Retrospective Case Series Analysis of Capacity Building Services in HIV Prevention Programs

BY GRISELLE TORRES

B.A. University of Illinois at Chicago, 1991
M.S.W., University of Illinois of Chicago, 1994
M.P.H., University of Illinois at Chicago, 2006

DISSERTATION

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Defense Committee:

Michael P. Petros, DrPH, MPH *(Chair and Advisor)*
Clinical Assistant Professor
Environmental and Occupational Health Sciences Division
University of Illinois at Chicago School of Public Health

William C. Kling, JD
Clinical Assistant Professor
Health Policy and Administration Division
University of Illinois at Chicago School of Public Health

Bernard J. Turnock, MD, MPH
Clinical Professor
Community Health Sciences Division
University of Illinois at Chicago School of Public Health

Kirsti A. Bocskay, PhD, MPH
Epidemiologist
Chicago Department of Public Health

Alfonso Urquidi, MPA
Public Health Administrator
Chicago Department of Public Health

This dissertation is dedicated to my loving husband, Tony, and our amazing sons, Noé and Evan. Thank you for supporting my personal pursuits, our love for one another, and desires to better our future.

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PREFACE

The purpose of the study is to provide findings in the utilization of capacity building services by delegate agencies in HIV prevention programs. The goal is to offer recommendations in the allocation of capacity building resources in support of the Chicago Department of Public Health's public health agenda, *Healthy Chicago,* 12th high priority area, Public Health Infrastructure.

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ABSTRACT

Significant investments have been made to public health partners in strengthening HIV program implementation. Yet, capacity building uptake is not necessarily measured within the public health practice of assessing program implementation. How resources are earmarked for the implementation of capacity building trainings, to improve the capacity of HIV prevention organizations, understand the benefits produced, and its relationship to HIV program implementation are not well understood. The utilization by delegate public health partners will be the focal point of this study, and should be answered prior to determining whether the capacity building efforts worked given measurement challenges. The purpose of this study is to inform dedicated resources and local policy in the delivery of prevention support systems post-NHAS. Using administrative data sets from a local health department (LHD), a retrospective descriptive case series was conducted to characterize the utilization of technical assistance, imparted by the LHD, identify capacity building structural levels that may aid in uptake, program sustainability, and identify patterns related to successful program implementation by comparing annual implementation scores. Between 2008 and 2013, all delegate agencies utilized some modality of capacity building. Higher program implementation scores were found in: 1) utilization of higher amounts and in-person trainings than online trainings; 2) funded organizations in community and/or fiscal partnership regardless of the amount of organizational and/or HIV experience; 3) programs without boundaries in targeting intended populations; and 4) organizations with multiple satellite offices or community based health-care centers which offer co-located services. The data suggests the need to move toward high impacted technical assistance (Hi-TA) approach in strategically allocating limited resources versus mass push mechanisms in achieving NHAS goals. The study supports capacity building training as a core component in HIV prevention efforts as well as a workforce development strategy.

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LIST OF ABBREVIATIONS

ACS	American Community Survey
AIDS	Acquired Immunodeficiency Syndrome
ART	Antiretroviral Therapy
ASO(s)	AIDS Service Organization(s)
CBA	Capacity Building Assistance
CBO(s)	Community-based Organization(s)
CD4	Cluster of Differentiation 4
CDC	Centers for Disease Control and Prevention
CDPH	Chicago Department of Public Health
CER	Cost Effectiveness Research
CHC/S	Community Healthcare Clinic/Setting
CTR	HIV Counseling, Testing, and Referral
DEBIs	Diffusion of Effective Behavioral Interventions
DHHS	Department of Health and Human Services
EMA	Emergency Metropolitan Area
GTO®	Getting to Outcomes® Framework
HAART	Highly Active Antiretroviral Therapy
HD(s)	Health Department(s)
HIP	High-Impact Prevention
HiTA	High-Impact Technical Assistance
HIV	Human Immunodeficiency Virus
HOPWA	Housing Opportunities for People with AIDS
HRSA	Health Resources and Services Administration
IOM	Institute of Medicine
IRB	Institutional Review Board
LHD(s)	Local Health Department(s)
LMS	Learning Management System
LTC	Linkage to Care
MSM	Men Who Have Sex with Men
NHAS	National HIV/AIDS Strategy
NRMO	National and Regional Minority Organizations
PEPFAR	President's Emergency Plan for AIDS Relief
RFP	Request for Proposals
PLWA	People living with AIDS
SCORM	Shareable Content Object Reference Model
TA	Technical Assistance
ToT	Training of Trainers
TTA	Targeted Technical Assistance
UN	United Nations
US	United States

SUMMARY

The National HIV/AIDS Strategy (NHAS) has been described as defining what was and what was not working in the delivery of HIV prevention services. A refocused approach was developed to improve HIV outcomes by emphasizing higher impact prevention activities. Since the release of NHAS in 2010, local policy translation has resulted in transformative changes in the delivery of HIV prevention services. State and local health departments play a primary role in addressing HIV prevention efforts. However, effectiveness in the delivery of HIV prevention is dependent on the capacity of public health partners.

The concept of capacity building has been a nebulous term with varying definitions. It is also often referred to the "black box" since little is known about how technical assistance services structured to build capacity in public health partners leads to better outcomes (Hunter, 2009). The identification of dimensions in the structural levels of capacity can aid in measurement but co-occurrence among structural levels must be assumed in any level of uptake (Goodman et al., 1998; Durlak and DuPre, 2008; Brown et al. 2001). More information is needed about how TA should be structured to benefit community based organizations (CBOs), HIV prevention programs, and how it can lead to better outcomes (Hunter et al. 2009).

A case series study design was used as the framework for this evaluation. Delegate agencies were funded for the years of 2008 – 2013, which included two grant cycles with many of the same grantees over these cycles. Capacity building is defined for this evaluation as participation by a delegate agency in an online course and/or an in-person training provided by the CDPH Capacity Building, Training and Technical Assistance Unit. The utilization patterns of online courses and in-person trainings will be examined in relation to delegate agency annual HIV prevention program implementation audit scores using administrative datasets. The importance and rationale for this study are that significant investments have been made to public health partners as part of the reach and leverage necessary in achieving HIV prevention goals. The same resources continue with no clear transition post-NHAS

Between 2008 and 2013, the total number of individuals from funded programs participating in in-person and online trainings were 1,759 and 883, respectively. While online trainings have an attraction of modern convenience, distance-based learning did not appeal to all funded organizations and was substantially less utilized than in-person trainings pre-NHAS. Post-NHAS restructuring in the CDPH Capacity Building, Training and Technical Assistance Unit demonstrated an effort in concentrating on in-person trainings that were high impact focused. Online courses became prerequisites before taking any in-person trainings and thus, utilization by funded organizations increased substantially. Post-NHAS delegate agencies are sending more individuals for capacity building trainings. Decreases in overall annual scores began in 2010. The timing in decreases is consistent with the timing of NHAS implementation challenges. Examination of the HIV prevention program implementation audit scores revealed higher program audit scores with greater amounts of training.

In order to advance NHAS goals, capacity building programs should include a high-impact technical assistance (HiTA) or targeted TA (TTA) component. HiTA/TTA should focus on (1) program implementation assessments that are timely in nature, high in frequency to provide active monitoring, and allow room for program adaptability as a TA approach; (2) pre-and post-training assessments measuring baseline and longitudinal performance of skills acquired for quality management purposes; (3) implement a prevention support system that is customizable to meet the needs of delegate agencies; and (4) assessing HIV incidence and prevalence rates in certain areas coupled with low performing organizations serving those same areas will increase the collective leadership needed in meeting NHAS goals.

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I. INTRODUCTION

A. Background and Context

1. History of HIV/AIDS Prevention Efforts in the United States

The practice of HIV prevention began in the 1980s, mainly, under a state of confusion. The contributing issues involved the differentiation between HIV and AIDS, public policy makers' lack of understanding in the overlap in HIV transmission networks (i.e. sexual and needle sharing), and the public's lack of understanding of the presence of HIV in the general community and potential risk factors (AIDS.gov 2012). Much of the initial work in HIV prevention practice involved research, health communication of the major routes of HIV transmission, and community-based organizations (CBOs) forming various advocacy groups to help shape AIDS-related policy and legislation.

By the late 1980s, eleven states and ten cities received planning grants by the United States (US) Health Services and Resources Administration (HRSA) to create a system of care for people living with AIDS (PLWA). Additionally, the Centers for Disease Control and Prevention (CDC)/HRSA formed an initiative with $11 million to fund seven community health centers to provide HIV counseling and testing services. Subsequently, Congress enacted the Ryan White Comprehensive AIDS Resource Emergency (CARE) Act of 1990 which provided $220.5 million in federal funds for HIV community-based care and treatment services. At this point, CDC adopted a "client-centered" approach, an HIV-prevention counseling model, focusing on individuals rather than HIV disease with varying outreach models (i.e. street outreach, peer-to-peer). From a historical perspective, this was a turning point in HIV prevention and care practice, as well as desegregation between HIV prevention and CARE services, policy implementation, and funding allocations. HRSA began funding CARE services for people living with HIV and CDC began focusing on prevention of the infectious disease.

The 1990s was a decade marked with significant strides in changes and improvements toward the management in addressing HIV. Decreases, for the first time in the US, were seen in the number of diagnosed AIDS cases. AIDS was no longer the leading cause of death for Americans ages 25-44, but it was African Americans ages 25-44. The US Food and Drug Administration (FDA) approved the first non-blood-based oral antibody test for HIV. Highly Active Antiretroviral Therapy (HAART) became the new standard of HIV care in response to a new approach in HIV treatment, "hit early, hit hard.[1]" The National Academy of Sciences concluded that syringe exchange is an adequate approach in HIV prevention. CDC instituted the community-planning process at a local level to better target HIV prevention efforts. Through community planning groups, HIV prevention efforts

[1] Strategy describing how HIV individuals are place on new, more aggressive treatment regimens earlier in the course of their infection in hopes of keeping them healthier longer.

would encompass parity, inclusion, and representation by government and community partners. To significantly reduce HIV risk, CDC also emphasized the implementation of over 60 evidence-based Diffusion of Effective Behavioral Interventions (DEBIs) at the individual-level, group-level, and community-level through its publication, "Compendium of HIV Prevention Intervention with Evidence of Effectiveness" (AIDS.gov, 2012).

Changes in HIV prevention strategies in the last teen years have reshaped the delivery of HIV prevention services today. While the HRSA began focusing on individuals aware of their HIV status but not receiving HIV-related services, CDC announced a new HIV Prevention Strategic Plan (AIDS.gov 2012). The goal of the plan was to cut annual HIV infection in the US by half. As a result, CDC revised HIV testing recommendations for healthcare settings, routine HIV screening for all individuals ages 13-64, and yearly screening for those individuals considered at high-risk without written permission. Written consent could be waived as long as the person is verbally notified of the HIV testing (MMWR 2006).

2. The National HIV/AIDS Strategy

In July 2010, the Obama Administration released the first comprehensive National HIV/AIDS Strategy (NHAS) for the US. Three ambitious overarching HIV prevention goals, with measurable targets, have been developed through year 2015: (1) reduce new HIV infections; (2) increase access to care and improve health outcomes for people living with HIV; and (3) reduce HIV-related health disparities (NHAS 2010, AIDS.gov 2013; CDC 2011). NHAS is important because it defines what was and what was not working in the delivery of HIV prevention services. With level funding, a refocused approach was developed to increase results in HIV/AIDS interventions by reallocating funding from lower to higher impact activities. This meant deemphasizing DEBIs that served populations at lower risk of HIV infection and multi-session interventions.

For individual-level HIV prevention interventions, greater emphasis was placed on DEBIs for people living with HIV, men who have sex with men (MSM) populations of all races and ethnicities, particular community-level interventions scaled to reach large numbers, and single session interventions, especially those implemented in clinic settings (i.e., health-care settings) rather than non-clinical settings. CBOs are considered non-healthcare or non-clinical settings. For CBOs, this implied a de-emphasis in settings that provide HIV prevention services but not medical assessment and treatment. Thus, the available effective HIV prevention behavioral interventions was scaled down from 60+ categories of approved DEBIs to less than twenty. HIV prevention providers had to adopt a brief prevention service approach. Lengthy and multiple, individualized sessions allows for providers to build client rapport and address client needs using a client center approach.

State and local health departments (LHDs) were required to shift funding to align with NHAS. This affected state and local health departments reliant on contractual agreements with public health partners or CBOs not familiar and/or experienced in High-Impact Prevention (HIP). HIP utilizes scientifically proven interventions, but in combination with cost-effective and scalable interventions to the right group and geographic areas (CDC, 2011). Health departments (HDs) contracting with public partners had to switch gears to establish competitive request for proposals (RFPs) focusing on HIP strategies NHAS goals. This meant that CBOs had to apply for new HIV prevention funding categories and strategies that they may not have had experience or knowledge of.

This change in HIV prevention to high impact activities is considered by CDC to be an essential step to achieve NHAS goals. NHAS changed how HIV prevention services are delivered, requiring increased efforts by HDs to ensure translation at the state and local level. In the case of the City of Chicago, three major challenges have arisen: (1) a shift in paradigm in HIV prevention service delivery; (2) the role expansion of CBOs in their HIV prevention program implementation; and (3) increased jurisdictional oversight to ensure NHAS implementation by the HD.

a. Paradigm Shift in HIV Prevention

The first post-NHAS challenge is the paradigm shift in the delivery of HIV services. Historically, Chicago's policy implementation and funding allocations for HIV prevention services have been targeted to high-risk populations as determined by the local community planning group using surveillance data. During the RFP cycle, CBOs can target specific high-risk groups with a related effective behavioral intervention in their proposed HIV prevention program. Prior to NHAS, the HIV prevention landscape in Chicago involved the delivery of many sessions as part of the individual- and group-level behavioral interventions by CBOs. Additionally, CBOs were allowed to target the general population. As such, no one group or target population was emphasized over another, and all CBOs were on level ground when applying for HIV prevention funds. Thus, for the most part, the politics of HIV prevention funding was equalized as all CBOs had an opportunity to compete for funding regardless of its ability to implement HIP. In essence, the leading mindset was a "test one, test all" approach.

Post-NHAS prevention activities must be HIP in order to maximize limited resources, requiring state and local HD funded organizations to be more strategic in implementing their respective HIV prevention programs. CBOs have been historically accustomed to limited resources but a generalized approach to HIV prevention. However, HIP is about effectively targeting populations and/or geographic areas to maximize reach. LHD leadership must implement and drive this paradigm shift along with mitigating any resulting issues that might arise.

b. Enhanced Role of the HIV Prevention Provider

The second post-NHAS challenge is the expansion of public health partners' roles as HIV prevention service providers. Pre-NHAS, the primary function of the HIV prevention provider was outreach, health communication, and HIV testing among targeted populations and the general population. Post-NHAS, HIV prevention providers are required to provide linkage to care (LTC) compared to only passive referrals pre-NHAS. Passive referrals are referrals to a medical appointment for newly confirmed HIV positive persons after HIV testing. LTC is the process of assisting newly diagnosed HIV positive persons into medical care within 90 days of diagnosis date (NASTAD 2011). This strategy requires an active referral to a medical provider and follow-up confirming attendance at the initial medical appointment. The thought behind this strategy is to connect newly HIV- diagnosed persons into medical care early and remain in care.

LTC involves educating newly HIV-diagnosed individuals about the health and prevention benefits of receiving medical care, establishing an infrastructure to link newly confirmed HIV-diagnosed people into medical care and ancillary services. Ancillary services are additional supports from other social service delivery systems that may be needed for newly HIV diagnosed individuals with co-occurring health conditions and/or those who have challenges in meeting their basic needs, such as food, mental health treatment, substance abuse, housing treatment, transportation to initial medical appointment, etc. Historically, prevention providers have not been in the practice of operating in this role, similar to a social worker and intensive case manager. Hence, HIV prevention providers must now have: (1) a comprehensive understanding of the other ancillary/social service systems and know how to navigate those systems; (2) an understanding of local HIV medical providers and the ability to establish formal linkage agreements; and (3) some knowledge about the benefit of HIV early treatment so as to promote early treatment as prevention.

Additionally, HIV prevention providers are expected to obtain a confirmation of the actualized medical visit and, if possible, a copy of the medical report detailing the newly confirmed HIV positive person's CD4[2] or HIV viral load test(s). If confirmation by the CBO is not possible, then the state/local HD will have to track this information through reporting, but much of the onus is placed on the CBO to ensure real-time monitoring of LTC as HD surveillance systems can have lags up to six months. Appendix A provides additional information on the clinical parameters of CD4 and viral load tests, and why HIV medical care focuses those indicators.

[2] Cluster of Differentiation 4 (CD4) is a glycoprotein that is found primarily on the surface of helper T cells which sends signals to activate your body's immune response when they detect intruders.

Passive referral does not ensure newly HIV-diagnosed individuals enter into HIV medical care, and can increase the likelihood of being lost from care and decrease the likelihood of improved health outcomes. Similarly, engagement or re-engagement into care, also unfamiliar to community-based prevention providers, require follow-up on HIV positive individuals who are lost from medical care and already identified in monitoring systems. Although variations in defining lost to care vary across jurisdictions, locally lost to care is defined as having entered in HIV care but lost to follow-up. Other HIV service delivery systems require strategic efforts focused on retention in care (NASTAD 2011). According to CDC, community-based prevention providers can support individuals diagnosed with HIV infection with strategies that assist with full engagement in HIV medical care (CDC 2013).

The stages of engagement in HIV care, HIV continuum of care or Gardner's cascade is a model that is used nationally to identify issues and opportunities related to improving the delivery of services across the spectrum of care. (Gardner 2007). The HIV care continuum is made up of five main stages: (1) HIV diagnosis; (2) linkage to care; (3) staying in care; (4) getting antiretroviral therapy (ART)[3]; and (5) viral suppression[4] (AIDS.gov 7/15/2013). The continuum of care begins with a diagnosis of HIV after testing. Upon a second confirmatory HIV positive test, providers are required to encourage individuals to immediately get connected with an HIV healthcare provider. During the active referral process and laboratory confirmations, the HIV prevention provider is required to engage newly confirmed HIV-positive individuals to stay in care while addressing any other issues including social service needs. Part of the education process is encouraging regular HIV medical care. Both of these functions are part of LTC and staying in care. The fourth stage involves sustainment of ART to stay healthy long enough to reach the final stage of viral suppression. Viral suppression is the ultimate goal in HIV care because it allows persons living with HIV to be healthy, live longer, and reduce the chance of passing HIV on to others. Pre-NHAS, Chicago's prevention providers have mostly operated within the first stage as noted in Figure A.

The expanded role of the HIV prevention provider is supported by Gardner et al.'s spectrum of engagement in care underscoring the disadvantage to late ART and points to the deficits in the spectrum of engagement in HIV care that pose barriers to achieving optimal results. Those deficits in the spectrum of engagement in care include: (1) late HIV diagnosis; (2) substandard linkage to care; (3) retention in HIV care; and (4) inadequate use and adherence of antiretroviral therapies (Gardner et al. 2011; Eldred and Malitz 2007). Moreover, deficits in the spectrum of care will further hinder, particularly at local levels, successful implementation

[3] ART are drugs that are used to prevent HIV from making more copies of itself.
[4] Viral suppression is achieving a low amount of HIV virus in your body by taking ART.

strategies, especially test-and-treat. The test-and-treat strategy advocates for early identification of persons unaware of their HIV status ("test") and immediate, active linkage to care so that initiation of ART ("treat") can not only improve health and quality of life but also lead to reductions in the incidence of HIV infection (Gardner, et al. 2011; Dieffenbach and Fauci 2009; Granich et al. 2009; Montaner, et al. 2006). Cheever, et al. (2007) estimates 25% of HIV-infected people do not know their HIV status, 50% are diagnosed with AIDS within twelve months of HIV diagnosis("late testers"), 25% of those who receive a diagnosis are out of care, and only 56% of those eligible for ART receive it (Schwarcz et al., 2011).

Figure A. The continuum of engagement in HIV medical care (Adapted from Health Resources and Services Administration, HIV/AIDS Bureau; Cheever, 2007)

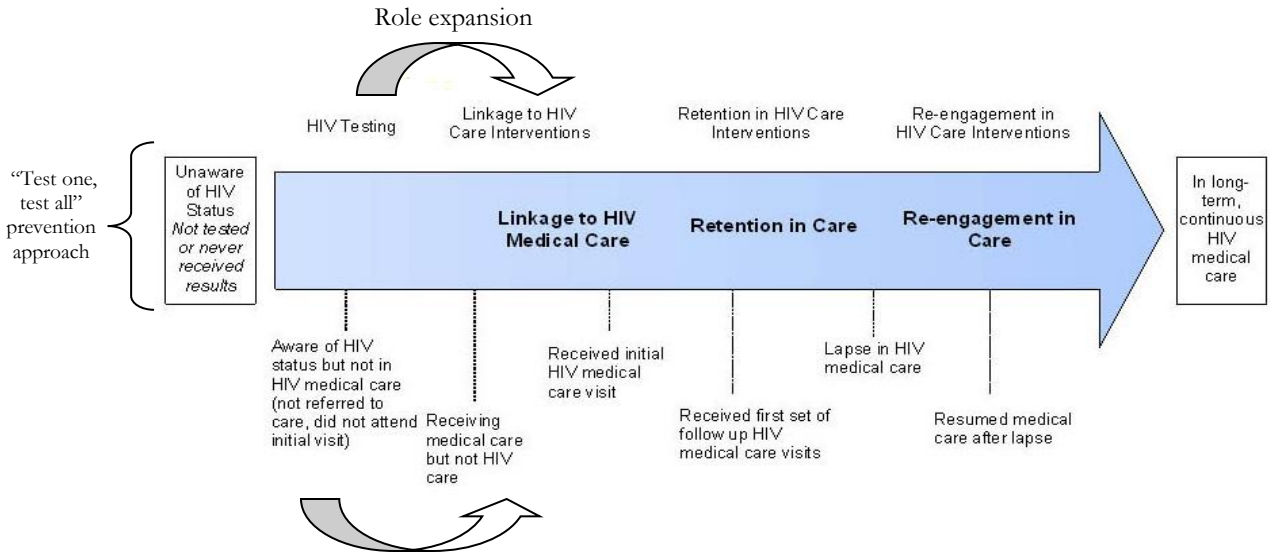


Figure B is a visual application of Gardner's cascade using the latest CDC data. Figure B shows that significant drop-offs are occurring at each stage. Of the 1.1 million Americans living with HIV, the diagnosed stage reveals that approximately 20% are undiagnosed, relatively 40% are not linked into care, an estimated 60% are not retained in care, roughly 65% are not on ART, and finally, generally 75% have not achieved viral suppression. In the case of Chicago's use of Gardner's cascade, as seen in Figure C, a similar downward trend shows that 82% are unaware of their diagnosis and only 44% have accessed care. Of those who receive a diagnosis and accessed care, only 36% are retained in care. Of those in care, only 31% received ART. Only 27% in care and on ART have suppressed viral loads (CDPH 2013). Chicago's ability to translate NHAS locally has resulted in a revised cascade, Figure D, guiding prevention providers in their efforts of targeted testing and linkage to care.

