus they were excluded from the analysis. We also excluded two officers who indicated that more than 20% of the subjects they were reporting on had, in their opinion, substance use disorders only (no mental illness). Our remaining sample of 112 officers was evenly split between CIT officers and Non-CIT officers.

The distribution of officers across the study districts and sample demographics are listed in Table 1. Demographics of the sample are roughly representative of department personnel overall. The sample is predominantly male and diverse in terms of race and ethnicity. Over half reported that someone close to them (self, family, friend) has a mental illness. On average, CIT officers were older ( $M=43.20$ ,  $SD=9.45$  v.  $M=37.76$ ,  $SD=8.24$ ,  $t(107)=3.202$ ,  $p=.002$ ) and had more years of police experience ( $M=12.40$ ,  $SD=7.69$  v.  $M=8.54$ ,  $SD=6.57$ ,  $t(110)=2.854$ ,  $p=.005$ ) than non CIT officers. There was not a significant difference



between the groups in terms of gender, race/ethnicity, or familiarity with mental illness. The mean number of past month calls involving an adult with mental illness reported was 5.14 ( $SD = 5.20$ ). CIT officers reported more calls per month ( $M = 6.43$ ,  $SD = 6.53$ ) than non CIT officers ( $M = 3.86$ ,  $SD = 2.93$ ,  $t(110) = 2.689$ ,  $p = .008$ ). The mean proportion of calls resolved by direction to mental health services was 0.56 ( $SD = 0.42$ ) contact only 0.31 ( $SD = 0.37$ ), and arrest 0.09 ( $SD = 0.23$ ).

In the analyses reported below, Arrest, Direction to Mental Health or Social Services, and Contact Only, were each predicted separately using ANCOVA. In each of these analyses, the design was constructed as a  $2 \times 2 \times 2$  between subjects design containing the following independent variables: district resources (low versus high), district saturation (low versus high), and officer CIT training (Non-CIT versus CIT). The control variables were entered as covariates. All effects were nonsignificant when predicting Arrest ( $p > .15$  in all cases). There were significant results for the other two categories of direction to mental health services and contact only.

### Predicting Direction to Mental Health or Social Services

Adjusted mean Direction to Mental Health or Social Services as a function of District Saturation, District Resources, and Officer CIT Training is presented in Table 2. The ANCOVA yielded a main effect of Officer CIT Training,  $F(1, 95) = 5.35$ ,  $p < .05$ . As anticipated, Direction to Mental Health was greater among CIT Officers ( $M = .68$ ,  $SD = .41$ ) than Non-CIT Officers ( $M = .48$ ,  $SD = .41$ ).

The two-way interaction between District Resources and Officer CIT Training was significant,  $F(1, 95) = 4.30$ ,  $p < .05$ . In the “low resource” districts, Direction to Mental Health did not significantly differ when comparing CIT Officers ( $M = .59$ ,  $SD = .42$ ) to Non-CIT officers ( $M = .57$ ,  $SD = .42$ ),  $F(1, 95) = .05$ ,  $p = .83$ . In the “high resource” districts, Direction to Mental Health was greater among CIT Officers ( $M = .76$ ,  $SD = .40$ ) than Non-CIT Officers ( $M = .40$ ,  $SD = .39$ ),  $F(1, 95) = 8.60$ ,  $p < .01$ . Thus, Officer CIT Training increased Direction to Mental Health primarily within the high resource districts. The two way interaction between Officer CIT Training and Saturation was not significant.

The two-way interaction between District Saturation and District Resources was significant,  $F(1, 95) = 7.93$ ,  $p < .01$ . Here, we consider District Resources as a moderator of the District Saturation effect. In the “low district resource” condition, Direction to Mental Health was greater in the high saturation district (District A,  $M = .70$ ,  $SD = .39$ ) than in the low saturation district (District C,  $M = .46$ ,  $SD = .44$ ),  $F(1, 95) = 5.37$ ,  $p < .05$ .