Figure B. HIV in the United States: The Stages of Care (CDC 2012)

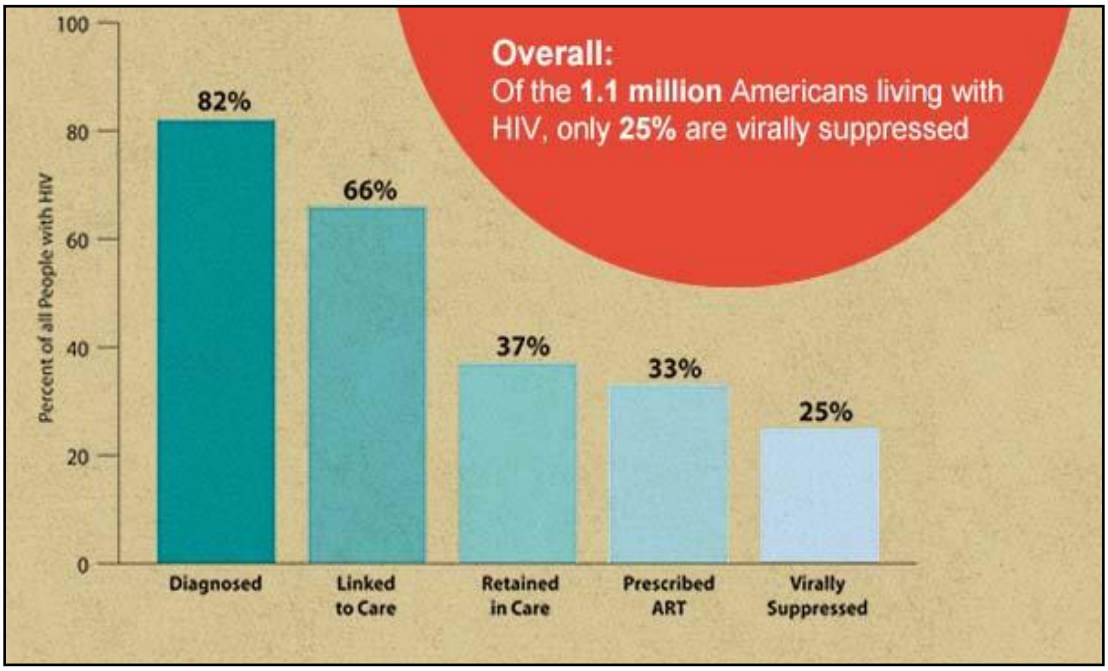


Figure C: HIV Continuum of Care, Chicago, 2010 (CDPH 2013)

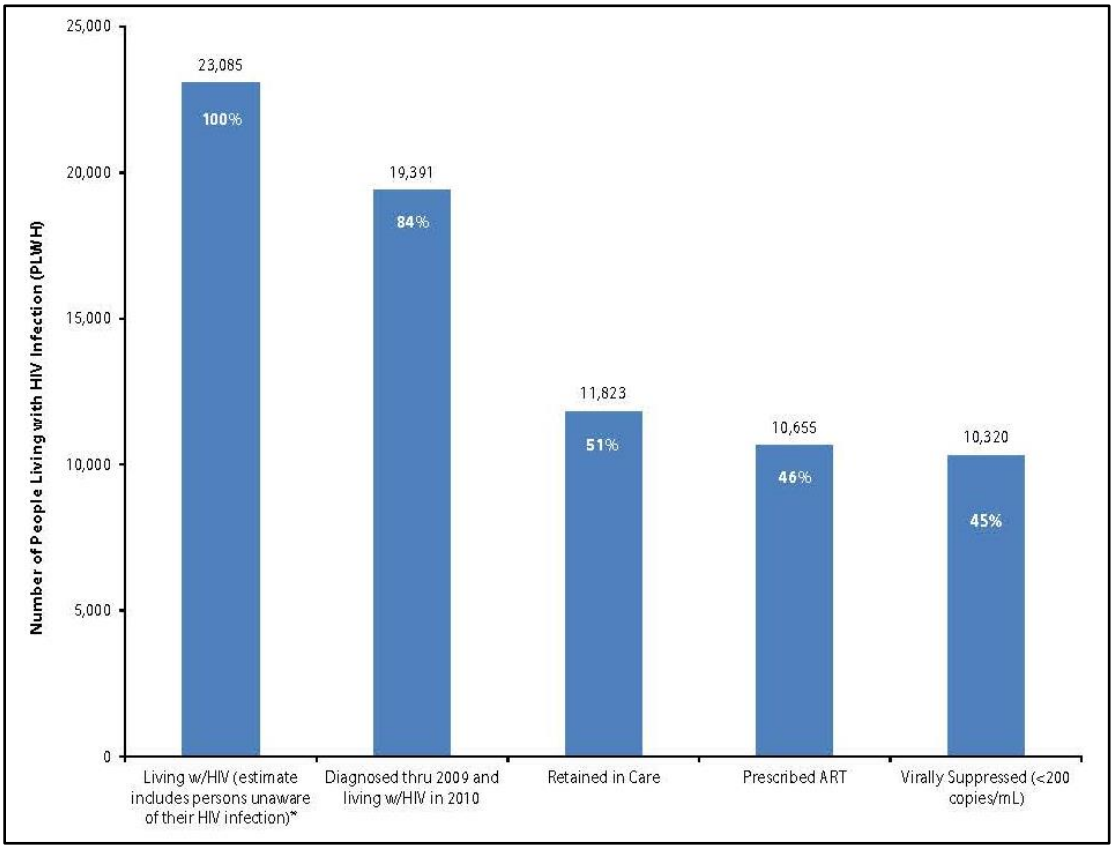
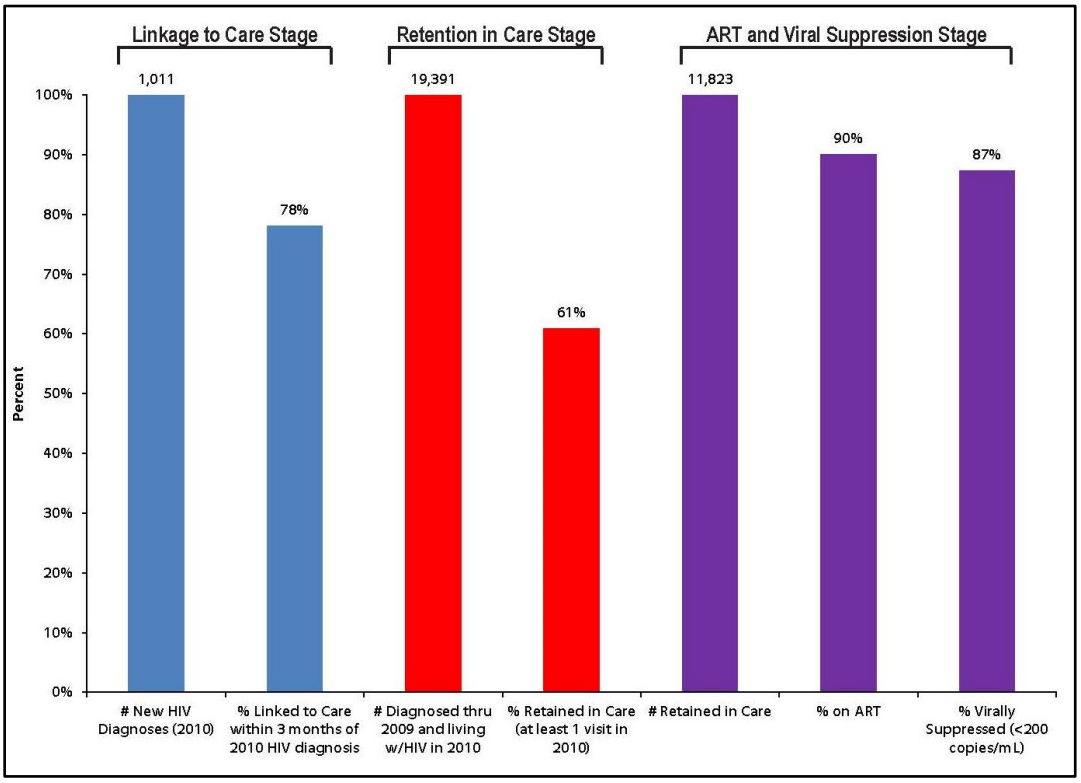


Figure D: Alternate view of HIV Continuum, Chicago, 2010 (CDPH 2013)



c. Leadership Implications

The final post-NHAS challenge is the increased jurisdictional oversight by state and local HDs. NHAS has been a national catalyst for change in local governmental policy, infrastructure and service delivery change. Changes include, but are not limited to, streamlining indicators in use to denote the purpose of appropriate, newly required documentation and intervention activities, improving mechanisms of active monitoring and achievement of progress toward NHAS goals by LHDs, and taking deliberate steps of broadening the role of clinical care providers, as opposed to CBOs, in HIV testing efforts. Successful NHAS translation is also dependent on the leadership of "…States, tribal and local governments, communities and other partners to work together to better coordinate…." state-wide and community responses to HIV/AIDS (NHAS: Federal Implementation Plan, July, 2010).

NHAS policy translation is a core leadership and guidance component on a local level. LHDs play a primary role in addressing HIV. LHD leadership requires active guidance, monitoring, and evaluation to ensure that the necessary structural changes are occurring in alignment of NHAS. However, LHD effectiveness in the delivery of HIV prevention is dependent on capacity. Capacity building through the delivery of technical assistance services

such as training, workshops, and skills building courses are essential in ensuring that funded public health partners, as part of the overall public health workforce, are aligned with NHAS goals. While CDC notes that capacity building is a core function of HIV prevention, it is a field that is often noted as a worthy but not well understood. Capacity building research demonstrates that there are varying definitions, no clear model on how to deliver the services, and is extremely challenging to measure. However, it is critical for LHDs to understand how capacity building can help to improve HIV prevention service delivery in order to achieve NHAS goals locally. In a time of a declining economy, NHAS policy translation is about the strategic application of existing resources (CDC, 2011) which affects the landscape of HIV prevention service delivery.

B. Problem Statement and Study Questions

The LHD needs to provide active guidance, monitoring and evaluation to HIV prevention providers to ensure that the necessary structural changes required for local alignment with NHAS are occurring. Therefore, in order to achieve NHAS goals and overall public health mission, a knowledgeable, competent and prepared workforce is essential (Thacker, 2009). A capable public health workforce is central to the delivery of high-quality care (McAlearney et al., 2011), and the application of the core public health functions: assessment, policy development and assurance. Capacity building, through the provision of individual training and professional development by the LHD, is an essential mechanism to ensure a competent public health workforce, and primarily how LHDs provide active guidance to HIV prevention partners.

While much of the research on the public health workforce focuses on government employees (PHAB 2011), HIV prevention providers are part of the public health workforce. However, a critical barrier exists in defining the impact of the delivery of local capacity building services on HIV prevention program implementation, complicated by the post-NHAS paradigm shift and expanded role of HIV prevention providers. How capacity building improves HIV prevention program implementation is not well understood. Capacity building uptake is generally measured in public health practice by assessment of overall program implementation versus the traditional view of measuring individual and organizational uptake. This study will look at funded delegate agencies as public health partners in the effort to prevent HIV at the local level by describing the utilization of varying capacity building services provided by the LHD over time and implementation of HIV prevention programs.

CDC allocates resources for the delivery of capacity building assistance (CBA) available free of charge to HIV prevention providers requesting technical assistance since the inception of the program. The Chicago jurisdiction, in addition to the CDC CBA, has allocated an estimated $500,000 (10%) of its own resources annually to the capacity building activities locally since the year 2000**.** This translates to approximately $6 million dollars that have been earmarked for HIV prevention program capacity building

to date. The significance and rationale for this study is that critical investments have been and continue to be made to public health partners as part of the reach and leverage necessary in achieving HIV prevention goals. The same investments continue with no clear transition post-NHAS. Chicago's technical assistance (TA) model affords an opportunity to study the impact of capacity building services on program implementation, thereby answering the following questions: (1) How were the TA services implemented and utilized by delegate HIV prevention providers? (2) Does the utilization of local CBA by delegate agencies lead to improved implementation of HIV prevention programs?

To meet NHAS goals, "…capacity building has moved to the forefront as a set of activities necessary to enable HIV prevention organizations to plan, implement, monitor, and evaluate prevention programs and services" (Nu'man et al., 2007). As national and local prevention resources continue to impart capacity building services, it is imperative for HDs to understand capacity building utilization patterns pre- and post-NHAS, and how utilization may lead to improvements in program implementation, and ultimately progress in achieving the NHAS goals. The results of this study will provide necessary practice based-evidence to inform public health practitioners on local capacity building efforts pre- and post-NHAS and those factors to consider when developing TA models to address workforce development of public health partners in HIV prevention.

II. CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

A. Capacity Building

1. Introduction to Capacity Building

Building the capacity of public health partners is a necessary strategy to overcome structural inadequacies, particularly in the context of health disparities and HIV prevention (Kelly and Johnson 2010). Given NHAS's ambitious targets, LHD leadership and guidance is pivotal to meet them. Brown et al. (2001) described capacity building as critical to achieving and sustaining health outcomes. The field of capacity building has many varying definitions. For the purposes of this study, CDC's capacity building definition is most relevant. CDC (March, 2013) defines capacity building as:

> "**'Capacity Building'** generally refers to a process to increase the skills, infrastructure, and resources of individuals, organizations and communities. Capacity building is a key strategy for the promotion, delivery and sustainability of HIV prevention programs. As a result of capacity building on HIV prevention programs, the programs will (1) operate optimally and (2) increase their capacity to effectively deliver evidence-based interventions and core public health strategies for HIV prevention."

HRSA estimated in 2000 that approximately 450,000 individuals worked in salaried public health positions (HRSA 2000). In 2009, approximately 500,000 public health workers were estimated in the US based on assessments from Popovic (2009). However, many non-governmental organizations from a wide variety of disciplines contribute to the public health mission (Thacker 2009, HRSA 2000). Despite this, much of the public health workforce literature has focused on governmental public health only because "… governmental public health agencies are viewed as the primary force in organizing and mobilizing public health practice in most communities" (Moore, 2009; American Public Health Association, 2000). Public health workforce research lacks definition and measurement, and is complicated by the diverse pull from a wide array of professions and lack of formal public health training from persons working in the field (Tilson and Gebbie 2004, Moore 2009). There have been concerns raised about the adequacy of the public health system and its public health professionals, including skills and competencies (Gebbie, et al., 2004). Local contextual barriers identified in implementing Chicago's HIV continuum of care and NHAS goals will be further compounded by some of these noted challenges in the public health workforce.

Historically, governments, donors and non-governmental organizations have made financial contributions to capacity building. CDC has provided substantial financial support for CBA since 1985 (CDC 1992, Valdiserri 1997; Davis et al. 2000). (Davis et al. 2000). However, key issues in the literature highlight that the term, capacity building, is often vaguely defined and operationalized, and its impact is difficult to measure (USAID, 2011). Capacity building has historically been a nebulous

term with varying definitions. Referred to often as the "black box," relatively little is known about how technical assistance services structured to build capacity in public health partners may lead to better outcomes (Hunter, 2009).

The concept of capacity building emerged within the context of international development beginning in the early 1970s as 'institutional building,' and more specifically, where one country would help another country to improve their ability to carry out certain functions (Millery and Messeri, 2008; Maconick and Morgan, 1999). However, it was not until the late 1980s that the United Nations approach to 'institutional building' shifted to a capacity building model focused on planning, policy formulation and performance monitoring through local training and aligning uptake in the same direction as support structures, incentives, and organizational context (Millery and Messeri 2008, Maconick and Morgan 1999). Thus, the idea of directing capacity building resources moved to a more localized level. Today, CDC maintains that capacity building is fundamental in aiding the promotion, implementation and sustainability of HIV prevention interventions and strategies, and also considers it as "… a core public health function which contributes to an increase in the quality, quantity, cost effectiveness, and sustainability of HIV prevention services and supporting infrastructural systems" (CDC, 2013; Taveras et al., 2007).

Brown et al. (2001) define capacity building as a process that improves the ability to meet objectives or perform better whether it's the ability of a person, group, organization, or system as structural levels. It is believed that capacity develops in stages and is considered multidimensional because of its different structural levels. Improvements can be made at each level and contribute to sustainability (Fort, 1999). Thus, capacity building is described as both a process and an outcome (Brown et al. 2001). Capacity building is a continual improvement process that can be enhanced or accelerated by interventions, and occurs through a wide variety of planned or unplanned activities and experiences. Targeted capacity is discrete and planned interventions focus on achieving specific improvements in a particular context and time period (Brown et al. 2001, Taschereau 1998; Lusthaus et al., 1995). While many variations of the definition of capacity building exist, the common elements include: (1) enhancement of competencies; (2) participation of local community; (3) sustainability or survivability of organizations; (4) quality improvement; (5) anticipate and influence change; (6) making informed intelligent decisions about policy; (7) building and attracting resources; and (8) developing programs to implement policy and evaluate activities (Honadle, 1981; Hawkins, 1980).

Though limited, there is some literature available on capacity building delivery systems, results of capacity building interventions and measuring capacity to capture the complexity and dynamic changes (Brown et al., 2001). Jolly et al. conducted a qualitative study (2003) to gather information on evaluation capacity, identify TA needed by HIV prevention CBOs, and preferences regarding its provision. Relevant findings indicate that an ideal TA program or system included adequate funding

and program-specific TA. Even though the study aims were specific to the evaluation capacity needs of HIV prevention organizations, the study yielded recommendations that have general implications: (1) tailoring the TA to the CBO's capacity; (2) balancing support and capacity building; (3) providing appropriate TA to funding agencies/contract monitors; and (4) maximizing the usefulness of group TA (Jolly et al., 2003). Similarly on building evaluation capacity, Gilliam et al. (2003) reported on a focus group conducted by CDC with selected representatives of grantee organizations using 'chat room' technology over the Internet. he focus group recommendations for technology transfer included email, websites/Internet, workshop training events, newsletters, and conferences. The capacity building mechanisms recommended by group members were considered inexpensive and perceived to increase communication. Gilliam et al. (2003) concluded that additional research was needed in validating this type of qualitative data.

Richter et al. (2000) conducted a cross-sectional analysis of 316 tax-exempt nonprofit organizations to assess training needs, barriers to training, and factors associated with perceived need for training with the purpose of developing a training model geared at public health funded organizations in HIV/AIDS prevention. Sixty-seven percent of the CBOs were minority-based and 84% were serving high-prevalence HIV/AIDS areas. Survey findings suggest that trainings help CBOs improve capacity to deliver effective HIV/AIDS prevention programs. Surprisingly enough, it also found that there was a lack of preference for distance-based learning including satellite approaches (Richter et al 2000). Coleman et al. (2011) investigated the extent to which completion of the Institute for HIV Prevention Leadership training program increased capacity of HIV prevention program managers working in CBOs and serving predominantly African American communities. Capacity was measured at three time points: pre-training as baseline, post-training as an immediate post-test, and six months post-training as a longitudinal post-test. Findings from this study suggest that there was a positive and highly significant impact on training participants in conducting HIV prevention activities and processes that support HIV prevention practice (Coleman, 2011).

Ramos and Ferreira-Pinto (2002) published an article describing the successful implementation of a capacity-building model among CBOs based on the formation of self-sustaining collaborative training networks. The capacity building model itself is based on a cooperative training approach with the aim of utilizing community-based experts in organizational capacity building. The model had a peer component in which these experts were also the impetus in the formation of the self-sustaining network of trainers initiated by a cooperative agreement between the CDC and US-Mexico Border Health Association. With the goal of creating an environment of self-reliance and empowerment, a Training of Trainers (T-o-T) participatory model was utilized in three phases: focused training, experiential learning, and reinforcement by transforming trainees to trainers. Evaluation was outcomes-centered looking at the program's impact on the agency's capacity and

changes in the level of services provided over the course of five years: at baseline, after the first three years of program initiation, and during the fifth year of the program. Ramos and Ferreira-Pinto concluded that multi-organizational training workshops are a mechanism to increase and sustain cooperation among CBOs as well as increasing infrastructure capacity and program development of HIV/AIDS organizations.

Ka'opua et al. (2011) focused on recommendations for improving coordination and integration of funding, program reporting/data collection and analysis, and technical assistance as core areas of health services programming for US Affiliated Pacific Islands stakeholders. Key recommendations included: dedicated funding and human resources for the delivery TA services, provision of opportunities for capacity-building across programs and jurisdictions and more direct linkage between program reporting and TA. In addition, the authors discussed the reasons why capacity building services are still needed: deficits in health resources, shortage of adequately trained health personnel and limited access to training in HIV specialties (Ka'opua et al., 2011).

Although not directly related to HIV/AIDS, Handler et al. (2002) cross-walked three distinct yet closely related tools for performance and capacity assessment available for Maternal and Child Health Programs. Their goal was to understand the similarities, differences and the relationships between the tools and then compare to a published conceptual model of the public health system. The study concluded with the importance of effective and productive use of the capacity assessment tools and performance measurement if the defining characteristics and how the tools relate to one another are understood. Thus when implementing of any type of capacity building services, performance assessments are needed to measure uptake or technology transfer (Handler et al. 2002). However, Brown et al. (2001) point out challenges when linking capacity and performance: (1) a lack of common understanding of the nature of relationship between capacity and performance, such as the elements or combinations of elements of capacity critical to performance; (2) variation in what constitutes adequate performance; and 3) the dynamic and multi-dimensional nature of capacity building that can be directly and indirectly influenced by elements in the external environment.

2. Measuring Capacity Building

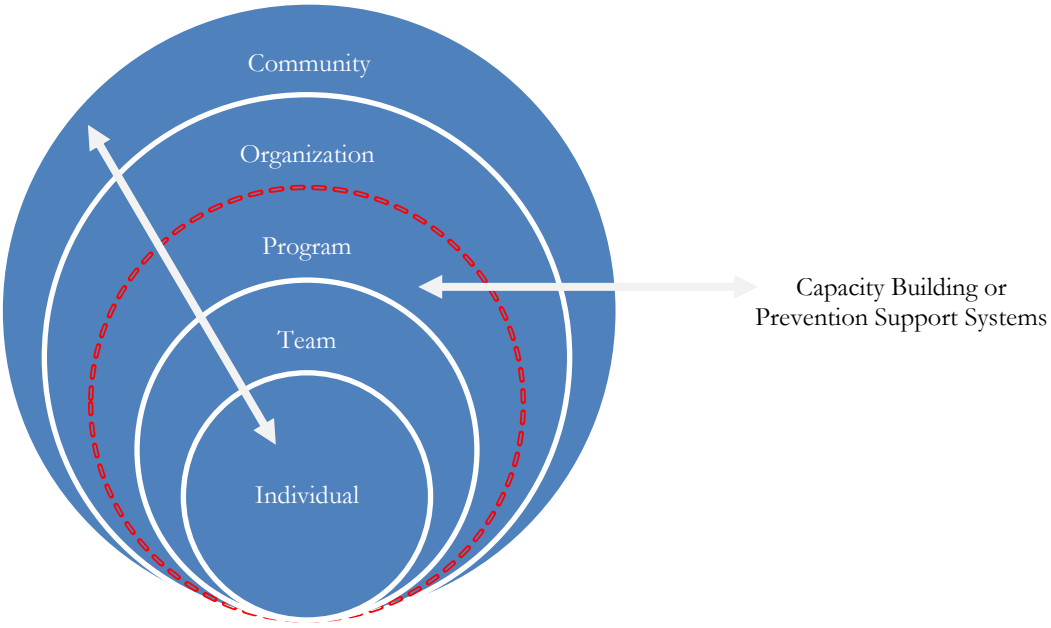
Existing indicators to measure the effects of capacity building vary enormously. In fact, most indicators developed focus on organizational and individual uptake as most capacity building interventions focus on these two levels (Brown et al., 2001). Most of the relevant studies utilized a qualitative method to assess or measure capacity building uptake. Currently available capacity assessment tools are designed to assess organizational capacity (Brown et al., 2001) but which only measures self-perceptions of capacity and may be unreliable if used over time. TA assessments

should be conducted before delivery of any capacity building services to ensure that the services provided are indeed needed and to establish a baseline for improvement.

More importantly, a strong relationship between capacity building assessments and evaluation must be established in advance to maximize and fully understand the effect. Without fully understanding the effects, it is impossible to what and how to fund TA models. Methods for monitoring and evaluating capacity building interventions are in the developmental stage (Brown et al., 2001). Moreover, capacity building is not limited to the organizational structural level, but also includes community, program and individual levels (Chaskin, 2001). There is also the implication that capacity building can occur at the team structural level of programs (Cooke, 2005). Kotellos et al. (1998) indicated that capacity building strategies must aim at the institutional, organizational, and individual levels to increase and sustain capacity impacts of HIV prevention. Yet, as the capacity building strategies become increasingly complex, the challenge in measuring effective capacity building efforts intensifies (Golembiewski et al., 1982).

While the structural levels of capacity building are interrelated (See Figure E), the aim of the delivered capacity building service will define the effect at a certain structural level more than others. Measuring performance across all structural levels and isolating the delivery of TA services at only one structural level is difficult. The process of building capacity is slow and so the pathway to community impact can be lengthy and is considered most difficult to measure (Holtgrave, 2007). However, Wholey et al. (2010) indicates that building the literature and informing public health practice is critical, and an imperfect evaluation is better than none at all.

Figure E: Interrelationship among structural levels in the uptake of capacity building services



Capacity building or TA has an intuitive appeal even though the research examining its impact tends to be theoretically or methodologically inadequate (Chinman et al., 2005). Hunter et al. (2009) notably established that little is known about how TA should be structured to benefit CBOs and its HIV prevention programs and lead to better outcomes. While research on TA models is lacking, Kelly et al. (2000) indicated that ongoing consultation led to significant improvements in evidence-based program implementation compared to TA models using manuals only and/or one-day workshops. Still, TA models using consultation have not been adequately described, and thus, consultation is in need of a more systematic study (Hunter, 2009).

3. Theories and Perspectives in Capacity Building

It is important to clarify the difference between inside-out and outside-in perspectives in capacity building. The inside-out perspective suggests that capacity building uptake is measured by the organization's ability to define and achieve its own goals and objectives. The outside-in perspective suggests that the capacity building is measured by the organization's ability to satisfy its key stakeholders (Simister and Smith, 2010). The practice of outside-in assessments is not unusual for grantors when assessing public health programs. Thus, the judgment of any uptake comes from outside the organization. Regardless of whether or not capacity building services are provided to a public health program, an assessment of program implementation is conducted in comparison to an agency's proposed scopes of services.

Another viewpoint in capacity building is the concept of supply or demand in the delivery of technical assistance services. Demand driven describes the organization's ability to develop its own capacity building program to address its own needs. Supply driven is described as outside-in as drivers for change, usually grantors and capacity building providers (Simister and Smith, 2010). Most organizations understand that by accepting funding they agree to some level of capacity building support.

Often times, capacity building is carried out with two different end points: technical capacity building and generalized capacity building. Technical capacity building is aimed at addressing specific issues concerning an organization and individual activities, and is often carried out in the context of a specific project or program. Generalized capacity building describes TA efforts to help CBOs develop their own capacity to better fulfill their core functions and mission, with an overall goal of improving performance and adaptability (Stevens, undated). Technical and generalized capacity building are often viewed as a means to an end and end in itself, respectively (Eade, 1997).

Measuring capacity building should involve appropriate monitoring and evaluation approaches based on how the change occurs and what the results of those changes are. Reeler (2007) describes three different kinds of change, emergent, transformative and projectable, and contends that the type

of change utilized has implications on monitoring and evaluation in capacity building. Emergent change describes the day-to-day changes brought about by individuals and organizations adjusting to changing circumstances. They are trying to improve on what they know and do, enhancing what is already present, and consistently learning and adapting. Transformative change describes when individuals or organizations become either stuck or go through a crisis. The crisis can be a result of natural processes or external shocks. In either case, the change process involves unlearning ideas and values, and adopting new ones. Lastly, projectable changes are planned in advanced and related to a specific project. The change process is focused on working toward a plan to build on but negates visible challenges or needs. The theory of change appears to describe the three key challenges in HIV prevention related to NHAS policy translation. NHAS may be viewed as a projectable change plan at a national level, but with transformative change implications at the local level.

4. Capacity Building Frameworks

Capacity building frameworks have evolved over time, yet similarities exist. Honandle (1981) offered a capacity building framework with definitional characteristics, administrative practices, institutions, and organizational requirements. The framework operates as a system where capacity is defined as the ability to anticipate and influence change, make informed decisions about policy, develop programs to implement policy, attract, absorb and manage resources, evaluate activities, and apply lessons learned to future activities. Kotellos et al. (1998) presented a framework through examination of how capacities are strengthened at each structural level as well as the "synergistic relationship" among all levels. Based on theories of organizational development, institutional development and organizational transformation from the 1980s, their proposed framework is based on seven capacity building strategies: technical and management skill building, management, systems development, resource diversification, network building, organization cross-fertilization and multi-sectorial collaboration (Kotellos et al., 1998).

In 2001, Brown et al. offered an overview of their conceptual framework between capacity levels, performance and sustainability, including nested capacity frameworks within the health system, organizations, and individual/community development. Each nested framework detailed a breakdown of resources and functions required to produce capacity-related outputs and outcomes at each structural level. The goal was to map capacity among the structural levels due to the limited amount of empirical evidence between the link in capacity and performance, serving as a first step in developing a greater understanding of measurement, tools and linkages (Brown et al., 2001).

CDC's own CBA Program is focused on the HIV prevention workforce, and aims to improve the capacity of: (1) CBOs to develop and sustain organizational infrastructures that support the delivery of effective prevention services and interventions; (2) CBOs and HDs to adapt, implement

and evaluate effective HIV prevention interventions; (3) racial and ethnic minority CBOs and communities of color to implement models that will increase access and utilization of HIV risk-reduction services; and (4) Community Planning Groups (CPGs) and HDs to include planning members representative of HIV-infected and HIV-affected populations (Taveras et al., 2007).

The Civil Society Human and Institutional Development Programme (CHIP) prepared a capacity building framework for Indus for All Programme in Pakistan (March, 2007). CHIP used the World Customs Organization definition of capacity building: "…activities which strengthen the knowledge, abilities, skills, and behavior of individuals and improve institution structures and processes such that the organization can efficiently meet its mission and goals in sustainable way." The capacity building process inputs have a bi-directional approach that leads to outputs, outcomes and impact in one direction; and in another direction, capacity building leads to internal change of organizations and external changes in programs. The framework also assumes bi-directional relationships among macro-, meso-, and micro-levels (CHIP, 3/2007). Nu'Man et al. (2007) offers a capacity building framework that looks at organizational culture and informal systems through seven steps: (1) identify and prioritize needs of organization; (2) analyze and categorize needs; (3) develop and implement strategies; (4) organizational application of skills and knowledge; (5) reassignment and reassessment of need; (6) develop strategies to respond to additional needs; and (7) implementation of additional strategies.

In their study aimed at building capacity for substance abuse prevention providers, Hunter et al. (2009) provided a detailed analysis of the TA delivered. Considered a first of its kind, Hunter et al. used the Getting to Outcomes® (GTO) framework consisting of an annual training and delivery of a GTO manual along with ongoing TA. The GTO framework has a 10-step process geared to increase capacity and utilizing empowerment evaluation where practitioners lead the work with an outside consultant serving as a facilitator. The framework involves identifying needs, goals, best practices, fit, capacities, plan, process and outcome evaluation, improve, and sustain. Although the long-term impact of the TA provided is unknown, short-term benefits are maximized with frequent and structured interactions. Findings demonstrated that although TA costs were high, a strong correlation was detected between the amount of TA received and the amount of improvement in prevention performance (Hunter et al., 2009; Chinman et al., 2008).

Finally, the President's Emergency Plan for AIDS Relief (2012) offers a comprehensive capacity building framework that addresses the individual/workforce, organizational and systems levels of capacity to further the US's leadership in addressing HIV/AIDS. The framework has five integrated and multi-level strategies for capacity building: (1) defining capacity building and partnerships; 2) defining capacity units by activities; 3) capacity outputs that reflect competencies and efficiencies in the system, policies, organization, and individual/workforce; 4) capacity outcomes reflecting

performance and effectiveness of outputs; 5) HIV/AIDS impact as result of sustained performance over time.

5. Economics of Capacity Building

Capacity building takes time and significant resources. Nu'Man et al. (2007) describes cost-effective approaches to the provision of CBA that compromised the effectiveness of the capacity building, and how customized approaches can be cost prohibitive. According to Holtgrave (2007), the national prevention investment has flattened and for long-term sustainability, economic evaluations of capacity building efforts are necessary. Today, most states are experiencing additional cuts to their HIV prevention funding, which has become increasingly competitive (Nichols Dauner, et al., 2008). The challenge in measuring how capacity building services may avert HIV infections is not only difficult due to the long causal chain between funding and changes in HIV incidence, but also expensive, complex and perhaps logistically impossible (Holtgrave, 2007). Thus, Holtgrave (2007) recommends the use of economic evaluation threshold analysis. This type of economic evaluation sets capacity building performance standards and then determines effectiveness by assessing if the performance standard is above or below relative to the threshold (Holtgrave, 2007; Holtgrave, 1998; Holtgrave, 2003).

HIV prevention programs need to justify program costs through economic evaluation, whether threshold analysis, cost savings, cost-benefits, cost-effectiveness, intervention costs, participants' time investment, or unit cost per hour of time techniques are used (Nichols Dauner et al., 2008). As illustrated in a 2000 report by the Institute of Medicine (IOM), policy makers also have a need for this type of information when allocating resources, particularly when scarce, for HIV prevention. IOM (2000) also recommends that HIV prevention resources be allocated to maximize the number of infection prevented. Understanding current financial investments in capacity building is a critical component in shaping future capacity building programs to achieve NHAS goals.

6. Capacity Building Knowledge Gaps

Despite the more than 40 years of research on capacity building, many gaps remain, which include: (1) establishing the need for TA in evaluation (Jolly et al., 2003); (2) determining the content or form of evaluation of TA most needed by CBOs (Jolly et al., 2003; (3) appropriate systems for TA delivery (Jolly et al., 2003); (4) how evidence from capacity building efforts is applied in everyday practice (Weiss et al., 2012); (5) describing TA models for prevention (Hunter et al., 2009); (6) effective TA approaches (Hunter et al., 2009); (7) long-term impact of TA approaches (Hunter et al., 2009); (8) data-driven approaches to understanding the issues needed for making strategic decisions about capacity building efforts of public health partners (Popovic, 2009); (9) evaluative frameworks

to measure progress and build an understanding of what works (Cooke, 2005); and (10) how to measure the effectiveness of research in capacity building (Cooke, 2005).

7. Community, Organizational and Program Factors in Capacity Building

All structural levels have factors associated with the implementation of public health programs that can aid in measurement. These factors can also be viewed as characteristics, dimensions, constructs or domains related to capacity. The caveat is that each dimension identified within each structural level overlaps with another (Goodman et al., 1998). This overlap leads to the multidimensional and dynamic relationships among capacity building structural levels.

Schell and her colleagues (Schell et al.2013) recently published a new capacity framework for public health program sustainability. According to the authors, "public health programs can only deliver benefits if they are able to sustain activities over time," but they note that the literature is fragmented and lacks consistency on the constructs. In order to present this new framework for program sustainability, the authors proposed a developmental approach using a meta-analysis of 20-years of literature, input from three expert panels from all public health levels (scientists, funders and practitioners), and a concept mapping[5] process (Schell et al.2013).

Eighty-five relevant studies were included by focusing on identifying domains for program sustainability using four characteristics: health topic area, program's level of focus (i.e. community, state, or both), number of sites evaluated, and type of literature (i.e. empirical, conceptual, review, tool development, and funder report). Over 70% of the articles identified focused on prevention programs, and most of the evidence of sustainability was generated by exploratory and descriptive methods. In tandem with the concept mapping exercise, nine domains for program sustainability were identified: political support, funding stability, partnerships, organizational capacity, program evaluation, program adaptation, communications, public health impacts and strategic planning.

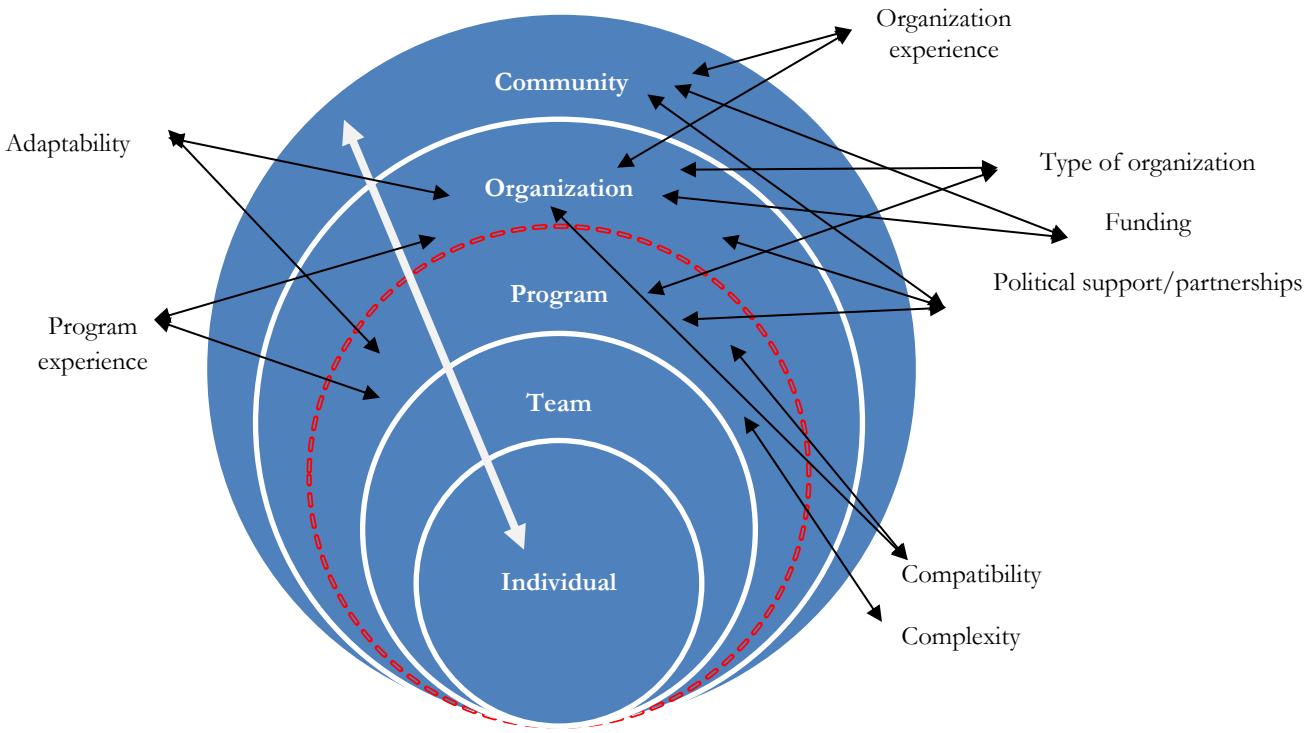
Political support was defined as the internal and external political environment, which influence program funding. Funding stability was defined as making long-term plans based on a stable funding environment. Partnerships were described as the connection between program and the community. Organizational capacity is the resources needed to effectively manage a program and its activities. Program evaluation is considered to be the monitoring and evaluation process, and outcome data associated with program activities. Program adaptation was defined as the ability to adapt and improve in order to ensure effectiveness. Communications was the strategic dissemination of program outcomes and activities with stakeholders, decision-makers, and the public. Public health impacts are the program's effect on the health attitudes, perceptions, and behaviors in the area it

[5] A concept map is a graphical tool for organizing and representing knowledge as well as depicting relationships between the concepts.

serves. Strategic planning is the process that defines program direction, goals, and strategies (Schell et al., 2013).

Figure F graphically depicts the capacity framework for program sustainability by Schell et al. (2013). For evaluative purposes, all of the domains need not to be present for program implementation and sustainability. This finding is integral to the dynamic and multidimensional nature of capacity building; dimensions can be identified and assessed to some extent, individually or in tandem with other sustainability factors.

Figure F: Co-occurring relationships among capacity building structural levels



Durlak and DuPre (2008) conducted a literate review to assess the impact of program implementation on outcomes and factors affecting the implementation process with a primary interest in real world settings by non-researchers. Implementation was defined as what a prevention program consists of when it is delivered in a particular setting. Eight aspects of program implementation were identified, of which the first five are supported by previous research from Dane and Schneider (1998): fidelity, dosage, quality, participant responsiveness, program differentiation, monitoring of control/comparison conditions, reach and (Durlak and DuPre, 2008).

Fidelity is defined as the extent to which the innovation corresponds to the original intended program. In other words, was the program implemented as stated within the scope and/or work

plan? Dosage refers to how much of the original program has been delivered. Quality is defined as to how well different program components were conducted. Participant responsiveness is defined as the degree to which the program stimulates the interest or holds the attention of its intended target population. Program differentiation involves the extent to which a program's theory and practices can be distinguished from other programs. The monitoring of control/comparison conditions which involves describing the nature and the amount of services received by program participants. Reach defined as the rate of involvement and representativeness of the intended target population. Adaptation defined as changes made in the original program during implementation (Durlak and DuPre, 2008).

The meta-analysis findings revealed that programs that actively monitor lead to mean effect sizes three times larger than programs that do not actively monitor implementation (Durlak and DuPre, 2008). Implementation that meets at least 60% of their intended scopes can yield positive outcomes (Wilson et al. 2003). Capacity building labeled as prevention support systems, which take the form of training and TA, is central to effective program implementation. Some type of organizational structure is needed and responsible for guiding program implementation (Durlak and DuPre, 2008).

A multi-level ecological perspective is needed in order to understand successful implementation. The proposed ecological framework is connected to the Interactive Systems Framework (ISF). While organizational capacity is important, organizations need support in conducting new interventions successfully. This support primarily comes from prevention support systems within the ISF via training and TA. Durlak and DuPre's (2008) ecological framework in Figure G supports the value and necessity of capacity building in the efforts of program implementation and sustainability. Furthermore, prevention support systems not only serve organizations, program and the community at large, but also serve as a form of workforce development for public health partners.

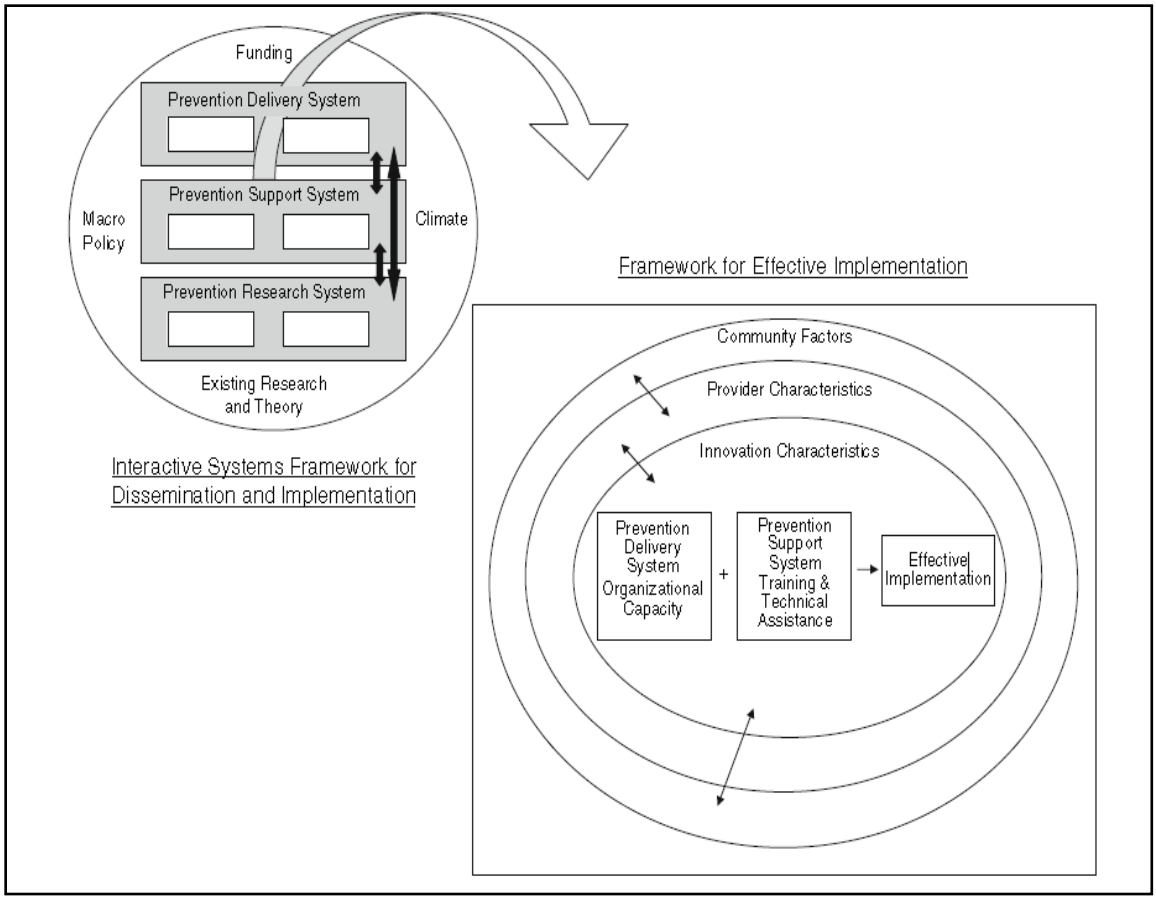
Durlak and DuPre's framework (2008) uses bidirectional arrows to indicate how variables interact with each other, further support for research recognizing capacity building as multidimensional and co-occurring among structural levels. Additionally, the bidirectional arrows also interact with the prevention support systems to affect implementation. While structural levels do interact, effective program implementation is also dependent on the "…constellation of factors because local context differ" (Durlak and DuPre, 2008).

Durlak and DuPre (2008) also identified dimensions that interact with one another that may be able to be measured as in Schell et al.'s (2013). Community factors include the prevention research system which provides the basis for dissemination information, politics associated with governance, conflict, and/or debate at any of the structural level, funding necessary for program implementation, and policy to support administrative and financial infrastructure and institutionalizing new procedures. Provider characteristics related to program implementation are the perceived need for

innovation described as the belief that innovation will produce the desired benefits, self-efficacy is the result of increased confidence in the ability to do what is expected based on the perceived need for innovation, and skill proficiency because self-efficacy increases dosage and fidelity in program implementation (Durlak and DuPre, 2008; Barr et al., 2002; Cooke, 2000; Kallestad and Olweus, 2003; Ringwalt et al, 2003).

Lastly, the innovation characteristics frequently related to program implementation are adaptability also known as flexibility of programs to address the needs of providers, organizations and communities known to increase program implementation compared to programs that are inflexible; and compatibility defined as contextual appropriateness, fit, match, or congruence with the organization's current mission, priority and existing practices.

Figure G: Ecological framework for understanding effective implementation (Durlak and DuPre 2008)



Another example of capacity building at the program structural level is a study aimed at developing a theoretical framework to establish the linkages between hospital organizational attributes and patient outcomes using secondary data sources by Aiken, et al (1996). More specifically, the authors found that units (i.e., floors) as part of the hospital, akin to programs as part

of an organization, results in increased professional autonomy, control for nurses, and better relations with physicians even in hospital settings that are conventionally organized.

In another study aimed at identifying how program characteristics and organizational factors influence program implementation and adoption, the results described the characteristics and/or dimensions that influenced implementation for a targeted program (i.e., efforts were directed at an identified sub-group and/or population) in a school setting. At the program structural level, characteristics that influenced implementation included the relative advantage defined as the extent to which an innovation is perceived by adopters; complexity referred to as the perceived ease or difficulty of implementing a program in an organization; and compatibility defined as the extent an innovation is perceived by adopters as being consistent with needs, experience, and values (Thaker, et al., 2008). While the organizational factors that affect implementation were defined in a school setting, it is important to note the applicability of these factors in prevention programs. School capacity referred to the skills of staff and other resources available for program implementation. School turbulence referred to the planned and unplanned changes that occurred both internally and externally. Leadership and administrative support was defined as the actions and roles of key personnel that promote adoption, program implementation and sustainability (Thaker, 2008; Miles and Huberman, 1984). .

In summary, the literature has demonstrated the dynamic and multi-dimensional processes and outcomes of capacity building efforts, also known as prevention support systems. Because of the interplay among structural levels within capacity building efforts, structural levels can be studied but not necessarily in complete isolation. It is assumed that when assessing any of the structural levels, there is an exchange in the capacity building process among the individual, organization and community structural levels. Additionally, research supports program capacity as its own structural level. Each level has dimensions that can be used as a basis of measurement. While there are some varying domains among all structural levels, they are also many that may overlap.

B. City of Chicago

1. Demographics

Chicago is the third largest city in the nation with approximately 2,695,598 residents (US Census 2014). The sex and age distribution of the population is depicted in Figure H. The race-ethnicity breakdown is shown in Figure I. According to 5-year estimates from the American Community Survey (ACS) 2008-2012 (US Census 2014), 22% of the Chicago population lives below the poverty level, 80% of Chicagoans 25 years and older have at least a high school degree, and the median income is $47,408 (US Census 2014). Chicago is divided into 77 community areas established by the University of Chicago's Social Science Research Committee in the 1920's, and have remained

relatively unchanged since then with the exception of addition of O'Hare and the splitting of Edgewater community from the Uptown community (The University of Chicago Library).

Figure H. Population by sex and age, Chicago, 2010 (US Census 2010)

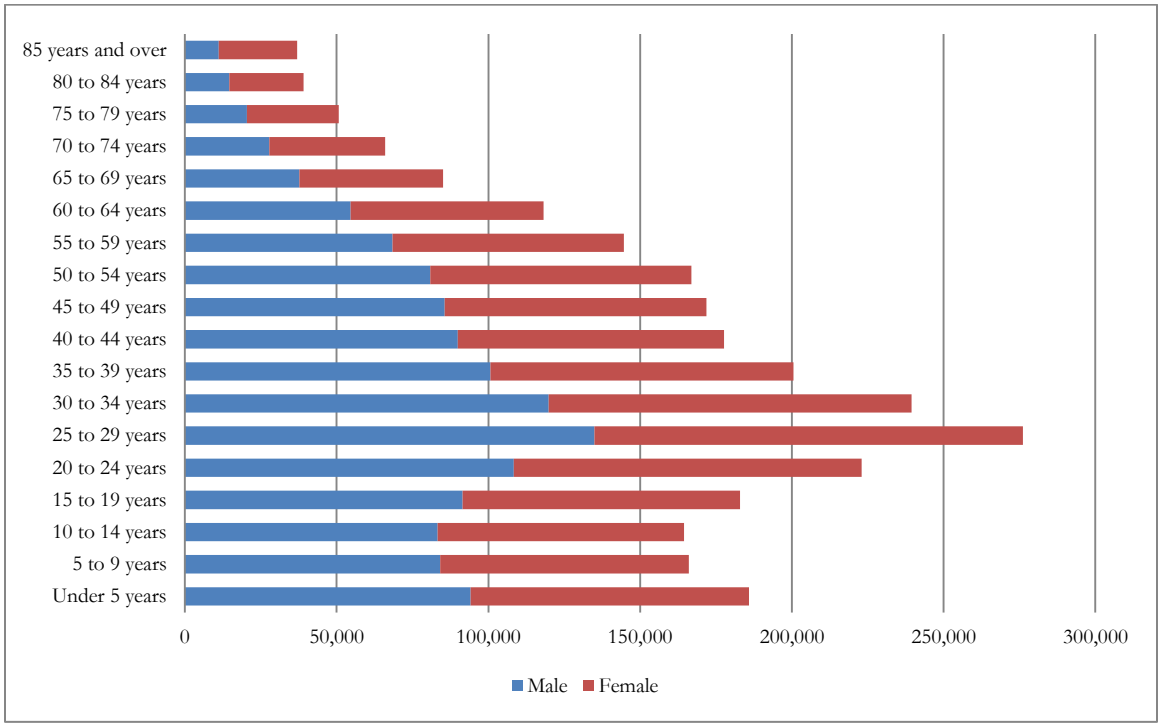
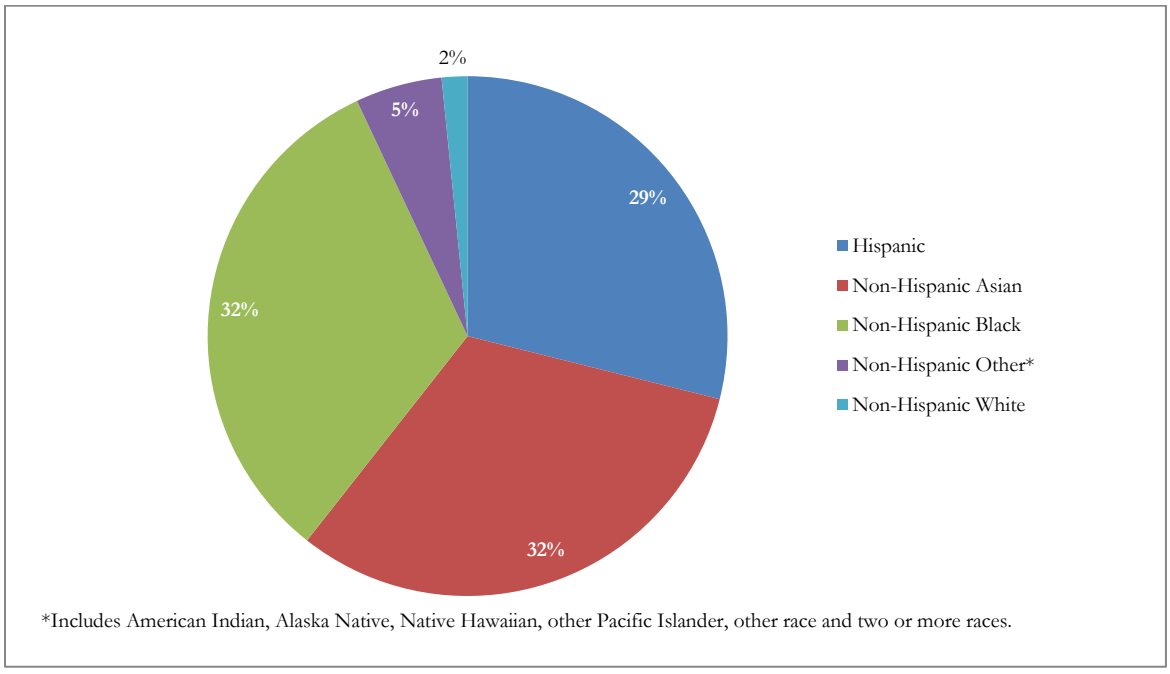


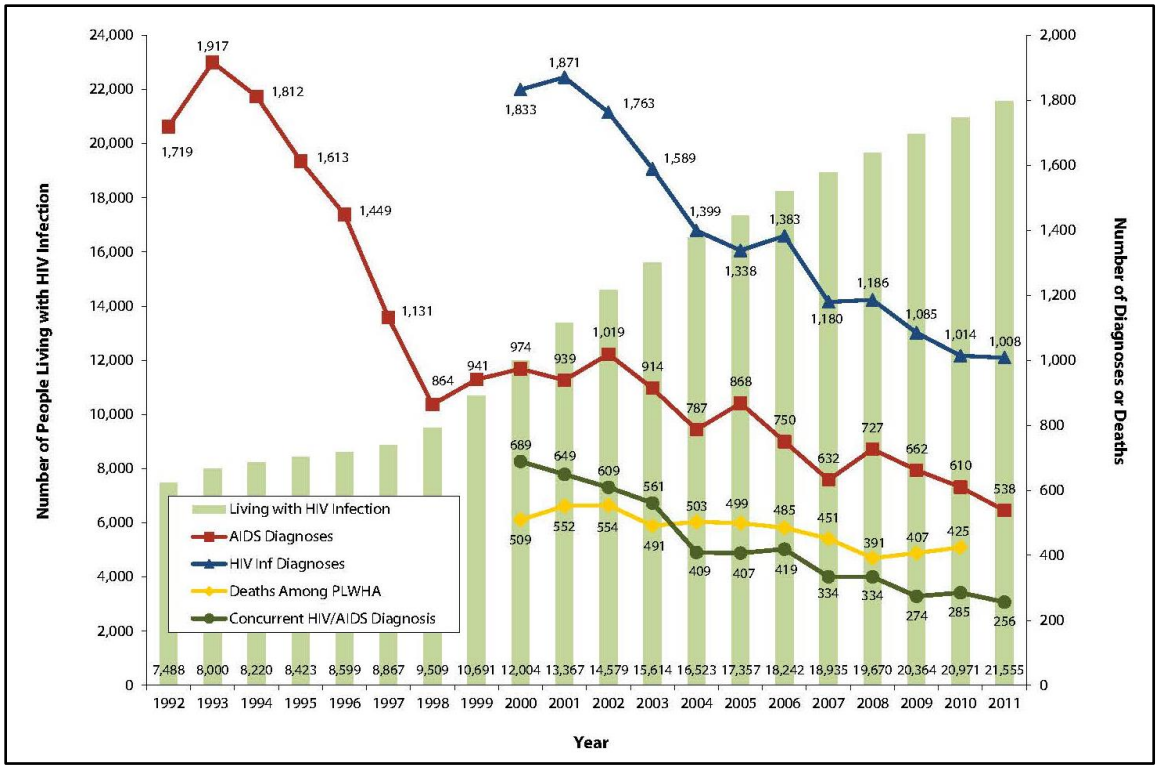
Figure I. Population by race-ethnicity, Chicago, 2010 (US Census 2010)



2. HIV/AIDS

Chicago, similar to other urban settings in the US, has significantly higher rates of HIV than the nation overall. In 2011, Chicago's HIV prevalence rate was three times higher than the US, and new HIV infection and AIDS diagnosis rates were at least double. Figure J depicts the HIV/AIDS epidemic in Chicago since 1992. Men who have sex with men (MSM), non-Hispanic (NH) blacks, and persons over the age of 30 years account for the majority of both prevalent HIV cases and new annual AIDS diagnoses. Recently, new HIV diagnoses have, however, been seen most frequently in NH black MSM under the age of 30. New HIV infections decreased between 2007 and 2011, with significant decreases in all age and risk groups, except for young MSM who have experienced an average 5% annual increase in HIV infections since 2007. HIV prevalence and new HIV infection rates (Figure K) also vary by community area (CDPH 2013).