### Predicting Contact Only

Adjusted mean Contact Only scores as a function of District Saturation, District Resources, and Officer CIT Training are presented in Table 3. The ANCOVA yielded a two-way interaction between District Resources and Officer CIT Training,  $F(1, 95) = 5.38$ ,  $p < .05$ . In the “low resource” districts, Contact Only did not significantly differ when comparing CIT Officers ( $M = .33$ ,  $SD = .31$ ) to Non-CIT officers ( $M = .26$ ,  $SD = .39$ ),  $F(1, 95) = .58$ ,  $p = .45$ . In the “high resource” districts, Contact Only was lower among CIT Officers ( $M = .17$ ,  $SD = .34$ ) than Non-CIT Officers ( $M = .43$ ,  $SD = .39$ ),  $F(1, 95) = 5.73$ ,  $p < .05$ . Thus, Officer CIT Training reduced Contact Only primarily within the high resource districts. Again, the two way interaction between Officer CIT Training and Saturation was not significant.

The two-way interaction between District Saturation and District Resources was significant,  $F(1, 95) = 10.18$ ,  $p < .01$ . This effect can be considered by viewing District Resources as a moderator of the District Saturation effect. In the “low district resource” condition, Contact

Only was lower in the high saturation district (District A,  $M = .17$ ,  $SD = .29$ ) than in the low saturation district (District C,  $M = .42$ ,  $SD = .41$ ),  $F(1, 95) = 7.70$ ,  $p < .01$ .

## DISCUSSION AND CONCLUSION

The effectiveness of CIT cannot be fully understood unless considered in context, and specifically, the availability of mental health services is key. Findings indicate that compared to nonCIT officers, CIT trained officers directed a greater proportion of persons with mental illnesses to services and resolved a smaller proportion of encounters without taking any action, predominantly in the high resource districts. In the lower resource districts, we did not find a significant difference between CIT and non CIT officers in how they resolved calls involving persons with mental illnesses. However, in the lower resource districts, District level CIT saturation influenced how officers resolved calls. Specifically, higher saturation was associated with resolving a greater proportion of calls with direction to mental health services and a smaller proportion of calls with contact only. Thus, a “culture” of CIT training produces positive call outcomes for CIT and Non-CIT trained officers working in low resource districts. In sum, the *individual* level officer CIT training effect was maximized in high resource districts whereas the *district* level CIT training effect (i.e., saturation) was maximized in low resource districts.

These results support an understanding of the effectiveness of CIT at a systemic level, based on the interaction of police and behavioral health service systems in a community setting. The driving force for the effectiveness of CIT is at a higher level of analysis than the satisfaction of officers with their training or of avoiding arrest in favor of treatment “when appropriate” in individual police encounters (Draine, Wilson, and Pogorzelski, 2008). Rather, it is the presence of reliable behavioral health resources that activate the training and support offered to police officers. Thus, the end result is increased access to responsive behavioral health services for those who demonstrate a need for those services.

The influence of mental health resource availability on policing and how officers ultimately resolve calls may occur via multiple paths. Several studies have documented disparities in spatial accessibility and quality of mental health services in urban areas, with both access and quality being lower in poorer, minority communities (Gresenz, Stockdale & Wells, 2000; Koizuni, Rothbard, & Kuno, 2009). Additionally, African Americans and Hispanic clients living in poor communities are less likely to travel further for services (Koizuni, Rothbard, & Kuno, 2009), further limiting their access to quality services. In low income minority communities where access and quality are limited, there may be greater reliance on repeated emergency room treatment over ongoing routine outpatient care (Snowden, 2001). This has a two-fold effect for people with mental illnesses and their encounters with the police. First, it means that people with mental illnesses in some urban areas may have less access to treatment and structured day programs thereby potentially increasing their likelihood of encounters with the police. Second, it means that the police have fewer options when such encounters occur. They may not know of—or there just may not be any available agencies—to refer a person on the verge of crisis. For lack of other options, officers may simply resolve the encounter informally-missing the opportunity to link the person to services and increasing the likelihood of repeat encounters, or arrest the person and initiate a journey into a criminal justice system that is ill prepared to effectively meet the person’s needs.