Figure J. Number of Chicagoans living with HIV infection, AIDS diagnoses, HIV infection diagnoses, deaths among PLWHA and concurrent HIV/AIDS diagnoses, Chicago, 1992-2011 (CDPH 2013)

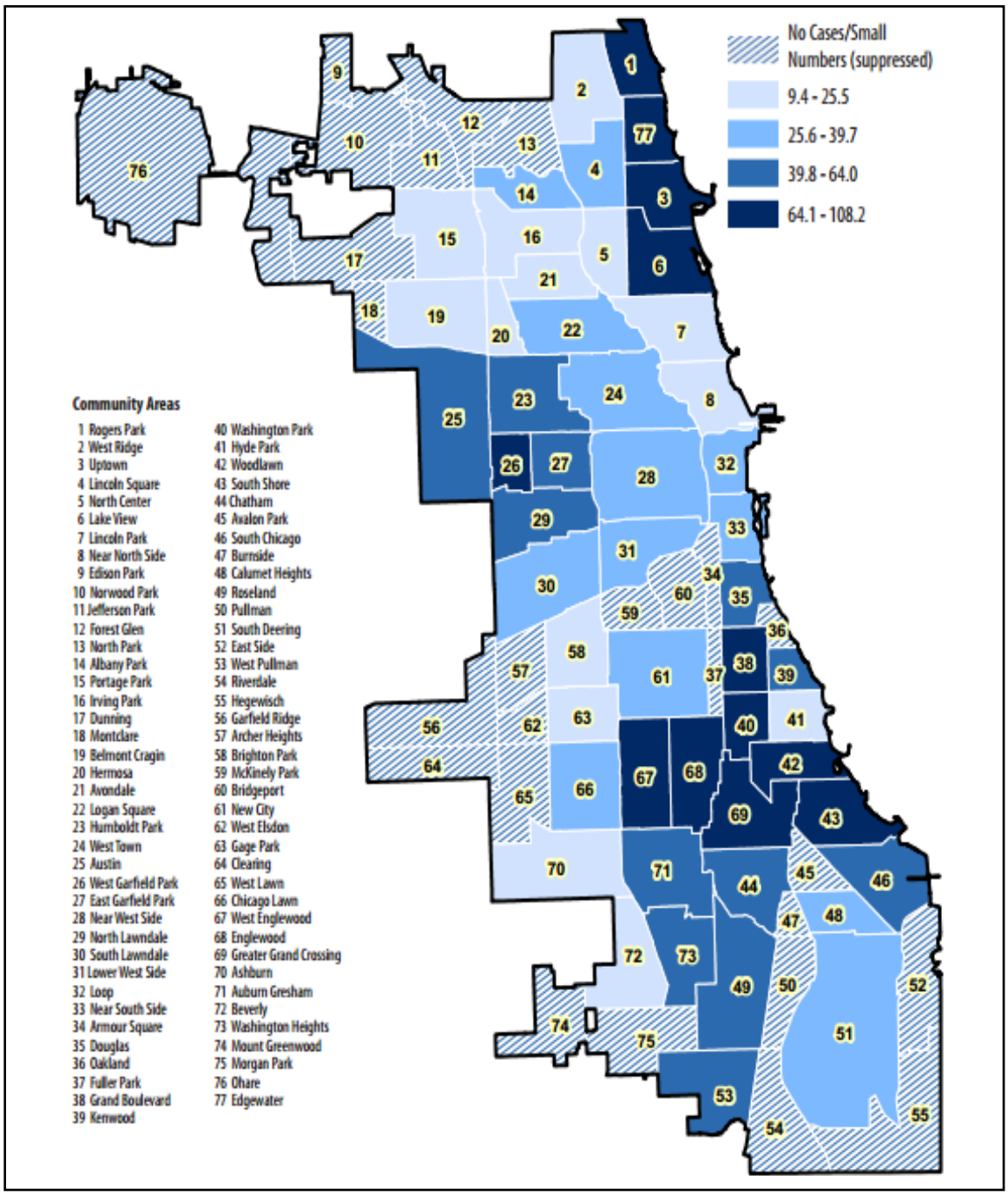


3. Chicago Department of Public Health

CDPH is a LHD serving the largest city in the state of Illinois. CDPH's jurisdiction is the City of Chicago. CDPH is led by the Commissioner of Public Health, appointed by the Mayor of the City of Chicago. The Mayor also appoints Board of Health members. Currently, CDPH is organized into seven bureaus or offices: Administration and Finance, Risk Management, Performance and Quality

Improvement, Public Health and Disease Control, Public Health Emergency Preparedness, Policy and Planning and STI/HIV/AIDS (City of Chicago, 2014).

Figure K. Average HIV infection diagnoses rate (per 100,000) by community area, Chicago, 2010-2011 (CDPH 2013)



The Board of Health's charge is to formulate health policies, advise the Mayor and Commissioner of Public Health, and promulgate all health and emergency regulations. CDPH had an overall operating budget over $160 million in 2013 and $148 million in 2014. CDPH is the second largest City department providing community services following the Department of Family and Support Services. Overall funding for HIV/AIDS is estimated to be more than $52 million, accounting for roughly 36% of CDPH's budget (City of Chicago, 2013; City of Chicago, 2014).

a. Local Capacity Building Framework for HIV Prevention

CDPH has been leading HIV prevention efforts in Chicago since the mid-1990s. Funding for CBOs to provide HIV prevention is made available through an RFP process. The last RFP for the implementation of HIV prevention programs was issued in 2011 for the contractual years of 2012-2014. An agency applying for HIV prevention program funding may apply for multiple awards providing a different HIV prevention program is proposed (e.g., different targeted populations and/or geographical area). CDPH has maintained a range of 22-30 local CBOs over the course of HIV prevention jurisdictional planning since 1999. CDPH has provided capacity building services to delegate HIV prevention providers by the Capacity Building, Training and TA Unit. Various types of capacity building activities have been implemented since the Unit's inception. For the purposes of this study, only trainings, online and in-person, conducted between 2008 and 2013 will be evaluated.

Annual program audits are conducted by the CDPH program and contract monitors/auditors. The annual program implementation audit scores measures the extent an intended/proposed HIV prevention program was implemented and what factors or barriers either inhibited or facilitated HIV prevention program implementation. The practice of annual program audit scores reflects the current practice for evaluating public health programs. With respect to capacity building, HIV prevention public health programs have not traditionally measured individual and/or organizational uptake. Capacity is assessed by program implementation.

The conceptual framework for capacity building utilized in Chicago is depicted in Figure L. Capacity building efforts utilized by HIV prevention providers and provided by CDPH is a workforce development tool for public health partners and should lead to successful HIV program implementation, and thereby higher program scores during annual audits. The casual pathway to community level impact is contingent on individual and team uptake within an organization from trainings provided by the LHD. The assumption is that uptake of the capacity building trainings increases implementation of targeted HIV prevention efforts by the funded organization. Thus, if an organization is implementing their proposed targeted HIV prevention

program, then the following health outcomes should occur: decreasing the number of individuals unaware of HIV status, increasing the number of HIV positive individuals in medical care, and increasing retention in care to so more HIV-diagnosed persons are virally suppressed. Logic models for capacity building identify the inputs, resources, activities, outputs and outcomes that comprise the TA model. Figure M depicts the current logic model in Chicago.

Figure L. Causal pathway to capacity building training uptake

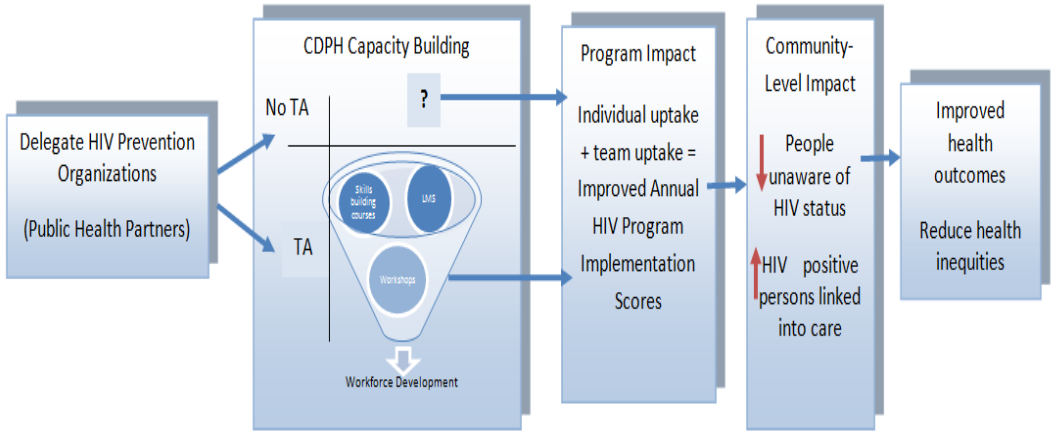
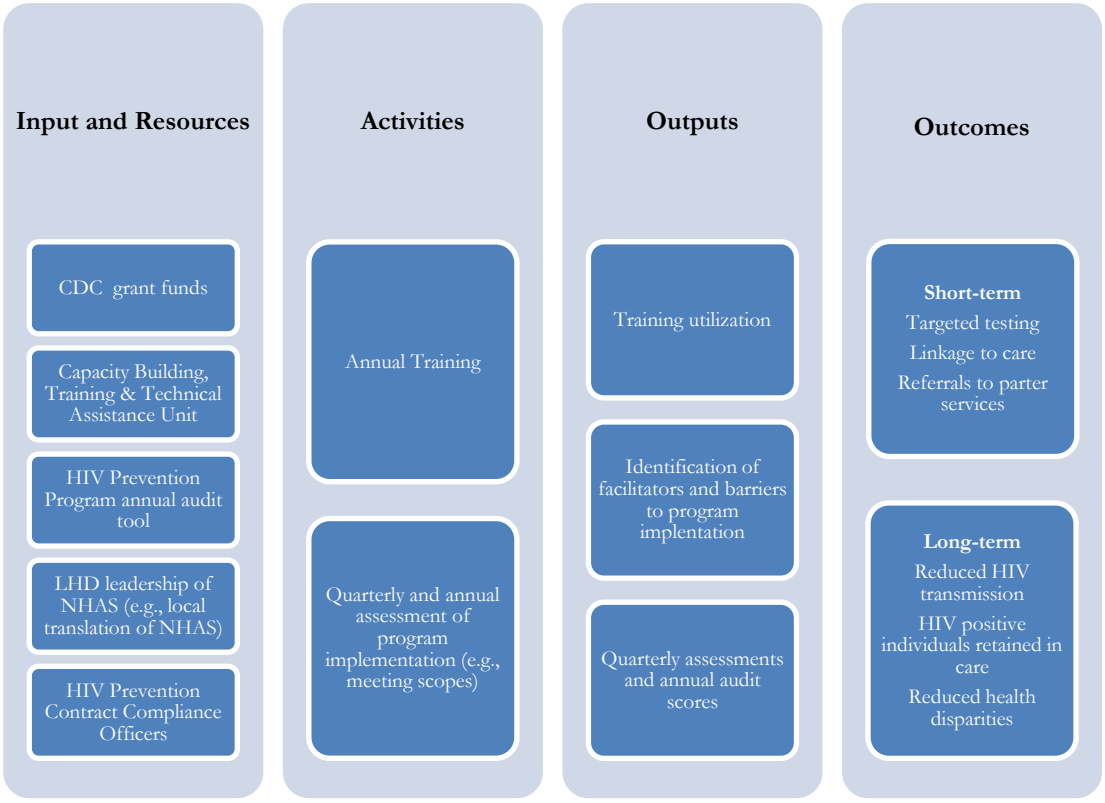


Figure M. Current logic model for capacity building, Chicago



III. METHODS

A. Study Design

The analytical approach to address the study objectives will be a descriptive case series where the unit of analysis is the delegate funded agencies for HIV prevention programming in the City of Chicago (Figure N is a schematic of the framework being used). A descriptive analysis was determined most appropriate given that data used for this observational study has already been collected (retrospectively). This descriptive analysis will allow for an understanding of the TA utilization patterns as a form of capacity building in Chicago, and by examining annual program implementation audit scores, it will reveal where TA services provided by CDPH's Capacity Building, Training and TA Unit may have been effective in meeting contractually negotiated scopes of services in the delivery of HIV prevention programs. Additionally, any facilitators or barriers to TA can assist in determining the support mechanisms needed by delegate agencies, and more importantly, allow recommendation to be made to maximize workforce development efforts, achieve program sustainability, and improve NHAS impact in Chicago. Moving forward, the findings will add to the current literature on capacity building and provide next steps for further research by offering insights on any variables or variances that arise in the study of Chicago capacity building efforts. In summary, a descriptive study design, specifically a case series, was chosen to identify areas for further research, aid in planning and allocating capacity building resources, and methodically examine training utilization and program implementation in Chicago.

The case series design is the best method to study utilization of CDPH capacity building services over time by funded agencies in relation to their program implementation scores as a first step in understanding capacity building. Due to limitations in data availability, delegate agency dimensions and issues related to experience and maturation, an analytic study design was not possible. Additional time constraints prohibited conducting a prospective study as the time between capacity building and program outcomes can be long. Most importantly, as abundant data was available HIV prevention program audit scores and recorded use of TA services, a retrospective design was feasible and allowed the study questions to be answered quickly and in a cost-effective manner. Though nature of a case series design prevents drawing any conclusions regarding the direct association between capacity building utilization and program implementation, it will provide a preliminary measure of the relationship between utilization of TA and its effect on HIV program implementation audit scores that may help develop future research questions and priorities.

B. Sample

Emergent sampling (also known as opportunistic sampling) design is an important feature of this exploratory study. The sample used for this project will include the delegate agencies funded for HIV prevention services by CDPH in the City of Chicago between the years 2008 through 2013. The study

population includes all funded agencies for HIV prevention programming. All delegate agencies are similar in that they competitively participated in an RFP process to receive funding by CDPH. The delegate agencies are different in their targeted populations and the community areas in Chicago they serve. Additionally, from the organizational perspective, the delegate agencies differ by type of organization, size, experience, HIV prevention program experience and financial resources.

Figure N: Capacity building case series conceptual framework

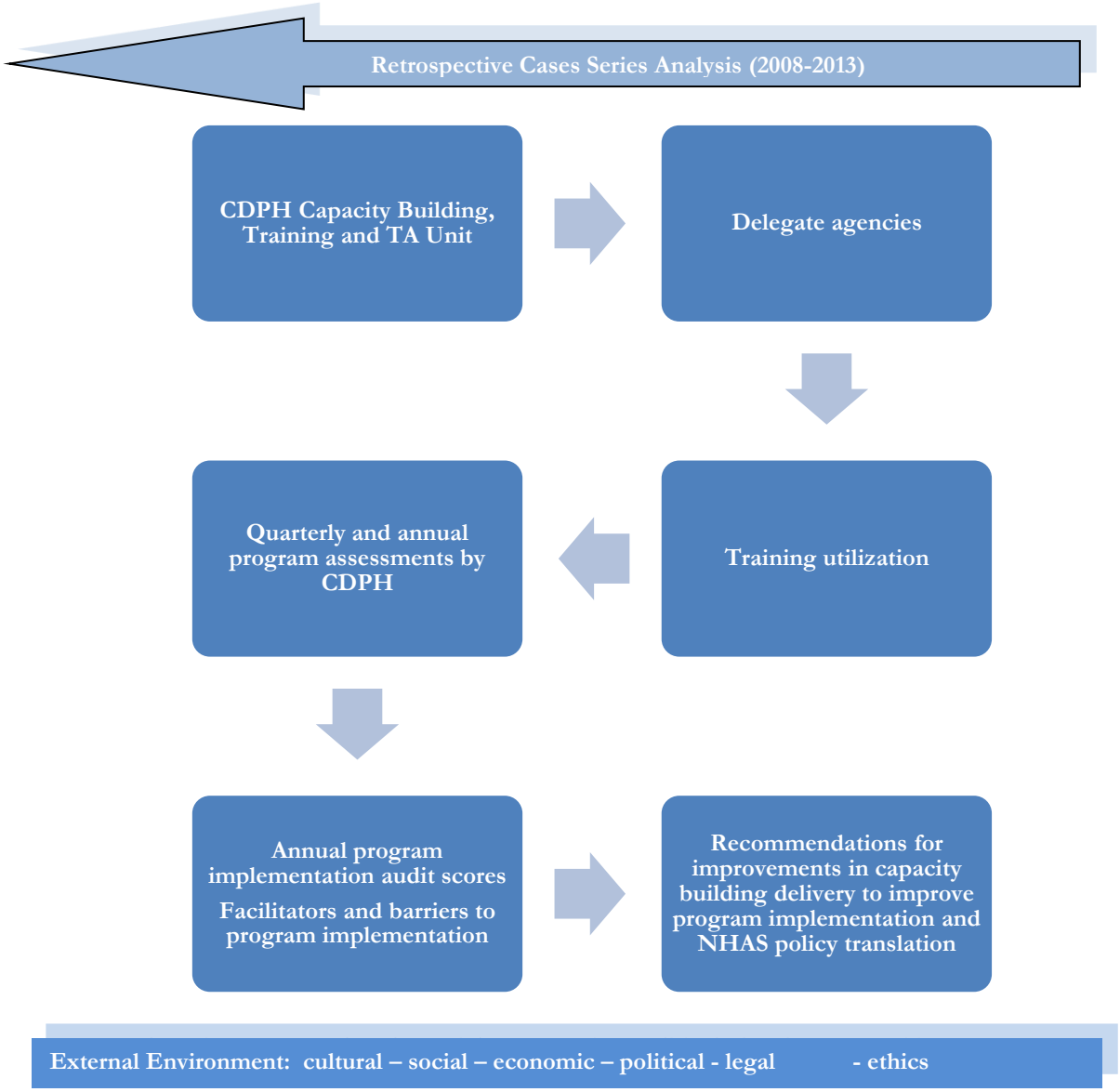


Table I provides an overall summary of the delegate agencies funded between the years 2008 - 2013. The organizations included in this study are funded core HIV prevention services. Only one organization was funded for expanded HIV testing for disproportionately affected populations. Expanded testing involves routine opt-out testing in healthcare settings at a total program award of $1.1+ million. This

Table I. CDPH HIV Prevention funding summary, 2008-2013												
	Pre-NHAS				Post-NHAS							
Year	2008		2009		2010		2011		2012		2013	
Funded agencies (n)	29		29		28		28		27		29	
Award funding												
Average	$106,178		$106,829		$101,778		$101,778		$92,593		$111,631	
Median	$100,000		$100,000		$87,000		$87,000		$79,545		$83,703	
Mode	$100,000		$100,000		$87,000		$87,000		$100,000		$100,000	
Minimum	$50,000		$50,000		$50,522		$50,522		$46,544		$46,544	
Maximum	$444,000		$444,000		$386,280		$386,280		$347,652		$1,170,756	
Award funding *(excluding expanded testing)*												
Average	$106,178		$106,829		$101,778		$101,778		$92,593		$92,932	
Median	$100,000		$100,000		$87,000		$87,000		$79,545		$81,350	
Mode	$100,000		$100,000		$87,000		$87,000		$100,000		$100,000	
Minimum	$50,000		$50,000		$50,522		$50,522		$46,544		$46,544	
Maximum	$444,000		$444,000		$386,280		$386,280		$347,652		$347,652	
Program awards	n	%	n	%	n	%	n	%	n	%	n	%
Total	51	100%	51	100%	45	100%	45	100%	60	100%	60	100%
Geographical area targeted												
Cluster A- North	8	16%	8	16%	8	18%	8	18%	13	22%	14	23%
Cluster B - West/Central	16	31%	16	31%	13	29%	13	29%	13	22%	12	20%
Cluster C - South	10	20%	10	20%	9	20%	9	20%	14	23%	14	23%
Citywide	17	33%	17	33%	15	33%	15	33%	20	33%	20	33%
Risk population targeted												
High risk heterosexuals	10	20%	10	20%	9	20%	9	20%	8	13%	6	10%
Men having sex with men	20	39%	19	37%	19	42%	19	42%	23	38%	25	42%
Injection drug users	2	4%	2	4%	2	4%	2	4%	2	3%	2	3%
Prevention with positives	2	4%	3	6%	3	7%	3	7%	14	23%	14	23%
Community level interventions	0	0%	0	0%	0	0%	0	0%	3	5%	3	5%
Special populations and/or special demonstration projects	17	33%	17	33%	12	27%	12	27%	10	17%	10	17%
Race-ethnicity targeted												
All race-ethnicities	29	57%	30	59%	25	56%	26	58%	19	32%	33	55%
Hispanic	2	4%	2	4%	2	4%	2	4%	5	8%	5	8%
Non-Hispanic black	17	33%	16	31%	15	33%	14	31%	19	32%	18	30%
Non-Hispanic white	3	6%	3	6%	3	7%	3	7%	4	7%	4	7%
Age group targeted												
Youth *(12-24 years of age)*	12	24%	13	25%	14	31%	14	31%	21	35%	20	33%
Adult *(> 24 years of age)*	20	39%	19	37%	17	38%	16	36%	26	43%	25	42%
All ages	19	37%	19	37%	14	31%	15	33%	13	22%	15	25%

organization was included in the sample since TA efforts for primary prevention was inclusive of all funded agencies. However, this inclusion skews the range in funding allocations. An additional adjusted row was included in the descriptive statistics to demonstrate the difference. The total funded organizations for all years range from 27 to 29. Some organizations were awarded multiple grants. This makes the denominator for total HIV prevention program awards range between 33-60 programs for all funded years. With the exception of the calendar year 2008, the number of program awards increased between 2008 and 2013 but average program funding decreased. The delegate HIV prevention agencies funded between the calendar years 2008 - 2013 includes two grant cycles and involve many of the same grantees. Only 22% of grantees lost and/or regained HIV prevention funding between the years of 2008 - 2013. Two grantees stopped operating altogether during the study period.

Delegate agency funding is awarded by the targeted populations, risk, race-ethnicity and age, and geographic areas. The RFP lists the funding categories available by geographical areas, risk, race-ethnicity and age groups in which agencies can apply competitively, which are defined by the local HIV planning group process using surveillance data. CDC requires HIV prevention community planning groups to improve HIV prevention programs by strengthening the community relevance, scientific basis, and population and/or risk-based focus of HIV prevention interventions (CDC, 2010; 2003). For the study period the risk groups are high risk heterosexuals, MSM, injection drug users, prevention with positives, community level interventions, special populations (e.g., homeless, transgender, persons with disabilities, non-English speaking, individuals in the sex trade, post-incarceration) and special projects of national significance. Race-ethnicity was categorized as all race-ethnicities, Hispanic, NH black and white. Age is stratified into three groups, youth between 12 and 24 years of age, adults older than 24, and all ages. CDPH has aggregated the 77 community areas into three geographical areas for the purposes of issuing program awards. The community areas are aggregated into three clusters: A, B and C to describe community areas in the north, west/central, and south, respectively.

C. Data Sources

This study did not require primary data collection. Secondary data sources were used. The administrative datasets for analysis were provided by the CDPH Capacity Building, Training and TA Unit and the Contracts Unit for the years 2008 through 2013. Three training utilization datasets relevant to this study were stored in a Microsoft Access® database, Microsoft Excel® spreadsheets, and learning management system (LMS) databases, and included the following variables: training/workshop/ online course title, training/workshop/online course description and/or objectives, delegate agency participating in the training/workshop/online course, and number of training participants by delegate agency in each training/workshop/online course.

HIV prevention program audit scores are compiled by CDPH contract compliance officers during annual site visits that assess the extent to which the organization has implemented the proposed HIV prevention program negotiated in the beginning of each contractual year. The annual site visit is a process in which contract compliance monitors/monitors visit each funded delegate agency to ensure contractual compliance as well as assess and verify the extent of the proposed HIV program implementation using an audit tool developed by CDPH. Though all delegate agencies may have received an annual site visit, not all programs were audited annually. The audit tool provides aggregate scores (0 to 100) with qualitative notes describing facilitators and barriers to implementation. Another administrative dataset helpful in identify facilitators and barriers to HIV program implementation include delegate agency quarterly reports. Delegate agency quarterly reports are submitted to CDPH's contract compliance officers and include a narrative about the progress toward HIV program goals, participation in trainings, changes in program implementation, TA requests, and facilitators or barriers to program implementation. Both the agency quarterly reports and the annual site visit reports are stored in Microsoft Excel® spreadsheets. The final administrative dataset used was the financial dataset stored in Microsoft Excel® spreadsheets and used to describe the funding of delegate agencies The administrative financial datasets included the name of delegate agency, HIV prevention program type (target population), community area(s) in which the organization is funded to serve and agency funding amount.

D. Data Collection and Management

Upon CDPH and UIC IRB approval, administrative datasets were released to the principal investigator via electronic download. There were only two physical locations of the datasets: (1) DePaul Center, where administrative offices are housed in the downtown area; and (2) Miles Square Center located in the Near West Side of Chicago where a large portion of the workshops and skills building training occurs. The DePaul Center administrative office manages the financial data, annual program/site visit scores, and agency quarterly reports. The third administrative dataset location is housed within CDPH's LMS, which can be accessed via any computer location with internet access. CDPH's LMS is administered by a separate bureau within CDPH. Once downloaded, the three administrative datasets were stored in a secure external hard-drive owned by the principal investigator.

E. Analysis

Locally, capacity building has taken the form of in-person workshops, in-person skills-building training, and online courses. Thus, for the purposes of this study, capacity building will be defined as participation by a delegate agency funded during the years 2008-2013 in any online course, in-person workshop, and/or in-person skills-building training. The utilization of any of type of capacity building

services are voluntary by CBOs, regardless of funding status by CDPH. All funded delegate agencies utilized some modality of capacity building services offered by CDPH during 2008 and 2013.