Based on our prior analysis (Watson, et al., 2010) we were not surprised by our lack of findings related to arrests. It appears that in Chicago, CIT is primarily influencing officers’ decisions between directing persons with mental illnesses to services or resolving encounters without taking any action. As discussed elsewhere (Watson, et al. 2010), prior to this study,

there was a procedural shift within the Chicago Police Department that directed officers to avoid arresting persons showing signs of mental illness whenever other options are available. This procedural shift may produce “diversion from” the criminal justice system, where as CIT appears to result in “direction to” the mental health system (Broner, Borum & Gawley, 2002).

The finding of a saturation effect primarily in the districts with fewer resources could have several explanations. Perhaps in these districts, all officers are acutely aware of the lack of options and nonCIT trained officers are therefore particularly motivated to absorb the CIT “culture” from their CIT trained peers. Given the small number of districts in the study, there could also be something unmeasured and unique to the districts selected that explain this finding.

### Future research on the systemic impact of CIT

The main results of this paper, and some unpredicted trends in the data, point to the need to further develop ideas regarding the systemic impact of CIT in police departments and the interaction of mental health service access and quality and CIT on outcomes of police encounters with persons with mental illnesses. While not reaching statistical significance at the  $p < .05$  level, there was an unexpected trend in the “high district resource” condition. Direction to Mental Health was borderline *lower* in the high saturation district than in the low saturation district ( $p < .10$ , see Table 2). A similar trend was observed for “Contact Only” which was borderline *higher* in the high saturation district than in the low saturation district ( $p < .10$ , see Table 3). Thus, while CIT officers in the high resource districts resolved more calls with direction to mental health services and fewer with contact only than their nonCIT trained peers, officers (CIT & nonCIT) in the high resource/high saturation district resolved fewer calls with direction to mental health services (and more calls with contact only) than their colleagues in the neighboring high resource/ low saturation district.

Based on our experience working in the study districts and discussing findings with the CIT team, we offer a potential explanation that underlines the need for further research. Persons with mental illnesses residing in communities with greater spatial accessibility may be more likely to have access to and use ongoing outpatient care. Thus, there may be less need for police crisis intervention. When mental health crises requiring police response do occur, the individuals may be more likely to already be linked with services that officers can transport or refer them back to. In fact, it may be a service provider that calls the police for assistance. Thus, in higher resource areas, officers may have the benefit of both more information and more options when responding to crises calls. CIT trained officers may be better prepared to request and use this information. Our counter-intuitive trend for officers in the high resource AND high saturation condition resolving a smaller proportion of call by directing subjects to services (and resolving larger proportion of calls with contact only) could reflect a situation in which more call subjects are already connected to services, and given the higher level of training in the district, officers are more comfortable making the determination that further referral is unnecessary. This could reflect very reasonable decision making that avoids inappropriate hospital transports and referrals. Or, it could reflect the influence of factors yet to be considered and measured. Given that this trend did not meet statistical significance criteria, we cannot make more of the “finding” than use it to point out the complexity of defining, measuring and understanding CIT effectiveness and the need to further investigate the interaction between CIT and the context in which it is implemented.

This study was developmental and an initial foray into considering the context that CIT is implemented in. As such, it has several important limitations. Given our inability to dictate the roll out of the CIT program and police personnel assignments, we were unable to employ a randomized, pre post design to examine the effectiveness of CIT. We could not randomize

districts to implement CIT or control or calls to be handled by CIT officers or not. We were also not able to randomize officers to CIT training, as one of the key elements of the CIT model as implemented in Chicago is voluntary participation by officers. Thus, we cannot be sure that any CIT effect on call outcomes was a result of the training or simply due to characteristics of officers that volunteer for CIT training.

Resource constraints made it impossible to include all 25 Chicago Police districts, thus, we very purposively selected the study districts to allow us to make high/low resource and saturation comparisons. With only four study districts, we cannot be sure that differences we attribute to level of mental health resources and saturation are not due to idiosyncratic differences between a small number of districts. Additionally, there are many factors that tend to spatially co-occur with mental health service scarcity (structural disadvantage, crime, scarcity of other types resources and social capital) that may also influence mental health call outcomes and overall CIT effectiveness for improving access to mental health services. Larger studies that examine CIT across a greater number of districts and or jurisdictions would enhance our confidence in the generalizability of our findings and our understanding of the conditions in which CIT programs are most effective and how they may need to be tailored to various contexts.

An additional limitation is that our data on calls involving persons with mental illnesses relied on police officer recall and self report. This could introduce bias in terms of recall and in identification of persons with mental illnesses. However, prior research suggests that police officers can accurately identify mental illness (Strauss, et al., 2005). To minimize recall bias, we made every effort to remind officers of the timeframe, anchor their memory and clarify any inconsistencies reported. While our data is only as good as the officers' memories, we are confident that it is at least as accurate and more consistently reported as data derived from official documentation such as call reports and dispatch records (which we examined).

## Conclusions

Our data support the argument that CIT is more than training, it also requires treatment resources. Additional research is needed to further understand how the mental health resource environment, as well as other organizational and community level factors, influence CIT outcomes. Furthermore, research needs to move beyond the immediate call outcome and consider longer term mental health and recidivism outcomes for persons who are the subjects of CIT interventions. It is likely that the availability mental health treatment resources will be important to determining as Geller (2008) suggests—whether CIT “... stand [s] for Consecutive Interventions without Treatment (p. 58)” or if it results in meaningful intervention and improved outcomes for police, persons with mental illnesses and the community.

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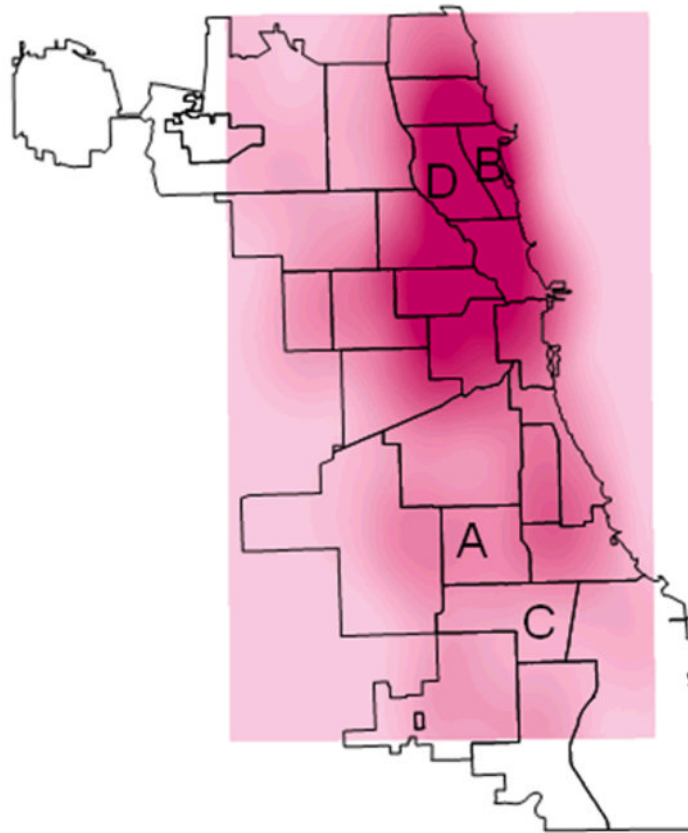
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**Figure 1. Density of Mental Health Services in Chicago**

This is a kernel map of the city of Chicago. Police districts borders and mental health service providers are plotted. The darker the color, the higher the density of mental health services. The lighter the color, the fewer mental health services offered.