1. Online and In-Person Training Records

The first administrative data set for analysis included information on delegate agencies attending in-person trainings from the CDPH Capacity Building, Training and TA Unit. Data was extracted into Microsoft Excel® spreadsheets from five Microsoft Access® databases that were separated by year, 2008, 2009, 2010, 2011, 2012 and 2013. The extraction revealed issues with data entry, i.e. missing information, empty cells, inconsistent naming conventions for organizations, and non-conformity to database design rules were not adhered. The extracted files were merged to create one data set. Duplicate organizations were consolidated and re-organized by training year, type of training attended, and the number of personnel attended by delegate agency. Each delegate agency was then coded by funding year to account for organizations that may have interrupted funding cycles. Because many entries had inconsistent naming conventions per delegate agency, additional verification procedures including matching variation of agency names and worksite address were used to identify the correct funded delegate agencies.

There were also columns that listed a training title but had no data, and thus were eliminated from the dataset. Columns that listed training titles but had a code identifying it as cancelled were also eliminated from dataset. Additionally, an existing code for training participants who were bumped from a course was also removed from the data set. Skills-building training and workshop titles were then consolidated by years. A separate spreadsheet captured the online workshops by year and delegate agency name. Staff sent by delegate agencies was already summed for the years 2008-2010. However, years 2011-2013 were not accounted for in the same manner. Years 2011-2013 had to be reconstructed from rosters from the LMS database. The rosters were aggregated by delegate agency and by number of personnel attended. Finally, the LMS file was merged with the in-person training spreadsheet. The final merged product, "training file," served as the basis to build out additional variables using the other datasets.

Each online course is counted as one training instance, certain in-person trainings were aggregated by training topic if offered more than once annually. Specifically, trainings offered multiple times were condensed into a single training core subject area and the number of participants was then summed. Coding the in-person trainings to distinguish when they were offered became difficult, despite the fact that the trainings were offered consistently using a predetermined curriculum. Most in=person trainings did not offer seating beyond twelve participants. Thus, while the training events appear lower, the number of participants will appear

higher than average. Skills-building trainings and workshops in the database that had no attributable attendance data were deleted.

2. HIV Prevention Funding Records

Another data set utilized was the financial records of funded delegate agencies. The variables included in the Microsoft Excel® files were the funding year, funded organization name, the program award detailing the target population, cluster area, and funding source. Microsoft Excel® files were separated by each study year and, thus, were merged to form one unified dataset. The organization name and funding year were matched with the training file detailed in the previous paragraph. The training file was then expanded to include the program award detailing the funded target population and funded cluster area. At this stage of the analysis process, the training file included skills building trainings, workshops, online courses, and program awards.

3. HIV Prevention Program Annual Audit Records

The training file was further expanded to include annual audit scores and qualitative notes regarding program implementation. Annual HIV prevention program audit scores were recorded in separate spreadsheets by grant year. The separate annual files were consolidated into one final spreadsheet and organized by columns to capture the funding year, scopes of services, cluster area, audit implementation score, and additional qualitative notes provided by program auditors. Each program award had both a numerical and categorical variable reporting if HIV prevention program scopes were met. Yes/No (Y/N) was used to show program awards that met their scopes of HIV prevention services along with an implementation score calculated by the program auditors. Scores were averaged out among delegate agencies with multiple HIV prevention grant awards. In addition, qualitative notes reported by program auditors were included to describe why program scores were low, why programs did not pass, issues with program implementation, the extent to which the program was implemented, and facilitators of successful program implementation.

4. Select Sections of Responses by Delegate Agencies

To accommodate various organizational and program factors/dimensions, the "*Agency Experience"* written responses submitted in response to the HIV Prevention RFP was used to collect data on year of incorporation to determine presence in community and organizations' years of experience and years of experience in HIV prevention program implementation. Additionally, codes were used to detail organizational dimensions/characteristics. The major categorical codes used to identify the type of delegate funded agencies were: 1) "CBO" for

community based organizations; 2) "ASO" for predominantly organizations that identified themselves as an AIDS Service Organization; 3) "H" for funded organizations that were hospitals; and 4) "CHC" for funded community health centers. Finally, funded organizations that listed a fiscal agent were further coded as "FA". Also included, was a number code used to describe number of program awards a funded agency is awarded by year and the site of the organization's location versus the funded cluster area. Finally, qualitative notes submitted by delegate agencies in their quarterly report submissions to capture facilitators and barriers to HIV prevention program implementation were reviewed and themed.

After organizing, cleaning and merging the aforementioned datasets, they were imported into SAS™ for analysis of capacity building utilization and HIV prevention program implementation scores using basic descriptive statistics, such as frequencies, percentages, mean, median, mode, minimum and maximum, stratifying by online and in-person, type of online course, individuals and delegate agencies, where appropriate. Tables and graphs were used to evaluate capacity building utilization and HIV prevention program implementation scores. Table II provides a high-level view of analysis plan including the study questions, variables and measures.

Table II. Map of Data Collection Instruments and Research Questions

Study questions	**Variables**	**Measures**
How were the TA services implemented and utilized by delegate HIV prevention providers?	Training	Number of online courses
		Number of in-person trainings
		Number of individuals from a funded delegate agency attending an in-person training
		Number of individuals from an unfunded organization/other attending an in-person training
		Number of individuals from a funded delegate agency attending an online course
		Number of individuals from an unfunded organization/other attending an online course
		Number and percent of delegate agencies completing an in-person training
		Number and percent of delegate agencies completing an in-person training
		Average number of individuals per delegate agency attending a capacity building training
		Number of individuals registered for an online course by affiliation
		Number of delegate agencies whose staff registered for an online course by course title
		Average number of individuals per delegate agency who registered for an online course by course title
Does the utilization of local CBA by delegate agencies lead to improved implementation of HIV prevention programs?	HIV prevention program annual audit scores	Average
		Number of programs with a score ≥ 85
		Number of programs with a score < 85
		Average score by race-ethnicity and geographic area
	Facilitators and barriers to HIV program implementation	Themes

F. Institutional Review Board

Since secondary data analysis will be used for the study, a "Determination of Whether an Activity Represents Human Subjects Research" was submitted to the University of Illinois at Chicago, Institutional Review Board (IRB). The data sets for this project are existing sources, meaning all data exists now. The data sets were also de-identified, meaning there is also no possible way for anyone to directly or indirectly identify any individual participants, except community based organizations. Thus, the study will not involve human subjects. The "determination" application was sufficient and determined that this project does not meet the definition of human subject research as defined by 45 CFR 46.102(f). An IRB approval number of 20130971-11735-1 was issued by UIC (See Appendix B) on October 4, 2013. In addition to completing the University of Illinois at IRB application, an IRB Application for Study Exemption was submitted on 11/15/2013 to CDPH's IRB and was approved on 12/3/2013 (see Appendix C). UIC's IRB approval was included in CDPH's application to expedite the approval process.

IV. DISCUSSION

A. Limitations

The data used for this case series are from CDPH funded delegate agencies selected from two previous competitive RFP. Thus, the sample is not representative of all delegate agencies providing HIV prevention services. The number of organizations under study is limited by the community review process in place to select the strongest proposals submitted, as well as, funding available for each RFP cycle. Also, CBOs and their respective implemented HIV preventions programs do not represent the universe of HIV prevention programs. CBOs in other cities and with other funding sources may have different TA needs and greater or lesser access to TA. Although it is suspected that basic types of TA provision will surface from this study and apply in other settings, caution is necessary in the generalization of findings to other sites and settings. Finally with any retrospective study design, a complete exposure to capacity building services will remain unclear because of the very nature of going back in time.

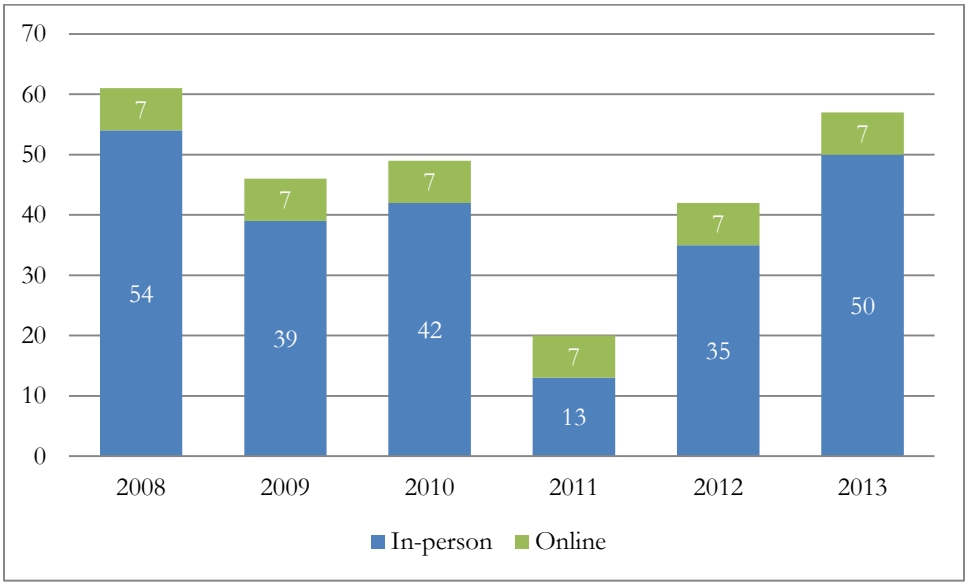
There are several internal validity considerations. They include: (1) the inability to control for any TA utilized by a CBO outside of CDPH; (2) the inability to account for differences that could have influenced program implementation such as additional grant funding; (3) there is a natural selection bias of delegate agencies that choose to participate in capacity building services; (4) maturation of organizations and staff within with different training, education and experience levels; and (5) history of an organization particularly in the delivery of HIV prevention services. To control these internal threats to validity, a case series design was chosen for an exploratory method rather than a more analytic design that uses a formal control group. Secondly, the use of data that is captured by organizations using TA services increases internal validity. Lastly, no causal statements will be made. Again, the study is exploratory in nature in the hopes to learn more about the phenomenon and generate further questions.

B. Utilization of Capacity Building

Capacity building by CDPH consists of offering an annual training calendar targeted at HIV prevention delegate agencies for the purposes of developing skills in implementing HIV prevention intervention programs. The goals are to prepare providers effectively for their new tasks, improve skills level, communicate uniformity in the delivery of HIV prevention services, offer training to newly hired staff, understanding social service delivery landscape, and/or offer support in the diffusion of HIV prevention interventions. The goals of the training are to also provide the emotional support needed to develop self-efficacy and promote active forms of learning in skills acquisition. Figure O shows the total number of training events hosted by the CDPH Capacity Building, Training and TA Unit. There is a substantial decrease in the in-person trainings offered in 2011. Records show that the Capacity Building,

Training and TA Unit restructured and subsequently devised new courses in order to reflect NHAS goals. Of note, while in-person training events fluctuate yearly, the online courses remain constant.

Figure O. Number of trainings offered by the CDPH Capacity Building, Training and TA Unit, Chicago, 2008-2013

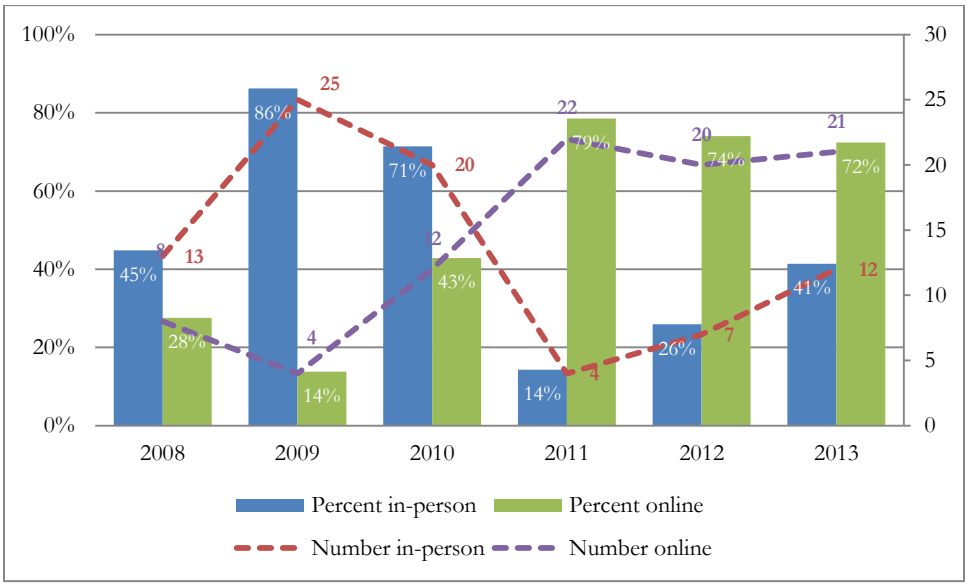


Between the years of 2008 through 2013, a total of 6,560 individuals were provided capacity building trainings. Table III provides a breakdown of individuals participating in online and/or in-person training events hosted by CDPH. A total of 1,759 individuals representing CDPH HIV prevention delegate agencies funded in any given year participated in the CDPH capacity building trainings. It is necessary to understand that these counts are duplicative, in that, an individual may have taken multiple trainings. Units of training services were provide to individuals, rather than counts, would serve as a better interpretation. Many of the delegate funded agencies would utilize the trainings by sending multiple staff particularly during the initial inception of any grant year and when there was staff turnover. Additionally, the same stipulation applies to the 883 individuals from HIV prevention delegate agencies taking the CDPH online courses. While online trainings have an attraction of convenience, distance based learning is not for everyone. Furthermore, distance based learning courses are limited to facts-based content rather than skills building content and hands-on practice.

The retrospective analysis revealed a total of 275 training instances were offered to over 6,500 individuals attending capacity building trainings. Attendance or units of service may serve as a better interpretation since the 6,500+ individuals are unduplicated. That is, individuals may take any training in any given year and/or attend multiple trainings annually. Because many of the in-person trainings are held multiple times a year, they were aggregated when repeated within the same year to reveal the number of delegate agencies participating in the overall content categories. Thus, the actual number of training

Table III. Number of individuals attending CDPH Capacity Building, Training and TA Unit trainings annually, Chicago, 2008-2013						
Year	2008	2009	2010	2011	2012	2013
In-person						
Funded	312	264	273	81	207	622
Non-funded/other	343	244	268	70	114	522
Total	655	508	541	151	321	1,144
Online						
Funded	201	206	243	85	47	101
Non-funded/other	518	706	711	186	84	152
Total	719	912	954	271	131	253

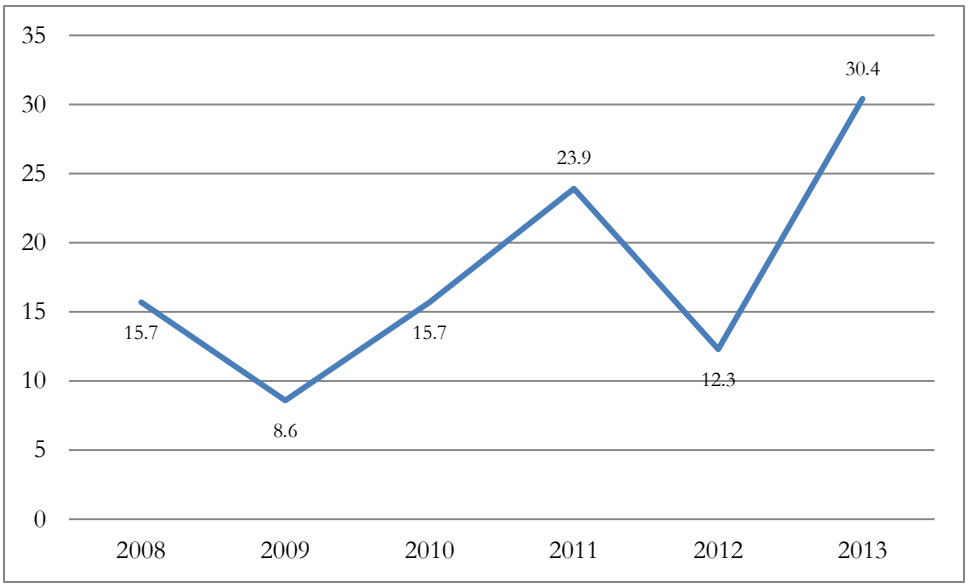
Figure P. Number and percentage of funded delegate agencies completing a CDPH Capacity Building, Training and TA Unit training annually, Chicago, 2008-2013



instances is higher due to duplicate offerings and aggregation in the analysis. Figure P shows the number and percent of funded delegate agencies utilizing both online and in-person trainings annually.

There is a substantial decrease in organizations taking advantage of the in-person trainings in 2011, however, only 13 trainings were offered in that year which is significantly less than all other years. Although it appears that fewer organizations are utilizing in-person trainings, Table III shows that the funded organizations are sending more personnel over time for both in-person trainings and online courses. In addition, Figure Q demonstrates the increased number of personnel utilizing trainings by delegate agencies. Even with fluctuations between years, there were wide differences over time.

Figure Q. Average number of individuals attending CDPH Capacity Building, Training and TA Unit trainings per funded delegate agency annually, Chicago, 2008-2013



1. In-person Training

The CDPH Capacity Building, Training and TA Unit offered approximately ten core courses annually throughout the study period and these courses are considered fundamental trainings for implementing HIV prevention programs. CDPH also offered a variety of trainings outside of these core courses that were included in the analysis. All of the trainings were in-person and offered at a CDPH satellite office. Oftentimes the core courses are repeated, up to seven times annually. This was necessary to address staff turnover within delegate agencies and serve as refreshers for funded agencies. All of the trainings offered content information for learning and integrated hands-on exercises to supplement the information covered. The skills-building trainings had an additional testing component that included pass/fail teach-backs or demonstration of skills acquired. All of the skills-building trainings were curriculum-based on sound adult learning principles with clear objectives, appropriate methodology, with numerous opportunities to practice skills with feedback and suggestions for improvements, taught by competent instructors, and assessed the learner's skills level after training completion.

For the purposes of this study, all trainings that required a pass/fail for demonstration of skills learned were categorized as skills-building training. All trainings with no pass/fail requirements were categorized as workshops. Finally, all of the skills-building trainings had a multi-day component whereas the online courses were accessible via an online platform, available 24 hours a day and seven days a week. Registrants can finish an online course at any time by saving their current work and returning at a later date to complete the training.

During the study period, the training events offered covered core training content areas consistently. The core skills-building training areas included delivering individual level HIV/STI facts-based information and HIV prevention group-level interventions, HIV prevention counseling, referring to partner services programming, street-level outreach, managing group-level health communication and education, comprehensive risk counseling services, HIV testing technology, and couples counseling. Workshops annually offered training on the relationship between HIV and Hepatitis C, medical care, tuberculosis, human sexuality and STDs. All of the core training areas focus on different aspects in implementing various HIV prevention programs and are considered basic tenets regardless of the targeted populations within HIV programming.

Lastly, supplemental trainings were offered annually to accommodate TA requests made by delegate agencies. These supplemental, skills-building trainings or workshops were included in the analysis either within the already established core content areas, or a new category was added. This means that skill-building trainings and workshops that were added in any calendar year were counted as a separate core content area if they were not within the established core areas already mentioned. Examples of some of the additional trainings/workshops offered include quality management, specific EBIs (evidenced based interventions), motivational interviewing, continuous quality improvement (CQI), peer health education summit, or psychological first aid to list a few. Some of the additional content offerings are also offered again within the same year or repeated the following year.

2. Online Training

The LMS was opened to HIV prevention providers in 2008, before then the LMS was primarily used internally for CDPH employees to access distance-based learning courses. While appearing as an attractive and modern option for prevention support services, the utilization by delegate agencies is substantially less than in-person trainings. Seven online courses are accessible by all CDPH grantees and the general public. While the online courses are predominantly facts-based in content, each online course does include a quiz at the end of course completion. A passing grade is scored at 80% and above. The online courses related to HIV prevention program implementation are HIV 101: Learn the Facts, STD's 101, Introduction to Hepatitis, Hepatitis C and HIV, Tuberculosis (TB) 100 (and HIV), Fiscal Management 100 in HIV Prevention Programs, Grant Writing 100 for HIV Prevention Programs. The courses designed are SCORM[6] compliant. Figure R shows steady

[6] SCORM stands for Shareable Content Object Reference Model and it defines a specific way of constructing training content and Learning Management Systems so that they work well with other SCORM conformant systems. They govern packaging, which determines how content should be delivered, and run-time, which relates to data exchange between the training content and LMS. Essentially, the SCORM standard ensures that all e-learning content and LMS's can work with each other.

Figure R. Number of funded delegate agencies whose staff registered for a CDPH Capacity Building, Training and TA Unit Online Course annually, Chicago, 2008-2013

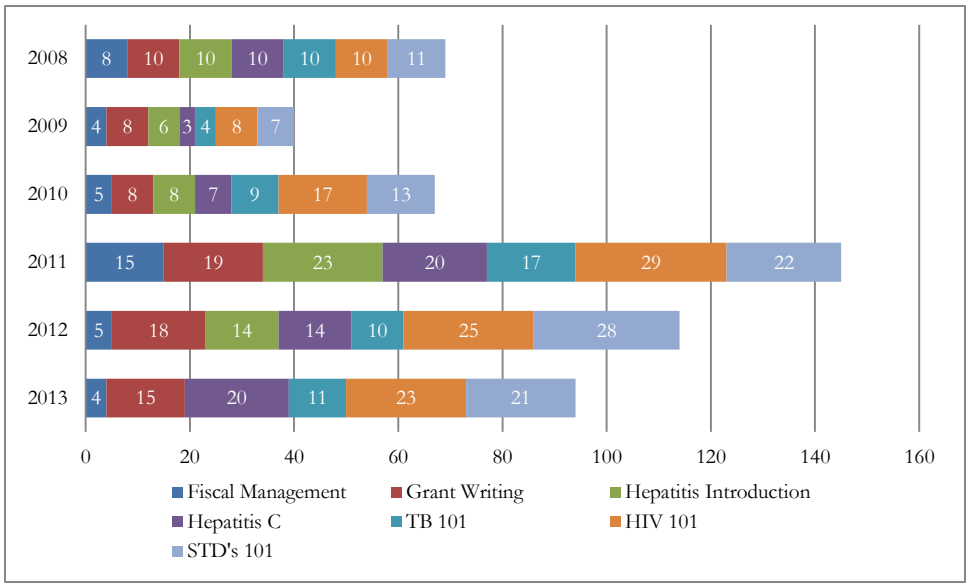
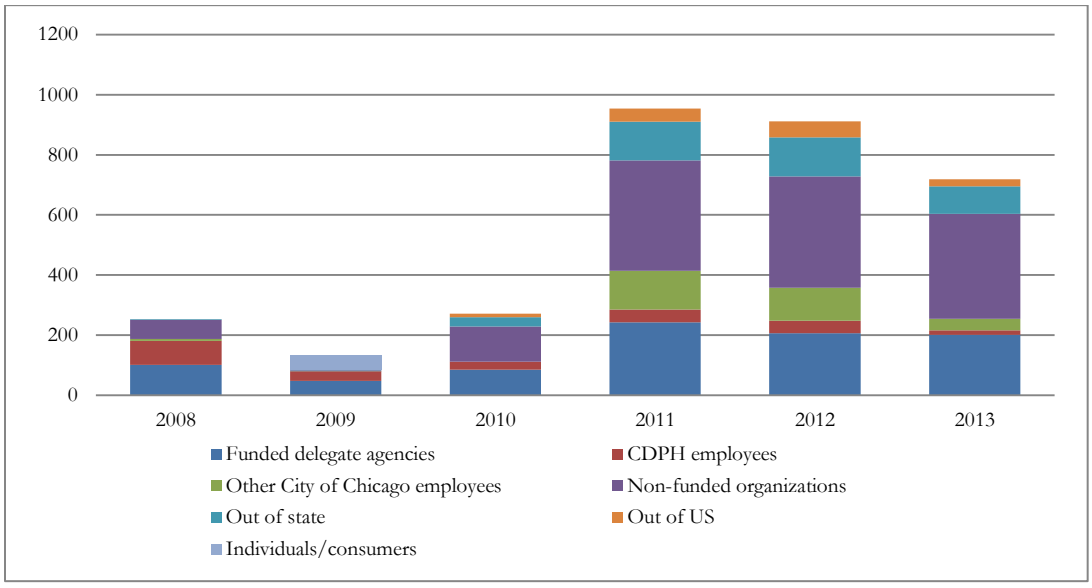
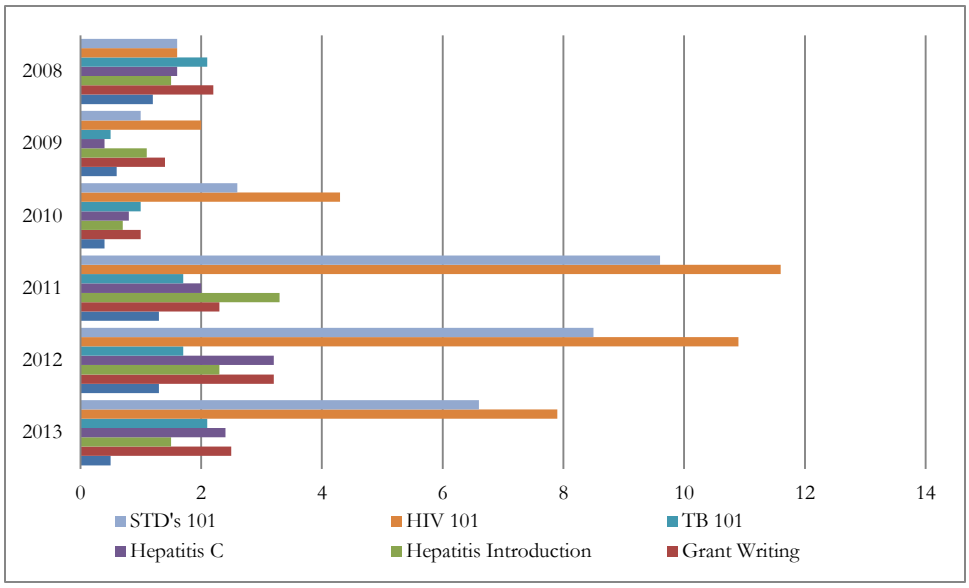


Figure S. Number of individuals registered for CDPH Capacity Building, Training and TA Unit HIV-related LMS courses annually, Chicago, 2008-2013



increases in utilization between 2008 through 2013. However, the utilization rate by delegate agencies is no more than approximately 14% annually. Over the course of six years, a total of 1,063 individuals from delegate agencies have taken CDPH's online training courses. According to Figure S, non-CDPH funded organizations and individuals not affiliated with any CBO had higher utilization rates of online trainings.

Figure T. Average number of individuals per funded delegate agency who registered for a CDPH Capacity Building, Training and TA Unit online training by course title, Chicago, 2008-2013



The usage by delegate agencies is high and some courses are more utilized than others. For example, Figure T allows a distinct view when using the mean in attendance by delegate agencies. Certain LMS courses appear higher in utilization. More specifically, HIV 101: Learn the Facts and STDs 101 fact-based courses show steady increases in attendance throughout the past five years and most often taken by personnel from varying delegate agencies. Additionally, there is a significant increase in average attendance beginning the year 2010 through 2013 than in previous years. LMS courses are on online platform available 24 hours a day/seven days a week. Only a login profile is required to access those courses that are open to the public.

C. HIV Prevention Program Implementation

HIV prevention programs are audited annually to ensure intended program scopes are implemented and performance targets are met. Average HIV prevention program implementation audit scores are presented in Figure U. Decreases in overall annual scores began in 2010 and continued through year 2013. The timing in decreases is consistent with the timing of NHAS and challenges in meeting NHAS targets. However, the overall scores did not appear to show much difference between years with the exception of year 2013. Figure V describes the frequency of HIV prevention program implementation audit scores over time. The graph shows that the scores are relatively high for all years. An in-depth look at the audit tool used for scoring looks at programmatic and fiscal compliancy.

Several approaches were taken to look for patterns between capacity building utilization and HIV prevention program implementation audit scores, such as comparing frequencies of audit scores by calendar year to frequency or amount of trainings. One limitation is that audit score data are recorded by

program award. However, training data is collected by the number of personnel per delegate agency. The number of personnel is duplicative in nature due to the de-identification. Additionally, attendance for both online and trainings are recorded by delegate agency and not program award. The analysis revealed that this was a data collection issue in the administrative dataset, and could be recorded if personnel are being tracked by organization, then it could feasibly be tracked by funded prevention program. Although causal references cannot be made due to the nature of the case series design, the evidence for finding a pattern between amount of training and audit scores hindered due to the aforementioned data limitations.

Figure U. Average HIV prevention program implementation audit scores, Chicago, 2008-2013

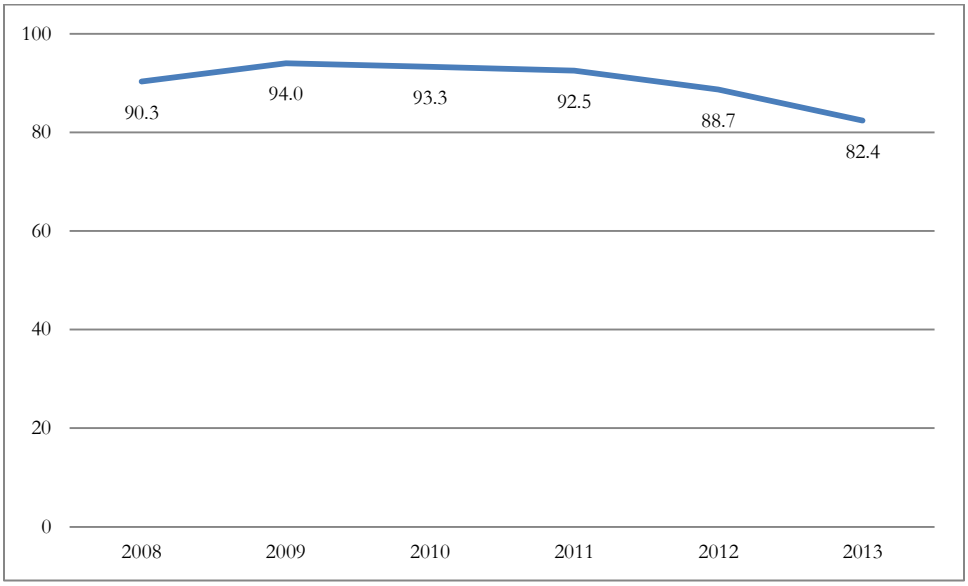


Figure V. Frequency of HIV prevention program implementation audit scores, Chicago, 3008-2013

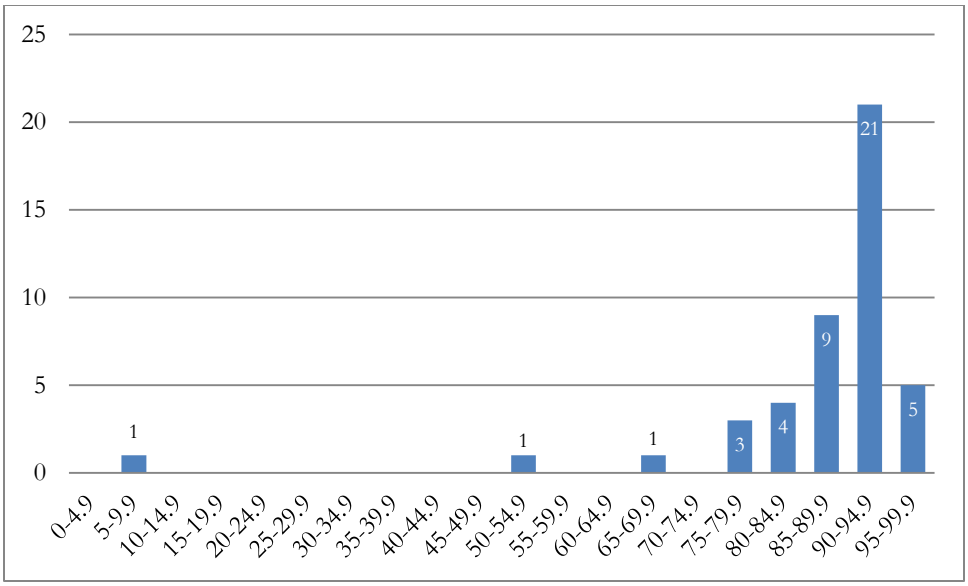
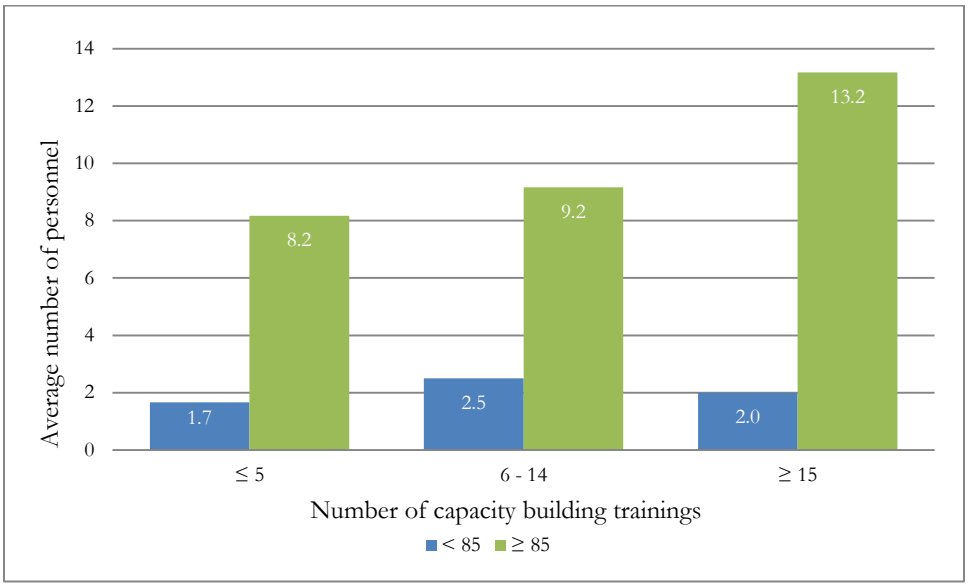


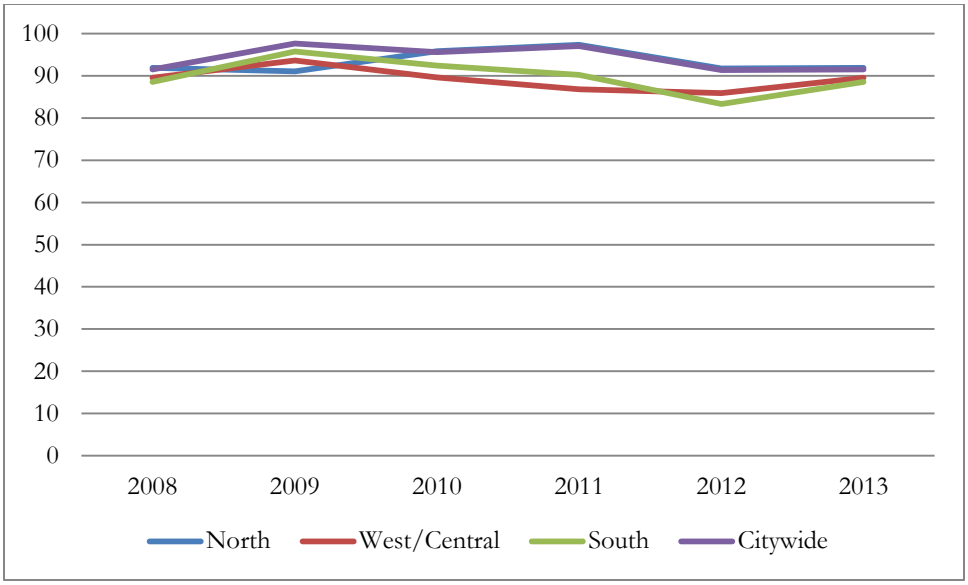
Figure W shows an alternate view to look for patterns in audit scores and amount of overall training taken. Audit scores were stratified by pass/fail, ≥ 85 and <85 respectively. Trainings were then stratified by range of training taken, <5, 6 to 14, and >15, low, medium, and high amount of training. Figure W reveals the lower the score, the lower the capacity building trainings. It also reveals high program audit scores with greater amounts of training. This inverse pattern is still inconclusive given the nature of the study design and limitations in the administrative data sets. An analytical approach may prove more beneficial is identifying more conclusive patterns.

Figure W. Average number of personnel per delegate agency attending a CDPH Capacity Building, Training & Technical Assistance by number of trainings and HIV Prevention program implementation audit score (≥ 85 is passing), Chicago, 2008-2013



Audit scores were then analyzed by proposed cluster areas or geographical areas of the city. Figure X shows average annual program implementation scores by geographical areas of the city. Since the scores are averaged, it is difficult to see the differences year-to-year. The north side of the city and programs focusing on citywide activities are consistently high. Again, 2012 marks a new RFP cycle post-NHAS and shows decreases in average audit scores in all geographical areas. This seems to suggest challenges in implementing local NHAS policy. Keeping in mind that the RFP cycle began its first contractual year in 2012, the first contract cycle of the multi-year funding, appears to have been a difficult for all geographical areas to implement. Reviewing cluster areas by year shows how the north side and city wide agencies fare better in implementing HIV programs than the south and west sides of the city. Delegate agencies targeting intended populations citywide with mobile options had higher audit scores than HIV prevention programs implemented without mobile services.

Figure X. Average HIV prevention program implementation audit score by cluster area, Chicago, 2008-2013



Based on the program auditors' notes, compatibility appears to best describe the interpretation of delegate agencies unable to fully implement their scopes. Thaker et al. (2008) described compatibility when a program is perceived to fit the culture of the organization and existing values. While congruence between program characteristics and the organization overall is expected, agencies receiving multiple awards did not necessarily fare better at program implementation then agencies with 1-2 program awards.

Qualitative notes written by contract/audit officers revealed common issues among delegate agencies regarding difficulties in meeting scopes: (1) inability to meet performance target in HIV testing seropositivity rate of 1% after surveillance matching; (2) low outreach numbers; (3) low numbers in individual-level interventions; (4) lack of documentation/data for HIV prevention interventions; (5) low numbers in meeting group-level interventions; (6) low numbers in PWP-prevention interventions; (7) low numbers in youth-targeted programs; (8) low numbers African-American MSM targeted programs; (9) agency/program personnel changes or personnel issues that hindered program operations; and (10) programs reporting demographics on other unintended populations.

The dimension of complexity as presented by Thaker, et al. (2008) best describes the difficulties in implementing HIV prevention programs. Qualitative analysis from quarterly reports revealed common issues reported by delegate agencies in implementing prevention programs: (1) staffing issues/personnel changes; (2) staff turnover; (3) vacancies or difficulty in hiring appropriate personnel; (4) inclement weather contributing to low outputs in outreach; and (5) difficulty engaging the intended target populations for individual- and group-level interventions. Further analysis revealed that some delegate agencies maybe targeting the same areas, particularly for the MSM and youth target populations. As performance targets were instituted after 2010, in order to meet NHAS goals, many organizations are

experiencing difficulty in meeting their proposed HIV testing numbers. Moreover, most delegate agencies reported that they met their seropositivity rate because they were able to identify positives. However, in actuality, delegate agencies are not meeting their seropositivity rate after reporting the data to CDPH and receiving a revised seropositivity rate. CDPH communicates to program positive tests that are already in the HIV surveillance and thus, delegate agencies must revise their seropositivity rate.

Funding is a community-level factor affecting program implementation (Durlak and DuPre, 2013). Approximately 27 to 29 organizations have been funded for HIV prevention programs between the years 2008 through 2013. Most of the organizations received steady funding throughout study time frame. Approximately 29% (6) of Chicago based organizations had intermittent funding in 2008 or lost funding altogether beginning in 2012, the new grant cycle, which affected all geographical areas of the city: two in the West/Central cluster, three in the South cluster, and one Citywide. Each of the delegate agencies have historically been awarded one and up to two HIV prevention program grants. The 2012 new HIV prevention grant cycle funded four new organizations. Finally, only two organizations closed doors, both AIDS service organizations since 2008, one in the North cluster and one in the South.

Leadership and governance are also primary factors in program implementation. Indicators can include management of funds, organization sustainability, and commitment to the populations and communities that they serve (Collins, Field, and Duncan, 2007). In addition, partnerships can be viewed as providing connectedness to other leaders within the community (Goodman, et al., 1998). However, in a city plagued with a history of political machines, partnerships can also be viewed as political leverage/support to survive changes in the funding landscape. This supports a dimension of political support and relationship to sustainability (Schell et al., 2013). Thus, partnership describes the relationship between program and community, and the external political environment influencing funding (Schell et al., 2013). Past and currently funded organizations reside within City of Chicago limits and maintain a 501(c)3[7] non-profit status. Most of the funded delegate agencies fall within several types of organizations: CBOs, ASOs, hospitals, foundations, community-based health clinics/healthcare, and correctional settings. A more in-depth analysis revealed multiple partnerships with a fiscal agent ("fiscal sponsorships"). Several different types of funded organizations had a fiscal agent. In the North cluster, two ASOs had a fiscal agent, none in the South cluster, and several located in the West/Central cluster which included one corrections facility, two CBOs and two hospitals.

While a small number of delegate agencies may have a fiscal agent, the impact of the partnership is greater when looking at program awards instead of funded organizations. The increase in program awards by the type of organizations fits within the adaptability dimension identified by Durlak and DuPre (2008). The adaptability dimension goes beyond a program's ability to change for quality improvement purposes.

[7] An internal revenue code provided by the Internal Revenue Service providing organizations tax-exempt status if they are organized and operated exclusively for exempt purposes.

It also describes an organization's ability to meet community needs with its HIV prevention programs. In 2013, there were 20 program awards to delegate agencies with fiscal sponsorships, up from 15 in 2008, and 40 program awards to delegate agencies with no fiscal sponsorship, up from 36. Table IV provides a breakdown by program award and the type of organizations with a fiscal agent. Table IV shows that funded organizations with fiscal partnerships have an increase in the number of program awards funded. CBOs with no fiscal sponsorships show a slight decrease in the amount of program awards. ASOs with no partnerships are down by more than 50%. Additionally, there is a dramatic increase in program awards to hospitals and community-based health centers/settings.

Table IV. Program awards by setting type and fiscal sponsorship, Chicago, 2008-2013

	Pre-NHAS		Post-NHAS			
Year	2008	2009	2010	2011	2012	2013
Fiscal Sponsorship						
AIDS Service Organization	2	6	2	4	5	8
Community Based Organization	2	2	2	1	3	3
Correction Facility	2	2	2	2	2	2
Hospital	9	9	8	8	7	7
No Fiscal Sponsorship						
AIDS Service Organization	10	7	10	7	7	6
Community Based Healthcare Clinic/Setting	2	2	2	2	5	5
Community Based Organization	22	21	15	19	19	19
Foundation	1	1	1	1	0	0
Hospital	1	1	3	1	10	10

From 2008 to 2013, program award allocations to organizations targeting different geographical areas ranged from 17-31% for city wide, 16-23% for the North cluster, 20-29% for the West/Central cluster, and 20-24% for the South cluster. When reviewing the delegate agencies' program history within the RFP, a few organizations that started out as ASOs transformed to a CBO. CBOs that diversify their service delivery capacity have less interrupted HIV prevention cycles, and an increase in HIV prevention program awards regardless of HIV prevention experience. When looking at the difference between the beginning of the two different grants cycles, years 2008 and 2013 only, there was an increase program awards for organizations with less HIV prevention program experience. Additionally, there was a large increase in program awards in the South cluster.

Overall, new HIV diagnoses are declining in Chicago, while persons living with HIV are steadily increasing (Chicago Department of Public Health, 2013). Trends in HIV infection rates by community areas are available in Figure J. However, to aggregate by cluster area and compare to delegate agencies funded for these areas became challenging because service provision data includes community areas

served outside of the intended scopes. If the service areas outside of the intended program were removed, this would affect the integrity in the program audit scores dataset. It would be difficult to adjust the overall audit scores without accompanying additional data sets that include descriptors on how the scores were calculated. The program audit scores datasets only includes overall scores by delegate agency. Re-adjusting the program audit scores falls outside of the scope of this study.

In an attempt to look at community areas and delegate agencies, consideration was given to plot the agencies' locations with lines to areas served but it became complex to visually demonstrate organizations that are awarded outside of their geographical areas, and more so for those funded for citywide HIV prevention efforts. Organizations funded for citywide efforts appear to have the highest HIV prevention program implementation audit scores annually in comparison to other clusters. Further analysis revealed these programs were either organizations with multiple satellite offices, offer mobile HIV prevention services[8], community based healthcare centers, or ASOs/CBOs that partner with other organizations to enhance their service delivery capacity. A possible explanation for the higher audit scores is the ability for these programs to target intended populations without geographical boundaries.

D. Summary

The goal of the capacity building at CDPH is to improve the capacity of CBOs to develop sustainable HIV prevention programs for community-level impact. NHAS has been a transformative change locally affecting the roles of HIV prevention providers, creating a paradigm shift in the delivery of HIV prevention services, and redefining leadership. Public health partners represent a wide array of organizational types, professions, and experience. Maintaining capacity building services is necessary to enable HIV prevention organizations for program and organizational sustainability, and in translating NHAS policy locally. While capacity building is a process that improves the potential to meet HIV prevention goals, it is also an outcome that requiring collective leadership. Before NHAS, many organizations operated competitively with one another and/or in isolation. Now, organizations that are primarily in non-healthcare settings may have to consider partnering with healthcare organizations to increase their competitive advantage. Organizations with smaller operating budgets may have to consider working with delegate agencies to obtain fiscal sponsorship(s) to stay in operation. Finally, ASOs may need to consider diversifying their service delivery capacity and ultimately, their funding to stay afloat in the ever-changing landscape of non-for-profits. And while these types of partnerships appear organizational, the challenges affect program sustainability.

[8]HIV services delivered via outreach programs using service vehicles designed for mobile services (i.e. syringe exchange, homeless services, etc.)

Several interesting discoveries came out of this study. First, there is a better understanding of capacity building services utilization by HIV prevention delegate agencies. In fact, whether an online course or in-person training, all delegate agencies utilized some modality of capacity building services. In-person trainings were utilized more than online courses. Online courses appeared to have limitations. In this particular setting, distance-based learning courses are considered most useful for facts-based content and but not for technology transfer. Additionally, the online courses are not moderated and are self-contained. Post-NHAS, access to online courses by delegate agencies increased dramatically. An explanation could be that there are many challenges in implementing HIP programs, and online courses offer a convenient way for organizations to easily access fundamental content. This may be particularly helpful for organizations dealing with high staff turnover or program staff in need of annual refreshers. An alternate view is that the skills-building courses are generally multi-day events requiring time away from program implementation activities. Some workshops are between three and six days long. There could be some difficulties in attending multi-day trainings, given the challenges funded programs are experiencing in meeting their scopes of services, as noted by delegate agency responses in quarterly reports. Even so, skills-building courses had a higher attendance by delegate agencies than workshops altogether. A possible explanation for this is that skills-building courses offer the much needed "practice" in applying certain HIV prevention skills.

The Chicago TA model is a valued resource given the importance of workforce development in the field of public health. Most recently with Public Health Accreditation Board emphasizing workforce development as one of twelve domains, CDPH is ahead of the game when it comes to looking at workforce development of their external public health partners. This is an advantage that CDPH has compared to other jurisdictions who rely on external sources for capacity building and TA services. Additionally, the capacity building trainings are a venue for participants not just to gain/enhance professional skills, but also provide networking opportunities with other public health partners to share ideas in meeting program scopes and essentially, advancing NHAS goals. From the analysis, the resources detailed in delivering capacity building services are indeed being utilized, often multiple times within a contract year and also annually, by delegate agencies. Additional work is needed to identify ways to better link program reporting with TA and performance assessments of TA provided to measure uptake and/or technology transfer beyond course training. Also, a methodology to capture experiential learning by delegate agencies is needed. This type of qualitative information can aid in determining application of new skills and its relationship to program uptake.

Lastly, while it was possible to assess the data by delegate agency usage, it was challenging to assess unduplicated individuals annually and over time. One of the factors contributing to this was in the primary data collection. There were also inconsistencies in naming conventions by organizations. Additionally, when the data was extracted, the total number of personnel was not de-duplicated. This

implied that the Microsoft Access® database used to store the administrative data sets did not follow norms of database design. Also, when extracting the number of individuals trained by organization, not only was in not possible to determine the true number but it was not possible to determine personnel type by organization. In other words, there was no way to differentiate program supervisors/managers versus type of HIV program staff (i.e. health educator, HIV testing coordinator, program counselor, etc.). Finally, many of the extracted files were labeled as number of individuals trained. However, as the participants were not unduplicated it was best to interpret as units of service imparted. Number of individuals trained was counted by course attendance. While this may be technically correct, it is not necessarily helpful in a broader perspective.

The HIV prevention program implementation audit scores proved to be a challenge to interpret particularly when looking at one summed score for a year's worth of work on behalf of the organization. For all years within the study timeline, the average audit scores were considered passing when using ≥ 85 as the cut-off. The challenge lied in finding anomalies. This was particularly the case when looking at average audit scores and comparing them over time. Overall, data revealed that after NHAS, average HIV prevention program implementation audit scores began to decline. However, looking at annual average scores by geographical areas served, some patterns started to emerge in the West/Central and South clusters. Even among the general variation within cluster areas, there are still some slight decreases in audit scores suggesting challenges in the ability to fully implement HIV prevention programs. Despite the slight decline in all regions of the city, the South and West/Central clusters appeared to trail behind in their ability to implement HIV prevention programs compared to delegate agencies in the North cluster and in citywide efforts. When plotting scores by the amount of training taken by personnel from delegate agencies, there were more programs with a passing implementation score. When plotting audit scores for all years, there was a negative skew.

There were limitations to the audit tool used. The audit tool focuses on the extent to which the proposed program was implemented. Essentially, it covers whether the scopes were met or not. The scoring process did not take into account the percent of program implementation, or not in a consistent basis. In other words, there were questions as to the reach and dosage for programs that did not meet their proposed scopes of services. While there were general qualitative notes by auditors that included descriptors of program barriers, it was difficult to relate dimensions to successes and barriers by the specific program award. There was an element of depth or additional program dimensions missing with overall challenges in program implementation. The audit-scoring tool did not appear to incorporate specific trainings attended by program award. This type of information could have been helpful in identifying specific TA seeking patterns as it related to barriers to program implementation. Additionally, the audit tool did not capture what other TA services were utilized to address any issues or even enhance service delivery capacity.

Dimensions around individual structural levels and organizational factors could assist in determining when and how help seeking behaviors are identified. Moreover, if audit scores are limited to an annual review, at what point were there decision making factors within the structural levels? The flipside to this could have been at what point the HD could have intervened sooner. Currently, the program assessment tool measures the fidelity in how the scopes correspond to the intent of the proposed program and dosage in how much of the original program has been delivered, and the reach which is the rate of representativeness of the intended target population (not to be confused with the rate of how much in the number of the target population was met). But these measures do not address quality, or how well different program components were conducted, and leaves little room for adaptation, allowing for changes to be made to the original program.

HIV prevention program implementation audit scores and qualitative notes did not offer a perspective on the dimension of adaptability by programs. If individualized TA took place, what factors in the TA helped improve program implementation? If there was a base percentage describing a program's inability to meet their scopes, how much increase/decrease occured after individualized TA is implemented? Conversely, the same could be assessed by the type and/or number capacity building trainings. Adaptability in program plans are a form of individualized TA that can counteract turbulence. The audit record file did not indicate where program adaptability may have occurred.

Variations of any of the dimensions described above could have enhanced the descriptive analysis. Moreover, the analysis highlights some missed opportunities at intervening in the program structural level by both the grantee and funder. This study was not able to capture any reports of experiential learning aiding in the interpretation of program uptake. Additionally, the study was also unable to capture any longitudinal approaches to evaluating capacity building efforts.

E. Implications

From the case series analysis, the following points in the study questions have been addressed: (1) the types of prevention support systems implemented between the years 2008 through 2013, (2) the amount of utilization of capacity building trainings by delegate agencies, (3) barriers in implementing HIV prevention programs as well as post-NHAS challenges in shifting toward HIP approaches, and (4) organizational and programmatic dimensions that serve as facilitators in program implementation and sustainability. These findings have implications for other jurisdictions experiencing challenges in HIV prevention program sustainability post-NHAS. The study offers the opportunity to look at structural dimensions and co-occurring relationships that maximize efforts in prevention support systems. As capacity building structural levels are relatively the same across jurisdictions, but it was worthwhile to exploring Chicago-specific contextual factors.

This case series descriptive study also raised new questions that requiring further study. First, the study alluded to community and organizational dimensions that have enhanced program implementation and sustainability. However, further study is needed to assess the specific factors that enhance HIP approaches in meeting program implementation scopes. The audit tool was insufficient. Additionally, the assessment tools need to tie to performance rather than whether the scopes were met or not. If TA is directed at program implementation efforts, pre-and post-assessments are necessary to measure the impact to understand how programs can benefit. The inability to report longitudinal assessment of capacity building services proved challenging in identifying additional types of support needed by delegate agencies. A better connection between assessment and evaluation of TA services is necessary to maximize and fully understand capacity effects, and was lacking within this study. Finally, continuous assessment may provide opportunities for customization in the delivery of TA services compared an annual program audit.