**Table 1**

## Sample Characteristics

	Frequency/percent
<b>Training status</b>	
CIT	56 (50%)
nonCIT	56 (50%)
<b>District</b>	
A	31 (27.1%)
B	36 (32.1%)
C	31 (27.7%)
D	14 (12.5%)
<b>Race/Ethnicity</b>	
white	48 (42.9%)
African American	45 (40.2%)
Other	18 (16.1%)
Hispanic/Latino	14 (12.7%)
Male	89 (79.5%)
Someone close has mental illness	58 (51.8%)
	<b>MEAN (SD)</b>
Age	40.5 (9.2)
Years Experience	10.5 (7.4)
MH calls past month	5.14 (5.2)
<b>Call Outcome -proportion</b>	
Direct to Services	.56 (0.42)
Contact Only	.31 (0.37)
Arrest	.09 (0.23)



**Table 2**

Adjusted Mean “Direction to Mental Health” as a Function of District Saturation, District Resources, and Officer CIT Training (CIT versus Non-CIT)

	<b>OFFICER</b>		
	<b>CIT</b>	<b>NON-CIT</b>	<b>POOLED</b>
<u>HIGH SATURATION</u>			
HIGH RESOURCES (District B)	.56 (.40)	.38 (.38)	.47(.39) <sup>+</sup>
LOW RESOURCES (District A)	.72 (.40)	.68 (.39)	.70(.39) <sup>c</sup>
POOLED (District B & A)	.64 (.41)	.53 (.41)	.59(.41)
<u>LOW SATURATION</u>			
HIGH RESOURCES (District D)	.96 (.19)	.42 (.43)	.69(.39) <sup>+</sup>
LOW RESOURCES (District C)	.47 (.49)	.45 (.41)	.46(.44) <sup>c</sup>
POOLED (District D & C)	.71 (.39)	.44 (.41)	.57(.43)
<u>POOLED</u>			
HIGH RESOURCES (District B & D)	.76 (.40) <sup>b</sup>	.40 (.39) <sup>b</sup>	.58(.40)
LOW RESOURCES (District A & C)	.59 (.42)	.57 (.42)	.58(.43)
POOLED (All Districts)	.68 (.41) <sup>a</sup>	.48 (.41) <sup>a</sup>	

*Note.* Means are adjusted for the control variables. Raw score standard deviations are shown in parentheses.

*a,b,c* notations identify sets of paired cells where the mean difference in “Direct to Mental Health” was significant <sup>a,c</sup>  $p < .05$ , <sup>b</sup>  $p < .01$

<sup>+</sup> Paired cell mean difference  $p < .10$

**Table 3**

Adjusted Mean “Contact Only” as a Function of District Saturation, District Resources, and Officer CIT Training (CIT versus Non-CIT)

	<b>OFFICER</b>		
	<b>CIT</b>	<b>NON-CIT</b>	<b>POOLED</b>
<u>HIGH SATURATION</u>			
HIGH RESOURCES (District B)	.31 (.35)	.49 (.41)	.40(.38) <sup>+</sup>
LOW RESOURCES (District A)	.21 (.29)	.13 (.29)	.17(.29) <sup>b</sup>
POOLED (District B & A)	.26 (.33)	.31 (.39)	.28(.35)
<u>LOW SATURATION</u>			
HIGH RESOURCES (District D)	.03 (.19)	.37 (.35)	.20(.31) <sup>+</sup>
LOW RESOURCES (District C)	.46 (.38)	.39 (.42)	.42(.41) <sup>b</sup>
POOLED (District D & C)	.24 (.31)	.38 (.40)	.31(.38)
<u>POOLED</u>			
HIGH RESOURCES (District B & D)	.17 (.34) <sup>a</sup>	.43 (.39) <sup>a</sup>	.30(.37)
LOW RESOURCES (District A & C)	.33 (.31)	.26 (.39)	.30(.36)
POOLED (All Districts)	.25 (.33)	.34 (.39)	

*Note.* Means are adjusted for the control variables. Raw score standard deviations are shown in parentheses.

<sup>a,b</sup> notations identify sets of paired cells where the mean difference in “Contact Only” was significant <sup>a</sup>p.<.05, <sup>b</sup>p.<.01

<sup>+</sup> Paired cell mean difference p.<.10