This study reinforced the need for continued capacity building efforts. Not only does capacity building assist with program implementation but sustainability, as well as serving as a workforce development strategy for public health partners. From an ecological perspective, local leadership can gear efforts toward varying capacity building structural levels given its multi-dimensional effects and co-occurring relationships. It was clear from the descriptive study that locally, CBOs utilize opportunities presented to assist with program implementation. In keeping with sound training principles, certain types of trainings have a greater impact. But other factors are at play, everyone learns differently, availability of time, etc. Varying TA options needs to be taken into consideration. Thus, support for multiple types of TA modalities is necessary to meet the different challenges in HIV prevention. There are benefits to in-person trainings. They are best in maximizing usefulness when focused on skills-building and assessing skill proficiency. Another benefit is that skills-building training increases self-efficacy. The literature review demonstrated a positive relationship in high self-efficacy and related increases in dosage and fidelity in program implementation.

Additionally, funding capacity building efforts are necessary to assist agencies in building the competency needed to address local health problems and implement successful HIV programs that have an impact of reducing new HIV infections and linking persons testing HIV positive immediately into medical care. The distinction of capacity is different than competency. Maintaining adequate funding is necessary to not only continue capacity building efforts but diversify TA efforts as well, and moreover, serving as a counterbalance to limited access to training in HIV specialization. HIV counseling, testing and referral services can require intensive efforts in communicating potential risks particularly in populations that are in denial or perceive no risk while mitigating stigma. While great strides have been made in overcoming HIV stigma, HIV still continues to be a prism for moral values, homophobia, sexuality, etc.

F. Recommendations

The question remains how best to allocate prevention support systems. How can capacity building resources be improved? Incorporating mixed methods and more advanced analytical approaches will be useful in understanding how to not only meet TA needs but also maintain a dynamic and responsive systems approach in prevention support systems. The Chicago TA model can be modified to deliver a prevention support system with a targeted approach to delegate agencies, as HIP is to high-risk populations. Locally, capacity building services involved large scale generalized assessments; input from grantees on perceived TA needs at the start of the contractual year; and a push mechanism approach to the delivery of capacity building services for the masses. Utilization of prevention support systems is largely voluntary on the part of delegate agencies. However, a proactive approach might prove more beneficial for both the grantees and funder.

In order to advance NHAS goals, capacity building goals should include a high-impact technical assistance (HiTA) or targeted TA (TTA). HiTA would continue an ecological approach by looking at all structural levels. HiTA should focus on (1) program implementation assessments that are timely in nature, high in frequency to provide active monitoring, and allow room for program adaptability as a TA approach; (2) pre-and post-training assessments measuring baseline and longitudinal performance of skills acquired for quality management purposes; and (3) assessing incidence and prevalence rates in certain areas coupled with low performing organizations serving those areas will increase the collective leadership needed in meeting NHAS goals.

Informed by literature and this case series study, support for TTA is necessary because without understanding fully capacity building effects, it increases the difficulty in knowing what and how to fund TA possible models and/or approaches. The literature has demonstrated that certain aims in capacity building structural levels can be looked at via several dimensions to define effect. Moreover, TTA will create the restructuring needed to increase benefits for CBOs and their program implementation as well as allow for: (1) tailoring appropriate prevention support services to increase the customized support that is deemed most preferable; (2) ongoing consultation leading to improvements in HIV prevention programming; and (3) increase opportunities to address ongoing needs through frequent and structured interactions. Research previously noted has found a correlation between the amount of TA received and the amount of improvement in program performance. As in prevention resources, capacity building services need to be allocated to maximize beyond the potential state of capacity to a state of competency. TTA will provide the leadership necessary to preempt low performing programs rather than waiting for organizations to volunteer and/or request TA which can prove to be too late.

APPENDICES

APPENDIX A: Background on Clinical Parameters for CD4 and Viral Load Counts

T-cells are a type of white blood cell that plays a significant role in the adaptive immunity of body's immunologic response to specific pathogens. CD4+ T cell has molecules on its surface and is responsible for gearing up the body's immune system to respond to microorganisms such as the HIV. HIV is able to attach itself to the CD4+ cell and replicate. Thus, the HIV enters the CD4+ cell and multiplies itself within the infected cell. As a result, many copies are produced and the CD4+ cell in destroyed in the process. A viral load counts the number of HIV particles in a sample of blood. Those with a high viral load will have low CD4 counts. The test for viral load is one of monitoring that can indicate HIV disease progression. As a result, when HIV medical treatment is started, the viral load can provide an indication of how effective the anti-retroviral therapy regimen is working (Urison, 2012).

The goal of HIV medical treatment is to help move viral load down. The rationale for this intensive active referral is to ensure that prevention providers are actively making linkage to care and not passive referrals. Passive referral does not ensure newly HIV-diagnosed individuals into HIV medical care, can increase the likelihood of being lost from care, and decrease the likelihood of improved health outcomes. Similarly, engagement or re-engagement into care is considered another strategy, also unfamiliar to community-based prevention providers, requiring follow-up on HIV positive individuals who are lost from medical care. Although variations in defining lost to care vary across jurisdictions, locally lost to care is defined as having entered in HIV care but lost to follow-up. Other HIV service delivery systems require strategy efforts focused on retention in care (NASTAD, 2011). According to CDC, community-based prevention providers can support individuals diagnosed with HIV infection with strategies that assist with full engagement in HIV medical care (CDC, 2013).

APPENDIX B: Copy of UIC IRB Approval

UNIVERSITY OF ILLINOIS
AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Notice of Determination of Human Subject Research

October 4, 2013

20130971-77635-1
20130971-77635-1

Griselle Torres, MPH, MSW
Public Health
3309 N. Central Park Ave
Chicago, IL 60618
Phone: (773) 539-2588 / Fax: (773) 539-4088

RE: **Protocol # 2013-0971**

Case series analysis of capacity building services for HIV prevention programs: Chicago's Experience

Sponsor: None

Dear Griselle Torres:

The UIC Office for the Protection of Research Subjects received your "Determination of Whether an Activity Represents Human Subjects Research" application, and has determined that this activity **DOES NOT meet the definition of human subject research** as defined by 45 CFR 46.102(f).

You may conduct your activity without further submission to the IRB.

If this activity is used in conjunction with any other research involving human subjects or if it is modified in any way, it must be re-reviewed by OPRS staff.

APPENDIX C: Copy of CDPH IRB Approval

DEPARTMENT OF PUBLIC HEALTH

CITY OF CHICAGO

December 3, 2013

Griselle Torres, MPH, MSW
Principal Investigator
Chicago Department of Public Health
DePaul Center
333 South State Street
Suite 200-2nd. Floor
Chicago, IL 60604

Dear Ms. Torres:

Thank you for submitting the application for Exemption from Human Subjects Review for your proposal entitled "Retrospective Case Series Analysis of Capacity Building Services in HIV Prevention Programs", which is assigned CDPH IRB #13-08. This proposal is approved for Exemption from Human Subjects Review by Expedited Review. IRB approval from UIC is noted.

No further submission to the CDPH IRB is necessary, unless there are changes to the protocol or unexpected adverse events, which must be reported to the IRB immediately.

Sincerely,

Arthur Kohrman

Arthur Kohrman, M.D.
Chair

cc: IRB Files

333 SOUTH STATE STREET, SUITE 200, CHICAGO, ILLINOIS 60604

APPENDIX D. PERMISSION TO USE FIGURE

From: Torres, Griselle
To: Torres, Griselle
Subject: RE: Permission to use Ecological framework for understanding effective implementation
Date: Monday, June 30, 2014 11:11:52 AM

On Sunday, March 23, 2014 11:35 AM, "Durlak, Joseph" <Jdurlak@luc.edu> wrote:

Ms. Torres:

Okay, you have my permission to use Figure 1 from my 2008 publication in the *American Journal of Community Psychology*.

Good luck in your work

Joe Durlak
Emeritus Professor of Psychology
Loyola University Chicago
Now pleasantly retired and living at:
26 Condesa Road
Santa Fe, NM 87508
ph 505-466-1488

From: Griselle Torres <griselletorres@sbcglobal.net>
Sent: Saturday, March 22, 2014 1:43 PM
To: Durlak, Joseph
Cc: Michael Petros
Subject: Re: Permission to use Ecological framework for understanding effective implementation

I have attached your publication for convenience.

I would like to use Figure 1: Ecological framework for understanding effective implementation on page 335 used in an original paper. The figure is from the American Journal of Community Psychology and the review is titled: "Implementation Matters: A Review of Research on the Influence of Implementation on Program Outcomes and the Factors Affecting Implementation." I would like to cite your figure within my dissertation. It also appears to have been published online on March 6, 2008 by Springer. Again, the purposes of the figure is to reference your work within my dissertation.

Oddly enough, I went to the APA site and there are quite a bit of permissions forms. Thus, we were slightly confused on which one to use. Public health does not have a form.

Again thanks for responding. I see you are happily retired in Santa Fe. I have visited New Mexico, including Sante Fe, and loved it. Lucky you!

APPENDIX E. MANUSCRIPT NUMBER ONE SUBMISSION RECEIPT

PUBLIC HEALTH *Reports*

Manuscript Home | Author Instructions | Reviewer Instructions | Help | Contact PHR | Journal Home | Logout

Manuscript Approved (14-224).

Home Page for Griselle Torres

Author Tasks

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Licensed under Patent #US 7,620,55581

APPENDIX F. MANUSCRIPT NUMBER TWO SUBMISSION RECEIPT

From: Torres, Griselle
To: Dircksen, Jaime; Choucair, Bechara
Cc: Bocskay, Kirsti
Subject: White Paper
Date: Tuesday, July 01, 2014 1:03:00 PM
Attachments: WhitePaper_Final_1July2014_CapacityBuilding.pdf

As a requirement of my dissertation, attached is a white paper assessing past capacity building trainings and practice implications.

I would like to take the opportunity to thank you both for your support, especially Jaime for serving as my Project Champion. I hope that you find the white paper beneficial and that it leads to fruitful discussions about capacity building as a workforce development strategy and maintaining accreditation in our department-wide efforts.

Respectfully,
Griselle

Griselle Torres, DrPHc, MPH, MSW
Public Health Administrator III
Chicago Department of Public Health, Division of STI/HIV
HIV Prevention, Monitoring & Evaluation Jurisdictional Coordinator
333 S. State Str., 2nd flr; DePaul Center
Chicago, IL 60604
Email: griselle.torres@cityofchicago.org
Tel: 312.747.9436

APPENDIX G. MANUSCRIPT NUMBER ONE

Chicago HIV Prevention Capacity Building Services

Retrospective Analysis in Utilization of Capacity Building Services by HIV Prevention Programs in a Local Health Department Jurisdiction: Impact of the National HIV/AIDS Strategy

Author

Griselle Torres, DrPH(c), MPH, MSW

DrPH Candidate, University of Illinois at Chicago, School of Public Health

Chicago Department of Public Health, Division of STI/HIV

Public Health Administrator/ Performance & Quality Improvement Liaison

Corresponding Author

Griselle Torres, DrPH(c), MPH, MSW

Chicago Department of Public Health, Division of STI/HIV

333 S. State Street, DePaul Center, 2nd floor

Chicago, IL 60604

Telephone: 312-747-9436

Fax: 312-747-9663

Email: griselle.torres@cityofchicago.org

Word Count: 2,611

Number of charts, tables, and figures: 2

IRB: The UIC Office for the Protection of Research Subjects determined that this activity does not meet the definition of human subject research as defined by 45 CFR 46.102(f). REF: Protocol # 2013-0971, IRB#: 20130971-11735-1 (10/04/2013).

The CDPH IRB determined that this activity does not meet the definition of human subject research as defined by 45 CFR 46.102(f) (11/20/2013).

Abstract

Objective. Investments have been made to strengthen HIV program implementation and develop the public health workforce outside of the Health Department ("external workforce") in Chicago. However, the utilization and impact of capacity building on HIV prevention programming has not been assessed. Utilization of capacity building trainings by delegate public health partners will be the focal point of this study, and should be answered prior to determining whether the capacity building efforts worked given measurement challenges.

Methods. Using administrative data sets from the local health department, a case series study was conducted to describe the utilization of capacity building training provided to funded delegate agencies for HIV prevention programming between 2008 and 2013, pre- and post-National HIV/AIDS Strategy.

Conclusions. All delegate agencies utilized some modality of capacity building training offered by the local health department annually. However, in-person trainings were used more than online trainings. Between 2008 and 2013, 1759 individuals from funded delegate agencies participated in in-person trainings, and 883 individuals participated in online trainings. In-person trainings were also used more for skills-building courses. On-line trainings were most useful for facts-based content. Online trainings are important because they provide a more convenient way for organizations to access content and may be particularly useful for organizations that need to provide training to staff on a more frequent basis. This data shows the need to continue capacity building training to assist with program implementation and serves as a workforce development strategy.

Keywords: Capacity building, Technical assistance, Community-based organizations, Prevention support systems

Introduction

The National HIV/AIDS Strategy (NHAS) has been described as defining what is and what is not working in the delivery of HIV prevention services. A refocused approach was offered to increase results with emphasis in higher impact activities. Gardner et al.'s Cascade: *Stages of Engagement in HIV Care* (2011) is a model that is used nationally to identify issues and opportunities related to improving the delivery of services across the spectrum of care. Since the release of NHAS in 2010, local policy translation has resulted in transformative change implications in the delivery of HIV prevention services: (1) a paradigm shift in the delivery of HIV prevention services from the "test one, test all" to targeted testing through high impact prevention (HIP); (2) role expansion of community based organizations in the implementation of their HIV prevention program from outreach and testing to case management functions; and (3) increased jurisdictional oversight in NHAS implementation.

Capacity building has long been viewed as a form of empowerment and continues to play an important role in shaping public health partners' service delivery to marginalized and vulnerable populations. State and local health departments play a primary role in addressing HIV prevention efforts. Local health department (LHD) leadership requires active guidance, monitoring, and evaluation in ensuring that structural changes are occurring in alignment of NHAS. However, effectiveness in the delivery of HIV prevention is dependent on the capacity of public health partners. Capacity building through the delivery of technical assistance (TA) services such as trainings, workshops, and skills building courses are essential in ensuring that funded public health partners are in realignment of HIV prevention goals as well as workforce development strategy.

Capacity building has historically been a nebulous term with varying definitions. It is also often referred to the "black box" since little is known about how TA services structured to build capacity among public health partners leads to better outcomes (Hunter, 2009). While overall capacity building outcomes are difficult to measure, strides have been made in identifying its related structural levels. Each structural layer (Figure 1) is considered both a process and outcome, and has multi-dimensional, dynamic interrelationships with the other levels (Brown et al. 2001). Structural levels have dimensions or factors related to a capacity, and are associated with the implementation of public health programs that can aid in measurement. Co-occurrence

among structural levels must always be assumed in any level of uptake. The caveat is that each dimension identified within each structural level overlaps with another (Goodman et al., 1998; Durlak and DuPre, 2008).

Little is known about how TA should be structured to benefit community based organizations (CBOs), HIV prevention programs, and how it can lead to better outcomes (Hunter et al. 2009). While research for TA models is lacking, studies have demonstrated benefits in: (1) ongoing consultation leading to significant improvements in evidence-based program implementation than TA models using manuals only and/or one-day workshops (Kelly et al., 2000; Ka'opua et al., 2011; Jolly et al., 2003); (2) training as a viable mechanism to offer capacity building services even though studies have shown that a customized approach is preferable; (3) a strong relationship between capacity building assessments and evaluation must be established in advanced to maximize and fully understand its effect; and (4) an ecological framework supporting the values and necessity of capacity building in the efforts of program implementation and sustainability which comes primarily from prevention supports systems (Durlak and DuPre, 20018). Thus, while a significant barrier exists in defining the impact of the delivery of local capacity building services, it is believed that challenges are further compounded by local post-NHAS policy translation. Still, public health practice is dependent on its partners, and a capable public health workforce is central to the delivery of high-quality care (McAlearney et al., 2011). The CDC advocates for capacity building efforts as a core function in any prevention strategy.

Description of Program Being Evaluated

Despite emphasis in the public health workforce research focused in governmental settings (PHAB, 2011), this study will look at funded delegate agencies and their utilization of varying capacity building trainings provided by the Chicago Department of Public Health (CDPH) between the years of 2008-2013. Since the mid-1990s, the CDPH has offered capacity building through the delivery of prevention support services to delegate HIV prevention providers. This municipal jurisdiction has maintained an estimated range of 22-30 local funded organizations since 1999 through competitive RFP (Request for Proposal) cycles. The funded organizations are within the city limits and are the scope of this project. The benefits of technical assistance

will be explored by describing both training usage of in-person trainings and online courses in the program's capacity building efforts.

The capacity building program consists of an annual training calendar targeted at HIV prevention funded organizations for the purposes of developing/enhancing skills in implementing HIV prevention programs and its interventions. The trainings include workshops, skills-building courses, and online courses. Distanced-based learning did not begin until 2008. The goals of the capacity building program are to prepare providers for their new tasks, improve skills level, communicate uniformity in the delivery of HIV prevention services, offer training to newly hired staff, understanding social service delivery landscape, and offer support in the diffusion of HIV prevention interventions. Additionally, the goals of the training are to provide the emotional support needed to develop self-efficacy and promote active forms of learning in skills acquisition. Between the years 2008 through 2013, the core skills building training areas covered: (1) delivering individual level HIV/STI facts based information; (2) delivering HIV prevention group level interventions; (3) HIV prevention counseling; (4) referring to partner services programming; (5) street level outreach; (6) managing group level health communication and education; (7) comprehensive risk counseling services; (8) HIV testing technology; and (9) couples counseling. Additionally, workshops offered annually included the relationship between HIV and: (1) Hepatitis C; (2) medical care; (3) tuberculosis; (4) human sexuality; and (5) STDs. All of the core training areas focus on different aspects in implementing various HIV prevention programs and are considered basic tenets regardless of the targeted populations within HIV programming. Table 1 provides an overview of capacity building utilization by CDPH grantees. There is a substantial decrease in the in-person trainings offered in 2011. Records show that the CDPH capacity building program restructured programming efforts in order to reflect NHAS goals by requiring online courses as prerequisites for certain in-person skills building courses. Although the in-person trainings may fluctuate yearly, the online courses remain constant. All of the in-person trainings offered content for learning and included integrated hands-on exercises to supplement the information covered. However, skills building courses subsequently have an additional testing component that includes pass/fail teach-backs or demonstration of skills acquired. The skills-building courses were curriculum-based with numerous opportunities to demonstrate teach-backs. Finally, all of the skills building trainings had a multi-day component whereas the online courses were accessible via a web-based platform, available 24 hours a day

and seven days a week. Registrants could finish an online course at any time by saving their current work and returning at a later date to complete the training.

Purpose of Evaluation

The importance and rationale for this study are that significant investments have been made to public health partners as part of the reach and leverage necessary in achieving HIV prevention goals and ultimately, to protect and improve the public's health. The same resources continue with no clear transition post-NHAS. CDPH's capacity building program affords an opportunity to study capacity building services previously delivered. Human capital investments are strategically allocated to public health partners annually in efforts to strengthen HIV program implementation and develop the public health workforce. How resources are allocated for the implementation of capacity building trainings and its utilization by delegate agencies is not well documented. To guide this investigation, the specific questions that will be addressed in the study are:

(1) How did delegate HIV prevention funded organization utilize trainings annually?

(2) How can findings help inform capacity building program policy and the re-allocation of its resources?

Public health partners are an extension of the LHD public health workforce. The delivery of capacity building services is the main mechanism in maintaining a competent workforce. As Chicago's HIV prevention resources continue to impart capacity building services, it is important to understand its utilization patterns and how utilization leads to improvements in program implementation. To make informed decisions, greater understanding is needed in how to enhance prevention support systems and how it can track areas of improvement. This understanding can help leaders look at how trainings are utilized and factors to consider when developing technical assistance models to address workforce development particularly those of our external public health partners. Thus, the study's objectives are to characterize the utilization of the technical assistance services imparted by CDPH, describe the TA utilization by delegate agencies, and use the findings to assist in informing its capacity building policy and resources.

Methods

A case series study design was used as the framework for this program evaluation. The unit of analysis is the delegate agency funded for HIV prevention programming in the City of Chicago. The delegate HIV prevention agencies funded between the calendar years 2008 - 2013 includes two (2) grant cycles and involve many of the same grantees. For the purposes of this study, capacity building will be defined as participation by delegate HIV prevention agencies in an online course and/or in-person training, hosted by CDPH during the years 2008-2013. Under study are the utilization patterns of online courses, skills-building trainings, and workshops. The utilization of any of the types of capacity building services is voluntary. Descriptive analyses allows the identification of the "what" in the delivery of capacity building services and areas for further research, aid in planning and allocating capacity building resources, and methodically identify appropriate partners or connections to program sustainability that might otherwise go unnoticed.

Secondary data sources were used. The administrative datasets for analysis were provided by the CDPH Capacity Building, Training and Technical Assistance Unit. This retrospective analysis relied on three training utilization datasets stored in a Microsoft Access® database, Microsoft Excel® spreadsheets, and learning management system (LMS) databases, and included the following variables: training/workshop/ online course title, training/workshop/online course description and/or objectives, delegate agency participating in the training/workshop/online course, and number of training participants by delegate agency in each training/workshop/online course.

Results

Between 2008 and 2013, the total number of individuals from funded programs participating in in-person and online trainings were 1,759 and 883, respectively. The counts are duplicative and a function of the program's data collection by organization rather than tracking personnel by awarded programs to account for organizations with multiple funding awards. As noted in Table 1, while online trainings have an attraction of modern convenience, distance based learning did

not appeal to all funded organizations and is substantially less utilized than in-person trainings pre-NHAS. Distance based learning courses are limited to facts-based rather than skills-building content and hands-on practice. The courses are in a fixed-state with no element of interaction with training staff. Post-NHAS capacity building program restructuring focused on increasing in-person trainings that were high impact focused. Thus, online courses became prerequisites for in-person trainings and thus, online utilization increased substantially. Despite the capacity building program restructuring to align with NHAS, a substantial increase, more than double, was seen in mean attendance by delegate agency for all trainings. A possible explanation for this is that the skills building courses offered the much needed "practice" in applying certain HIV prevention skills. Thus, while less funded organizations are represented in the in-person trainings, delegate agencies are sending more program personnel per training. The case is reversed for online trainings. More funded agencies are participating in online courses but utilized less by program personnel. Alternative explanations could include challenges in implementing HIP programs, and online courses offer a convenient way for organizations to easy access fundamental content. This may be particularly helpful for organizations dealing with high staff turnover or program staff in need of annual refreshers.

Lessons Learned

The Chicago TA model is a valued resource given the importance of workforce development in the field of public health. Most recently with Public Health Accreditation Board emphasizing workforce development, CDPH is ahead of the game when it comes to fostering workforce development of their external partners. This is a relative advantage to other jurisdictions that rely on external sources for capacity building and technical assistance services. Additionally, the capacity building trainings are a venue for participants not just to gain/enhance professional skills, but also provide networking opportunities with other public health partners to share ideas in addressing challenges in meeting HIV prevention goals. From the analysis, the resources detailed in delivering capacity building services are indeed being utilized, often multiple times within a contract year and also annually, by delegate agencies. Additional consideration is needed to identify ways to link program reporting with TA and performance assessments in an attempt to measure uptake or technology transfer beyond the course training. Finally,

consideration is needed in capturing experiential learning by delegate agencies. This type of qualitative information can aid in determining applications of new skills and its relationship to program uptake.

This study reinforced the need for continued capacity building efforts. Not only can it assist with program implementation but also with sustained efforts to serve as a workforce development strategy for public health partners. From an ecological perspective, local leadership can gear efforts toward varying capacity building at structural levels given its multi-dimensional effects and co-occurring relationships. It was clear from the descriptive study that CBOs will utilize training opportunities to assist with program implementation. Varying technical assistance options need to be taken into consideration to meet various challenges. There are benefits in offering in-person trainings. In person trainings are best in maximizing its usefulness when the focus is skills-building and assessing skill proficiency. Another benefit is that skills building increases self-efficacy. The literature review has demonstrated a positive relationship in high self-efficacy and increases in dosage and fidelity in program implementation.

In order to advance NHAS goals, capacity building goals need to consider offering high-impact technical assistance (Hi-TA). Just as prevention programs need to focus on maximizing efforts through High Impact Prevention (HIP), so can targeted TA (TTA). The capacity building program previously focused on push mechanisms and relied on volunteer access. Although organizational readiness and motivation are central in help seeking patterns, a proactive approach may be necessary to fully achieve NHAS goals. In addition, focusing on prevention interventions may not be sufficient given that structural dimensions are always co-occurring. Hi-TA would continue an ecological approach by looking at all structural levels. Hi-TA focus should be driven by several factors:

1. Program implementation assessments that are timely in nature, have high frequency in active monitoring, and allow room for program adaptability as an additional approaches in TA;
2. Pre-and post-training assessments measuring baseline and longitudinal performance of skills acquired for quality management purposes; and

3. Assessing incidence and prevalence rates in geographical areas coupled with low performing programs (based on annual program evaluations) serving those areas will increase the collective leadership needed in meeting NHAS goal.

The goal of the capacity building program is to improve the ability of CBOs to develop sustainable HIV prevention programs for community level impact. NHAS has been a transformative change, locally affecting the roles of HIV prevention providers, creating a paradigm shift in the delivery of HIV prevention services, and redefining leadership. Maintaining capacity building services is necessary to ensure program sustainability and translation of NHAS policy locally. While capacity building is a process that improves the potential to meet HIV prevention goals, it is also an outcome that requires a collective leadership.

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Tables/Figures

Figure 1: Capacity Building Structural Levels

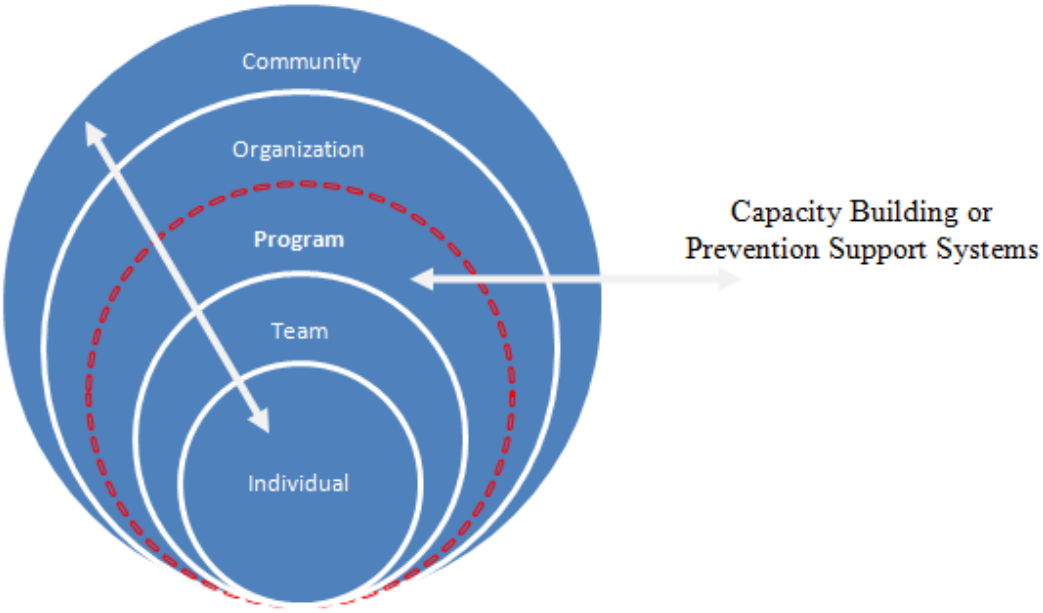


Table 1: Overview of capacity building utilization by CDPH grantees, years 2008 - 2013

CDPH, Capacity Building Program Training Utilization, 2008-2013	Pre-NHAS		Post-NHAS			
	2008	2009	2010	2011	2012	2013
No. of individuals trained in person	312	264	273	81	207	622
No, of individuals trained online	201	206	243	85	47	101
No. of online trainings	7	7	7	7	7	7
No. of in-person trainings	54	39	42	13	35	50
No. of funded organizations	29	29	28	28	27	29
No. of funded programs	51	51	45	45	60	60
No. of grantees represented in-person trainings	13	25	20	4	7	12
No. of grantees represented in online courses	8	4	12	22	20	21
Mean attendance per funded agency for all trainings	15.7	8.6	15.7	23.9	12.3	30.4
Percent of grantees in-person trainings	45%	86%	71%	14%	26%	41%
Percent of grantees in online trainings	28%	14%	43%	79%	74%	72%

APPENDIX H. MANUSCRIPT NUMBER TWO

PERFORM

IMPROVE

ADVANCE

Leveraging Capacity Building to Achieve National HIV/AIDS Strategy Goals and Strengthen the Public Health Workforce through Continuous Quality Improvement

Griselle Torres, DrPH(c), MPH, MSW
Author

Kirsti Bocskay, PhD, MPH
Editor

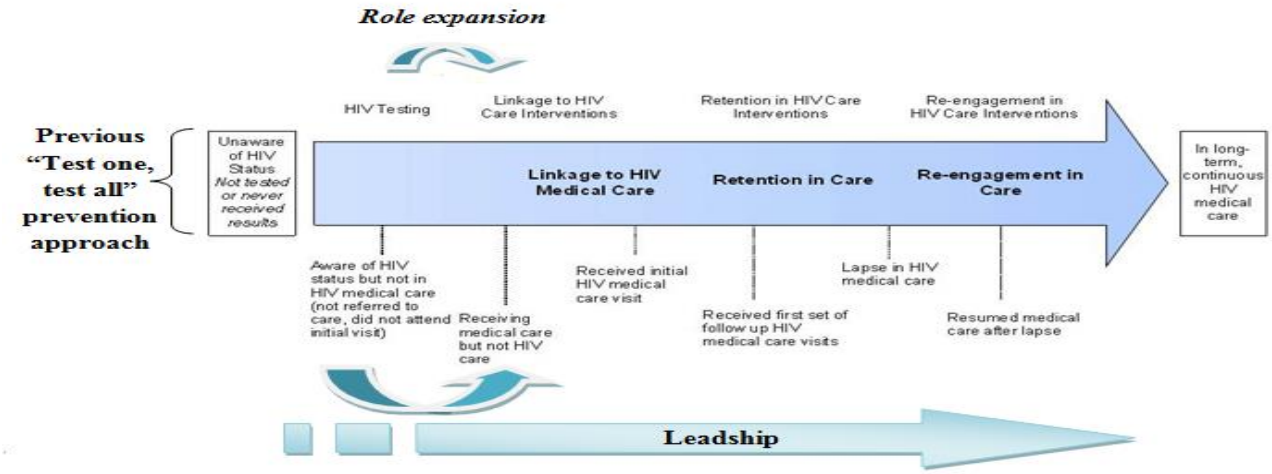
WHITE PAPER
JULY 2014

TABLE OF CONTENTS

INTRODUCTION

The National HIV/AIDS Strategy (NHAS), released in 2010, is a strategy that defined what was and what was not working in the delivery of HIV prevention services. This refocused approach was put forward to (1) reduce new infections; (2) increase access to care and improve health outcomes for people living with HIV; and (3) reduce health-related disparities by moving from lower to higher impact activities (CDC 2011, NHAS 2010). NHAS has resulted in changes in the delivery of HIV prevention services locally by shifting the paradigm from "test one, test all" prevention approach to targeted testing, expanding the role of community based organizations and increasing jurisdictional oversight in NHAS implementation. State and local health departments (LHD) play a primary role in addressing challenges associated with HIV prevention efforts. LHD leadership requires active guidance, monitoring, and evaluation in ensuring that structural changes are occurring in alignment of NHAS. The stages of engagement in HIV care developed by Gardner et al. (2011) is a model used nationally to identify issues and opportunities related to improving the delivery of services across the spectrum of care. The integration of NHAS and stages of engagement in HIV care are outlined in Figure 1.

Figure 1. Gardner's Cascade: Stages of Engagement in HIV Care



Despite the strategic changes of NHAS on HIV prevention, the Centers for Disease Control & Prevention (CDC) continue to stress that capacity building efforts are a core function in any prevention strategy. Public health practice is dependent on its partners, and a capable public health workforce is central to the delivery of high-quality care (McAlearney et al. 2011). The effectiveness in delivering HIV prevention services in Chicago is dependent on the capacity of individuals,

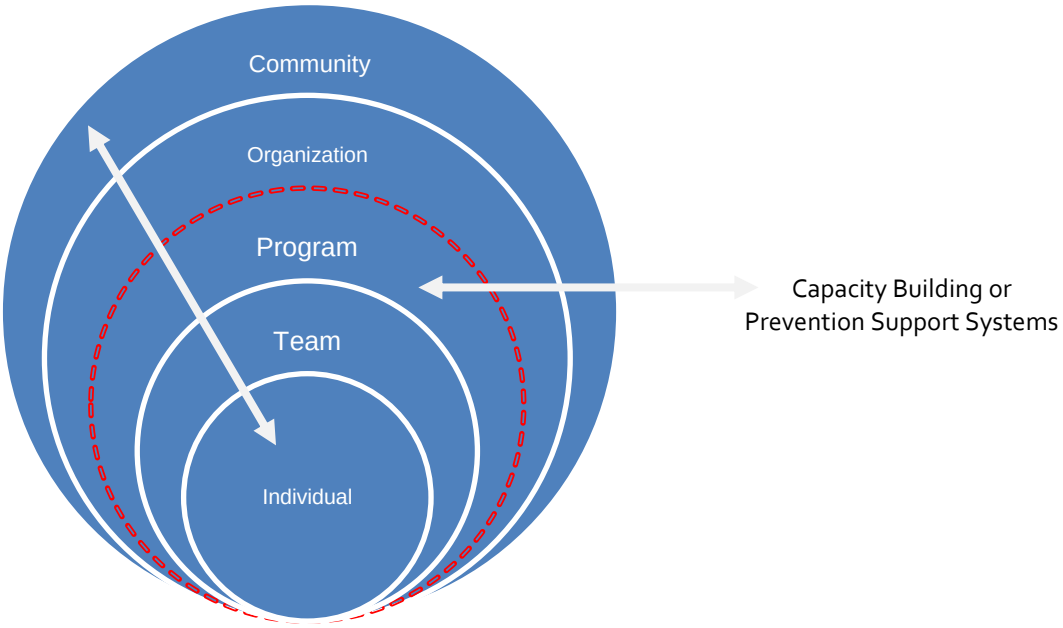
programs and organizations funded by the Chicago Department of Public Health (CDPH). Capacity building workshops, skills building courses and other training modalities have been an essential component of CDPH's HIV prevention efforts since the beginning of the AIDS epidemic to ensure our funded public health partners are successfully implementing HIV prevention programs.

BACKGROUND

The concept of capacity building is elusive with multiple definitions and different applications. It is often referred to as a "black box" since little is known about how the TA services structured to build capacity with public health partners leads to better outcomes (Hunter 2009). Additionally, best practices for measuring capacity building, whether at the individual, programmatic, organizational or community level, needs further research. However, in public health practice, funders and program evaluators often focus on overall program implementation, what the program is doing, how well it is doing it, and current level of activity. While research on TA models is limited, studies have demonstrated (1) significant improvements in program implementation through ongoing consultation compared to using manuals only and/or one-day workshops (Kelly et al., 2000; Ka'opua et al. 2011; Jolly et al. 2003), (2) customized capacity building services are preferable to general trainings, (3) establishing assessments and evaluation in advance is necessary to maximize and fully understand the effect of capacity building, and (4) capacity building is valuable and necessary for program implementation and sustainability (Durlak and DuPre 2001).

Conceptually, capacity building is composed of multiple structural levels (Figure 2). Each structural level is considered both a process and outcome, and dynamic (Brown et al. 2001). When you target one level, all other structural levels will be affected. For example, training an individual impacts the team, program, organization and community (Goodman et al., 1998).

Figure 2: Interrelationship among structural levels in the uptake of capacity building services



Chicago has funded 22-30 local CBOs over the course of HIV prevention jurisdictional planning. Since the mid-1990s, CDPH has offered capacity building services to delegate agencies providing HIV prevention services in Chicago. The delivery and utilization of the capacity building services provided by the CDPH Capacity Building, Training & Technical Assistance Unit to delegate agencies will be the focus of this evaluation. The TA model at CDPH will be explored by describing training attendance by delegate agencies and their staff, as well as annual delegate agency HIV prevention program implementation audit scores. HIV prevention program implementation audit scores measure the extent to which an HIV prevention program was implemented by the delegate agency, and what factors or barriers either inhibited or facilitated HIV prevention program implementation. This evaluation will focus on the effectiveness, not efficacy, of capacity building by examining the program implementation scores, not pre- and post-tests from the capacity building training (Shegog et al. 2013).

While emphasis on the public health workforce has been and continues to be focused mainly within governmental settings (PHAB 2011), this evaluation examines funded delegate agencies, their utilization of varying capacity building services provided by CDPH between the years of 2008-2013 and HIV prevention program success. Public health partners are an extension of the LHD's public health workforce. The delivery of capacity building services is a mechanism to maintain a competent workforce through individual training and professional development, one of the 12 domains of

Public Health Accreditation. Significant investments have been made to public health partners (i.e., delegate agencies) as part of the reach and leverage necessary to achieve HIV prevention goals and strategically approach the development of a competent workforce to perform public health duties (PHAB 2011). The same investments have continued with no clear transition post-NHAS. Data collected by CDPH's Capacity Building, Training & Technical Assistance Unit provides an opportunity to study capacity building services pre- and post-NHAS.

Human capital investments are allocated annually to develop the public health workforce working in HIV prevention. As Chicago's HIV prevention resources continue to provide capacity building services, it is important to understand utilization patterns, how utilization affects program implementation and, ultimately, progress in achieving the NHAS goals. The findings of this evaluation will inform CDPH leadership on the utilization of capacity building services provided by the Capacity Building, Training & Technical Assistance Unit in relation to annual program implementation scores.

METHODS

A case series study design was used as the framework for this evaluation. The unit of analysis is the delegate agency funded for HIV prevention programming in the City of Chicago. Delegate agencies were funded for the years of 2008 – 2013, which included two grant cycles with many of the same grantees over these cycles. Only 22% of grantees lost and/or regained HIV prevention funding between the years of 2008 - 2013. Two grantees stopped operating altogether during the study period. Table 1 provides an overall summary of the delegate agencies. Of note, only one organization was funded for expanded HIV testing for disproportionately affected population. This organization was included in the sample as TA efforts for HIV prevention are inclusive of all funded agencies. However, this inclusion skews the range in funding allocations. As such, there are two "Award funding" categories listed in Table 1 to demonstrate the difference. Some delegate agencies were awarded multiple grants (i.e., program awards). Thus, the number HIV prevention program awards range between 33-60 programs, while the number of funded delegate agencies range from 27-29 during the study period. The number of program awards increased between 2008 and 2013, but average program funding decreased. Delegate agency funding is awarded by target population, risk, race-ethnicity, and age categories, and geographical area served. The RFP lists the funding categories available for competitive application by agencies.

Capacity building is defined for this evaluation as participation by a delegate agency in an online course and/or in-person training (either skills-building training or workshop) provided by the CDPH Capacity Building, Training and Technical Assistance Unit. The utilization patterns of online courses and in-person trainings will be examined in relation to delegate agency HIV prevention program implementation audit scores. The utilization of any of the capacity building services by CDPH is voluntary, regardless of funding status. All funded delegate agencies took advantage of at least one modality of capacity building offered by CDPH each year.

The administrative datasets for analysis were provided by the CDPH Capacity Building, Training and TA Unit and the Contracts Unit for the years 2008 through 2013. Three training utilization datasets relevant to this study were stored in a Microsoft Access® database, Microsoft Excel® spreadsheets, and learning management system (LMS) databases, and included the following variables: training/workshop/online course title, training/workshop/online course description and/or objectives, delegate agency participating in the training/workshop/online course, and number of training participants by delegate agency in each training/workshop/online course.

HIV prevention program implementation audit scores are compiled by CDPH contract compliance officers/monitors during annual site visits that assess the extent to which the organization has implemented the proposed HIV prevention program scopes negotiated in the beginning of each contractual year. The annual site visit is a process in which contract compliance officers/monitors visit each funded delegate agency to ensure contractual compliance as well as assess and verify the extent of the proposed HIV program implementation using an audit tool developed by CDPH. Though all delegate agencies may have received a site visit, not all programs were audited. The audit tool provides aggregate scores (0 to 100) with qualitative notes describing facilitators and barriers to implementation. Another administrative dataset helpful in identifying facilitators and barriers to HIV program

Table 1. CDPH HIV Prevention Program funding summary, 2008-2013

	Pre-NHAS				Post-NHAS							
Year	2008		2009		2010		2011		2012		2013	
Funded delegate agencies (n)	29		29		28		28		27		29	
Award funding												
Average	$106,178		$106,829		$101,778		$101,778		$92,593		$111,631	
Median	$100,000		$100,000		$87,000		$87,000		$79,545		$83,703	
Mode	$100,000		$100,000		$87,000		$87,000		$100,000		$100,000	
Minimum	$50,000		$50,000		$50,522		$50,522		$46,544		$46,544	
Maximum	$444,000		$444,000		$386,280		$386,280		$347,652		$1,170,756	
Award funding *(excluding expanded testing)*												
Average	$106,178		$106,829		$101,778		$101,778		$92,593		$92,932	
Median	$100,000		$100,000		$87,000		$87,000		$79,545		$81,350	
Mode	$100,000		$100,000		$87,000		$87,000		$100,000		$100,000	
Minimum	$50,000		$50,000		$50,522		$50,522		$46,544		$46,544	
Maximum	$444,000		$444,000		$386,280		$386,280		$347,652		$347,652	
Program awards	n	%	n	%	n	%	n	%	n	%	n	%
Total	51	100%	51	100%	45	100%	45	100%	60	100%	60	100%
Geographical area served												
Cluster A- North	8	16%	8	16%	8	18%	8	18%	13	22%	14	23%
Cluster B - West/Central	16	31%	16	31%	13	29%	13	29%	13	22%	12	20%
Cluster C - South	10	20%	10	20%	9	20%	9	20%	14	23%	14	23%
Citywide	17	33%	17	33%	15	33%	15	33%	20	33%	20	33%
Population served												
High risk heterosexuals	10	20%	10	20%	9	20%	9	20%	8	13%	6	10%
Men having sex with men	20	39%	19	37%	19	42%	19	42%	23	38%	25	42%

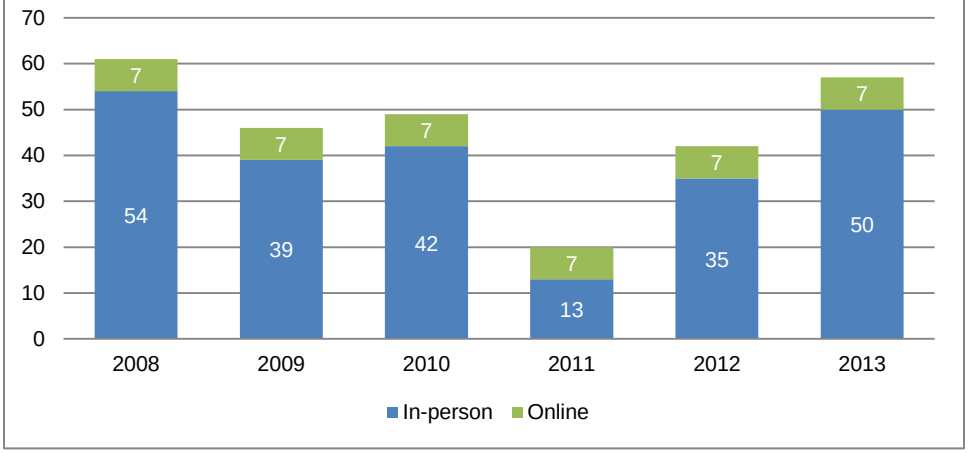
Injection drug users	2	4%	2	4%	2	4%	2	4%	2	3%	2	3%
Prevention with positives	2	4%	3	6%	3	7%	3	7%	14	23%	14	23%
Community level interventions	0	0%	0	0%	0	0%	0	0%	3	5%	3	5%
Special populations and/or special demonstration projects *(i.e., homeless, transgender, social networking, etc.)*	17	33%	17	33%	12	27%	12	27%	10	17%	10	17%
Race-ethnicity												
All race-ethnicities	29	57%	30	59%	25	56%	26	58%	19	32%	33	55%
Hispanic	2	4%	2	4%	2	4%	2	4%	5	8%	5	8%
Non-Hispanic black	17	33%	16	31%	15	33%	14	31%	19	32%	18	30%
Non-Hispanic white	3	6%	3	6%	3	7%	3	7%	4	7%	4	7%
Age												
Youth *(12-24 years of age)*	12	24%	13	25%	14	31%	14	31%	21	35%	20	33%
Adult *(>24 years of age)*	20	39%	19	37%	17	38%	16	36%	26	43%	25	42%
All ages	19	37%	19	37%	14	31%	15	33%	13	22%	15	25%

implementation include delegate agency quarterly reports. Delegate agency quarterly reports are submitted to CDPH's contract compliance officers/monitors and include a narrative about the progress toward HIV program goals, participation in trainings, changes in program implementation, TA requests, and facilitators or barriers to program implementation. Both the agency quarterly reports and the annual site visit reports are stored in Microsoft Excel® spreadsheets. The final administrative dataset used was the financial dataset stored in Microsoft Excel® spreadsheets and used to describe the funding of delegate agencies The administrative financial datasets included the name of delegate agency, HIV prevention program type (target population), community area(s) in which the organization is funded to serve and agency funding amount.

FINDINGS

CDPH's Capacity Building, Training & Technical Assistance Unit offers an annual training calendar targeted at HIV prevention delegate agencies for the purposes of developing skills in HIV prevention program implementation. Distanced-based learning (i.e., online) did not begin until 2008. The Unit's goals are to prepare HIV Prevention providers effectively for their new tasks, improve skills, communicate uniformity in the delivery of HIV prevention services, offer training to newly hired staff, provide understanding on the social service delivery landscape, and/or offer support in the diffusion of HIV prevention interventions. Additionally, the goals of the training are to provide the emotional support needed to develop self-efficacy and promote active forms of learning in skills acquisition. Figure 3 shows the total number of training events hosted by the CDPH Capacity Building, Training & Technical Assistance Unit. There is a substantial decrease in the in-person trainings offered in 2011. Records show that training curriculum was restructured in 2011, and subsequently offered new courses in order to align with NHAS goals. While in-person training events may fluctuate yearly, the number of online courses available remains constant.

Figure 3. Number of trainings offered by the CDPH Capacity Building, Training & Technical Assistance Unit, Chicago, 2008-2013



Online courses are limited to facts-based content rather than skills-building content and hands-on practice. All of the in-person trainings offered content for learning and included integrated hands-on exercises to supplement the information covered. However, in-person, skills-building courses had an additional testing component that included pass/fail teach-backs or demonstration of skills acquired. All of the skills-building courses were curriculum-based on sound adult learning principles with clear objectives and numerous opportunities to demonstrate teach-backs. Finally, the

in-person trainings had a multi-day component whereas online courses were accessible via the CDPH Learning Management System (LMS), available 24 hours a day and seven days a week. Registrants could finish an online course at any time by saving their current work and returning at a later date to complete the training.

Figure 4 provides a breakdown of individuals participating in the any of the online and/or in-person training events hosted by the CDPH Capacity Building, Training & Technical Assistance Unit. A total of 1,759 individuals from delegate agencies participated in in-person trainings. It is necessary to understand that these counts are duplicative, in that, an individual may have taken multiple trainings. A better interpretation is units of training services were provided to the individuals, rather than counts of individuals. While online trainings have an attraction of convenience, distance-based learning does not appeal everyone. Only 883 individuals from delegate agencies participated in online trainings.

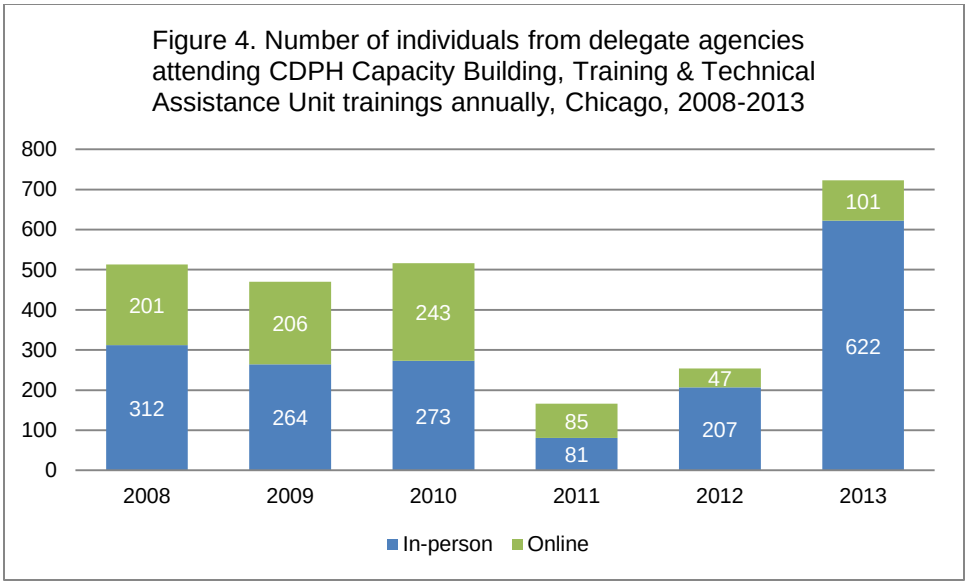


Figure 5 shows the number and percentage of delegate agencies utilizing online and in-person trainings annually. There is a substantial decrease in organizations taking advantage of the in-person trainings beginning in 2011. However, only 13 trainings were offered in that year. Although it appears that fewer organizations are utilizing in-person trainings, funded organizations are, in fact, sending more personnel to trainings. Figure 6 demonstrates the average number of personnel utilizing trainings per delegate agency. Between 2008 and 2013, the average number of personnel attending capacity building trainings provided by CDPH almost doubled. The jump in utilization in online

Figure 5. Number and percentage of delegate agencies completing a CDPH Capacity Building, Training &Technical Assistance Unit training annually, Chicago, 2008-2013

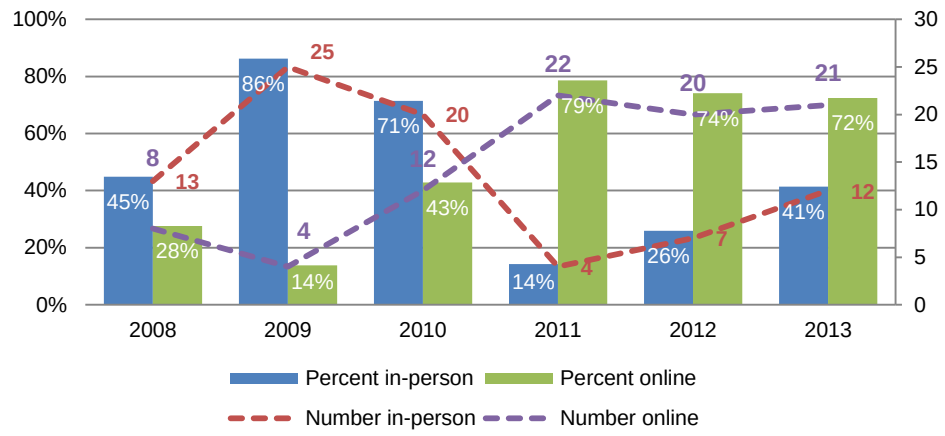
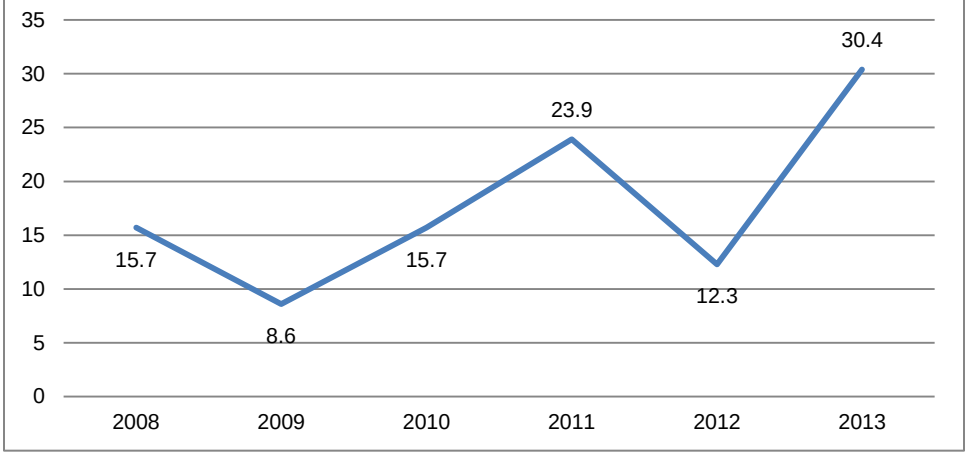


Figure 6. Average number of individuals attending CDPH Capacity Building, Training & Technical Assistance Unit trainings per delegate agency annually, Chicago, 2008-2013



courses by delegate agencies in 2011 may be attributed to program restructuring that required completion of facts-based courses prior to registering for some in-person trainings. Additionally, there are many challenges in implementing high impact programs (HIP) required by NHAS and online courses offer a convenient way for organizations to easily access fundamental content. Moreover, online courses may be particularly helpful for organizations dealing with high staff turnover or program staff in need of annual refreshers. Finally, there could be challenges in attending multi-day trainings.

Delegate agencies are audited annually to ensure intended program scopes are implemented and performance targets are met. A score of 85 or higher is considered passing. Six-year averages of

HIV prevention program implementation audit scores reveal a skewed distribution. This may be a reflection of the audit tool itself. The tool was developed to assess both fiscal, administrative and program implementation. Thus, a delegate agency could fall short in meeting program scopes, but fulfill all fiscal and administrative requirements, resulting in a passing score.

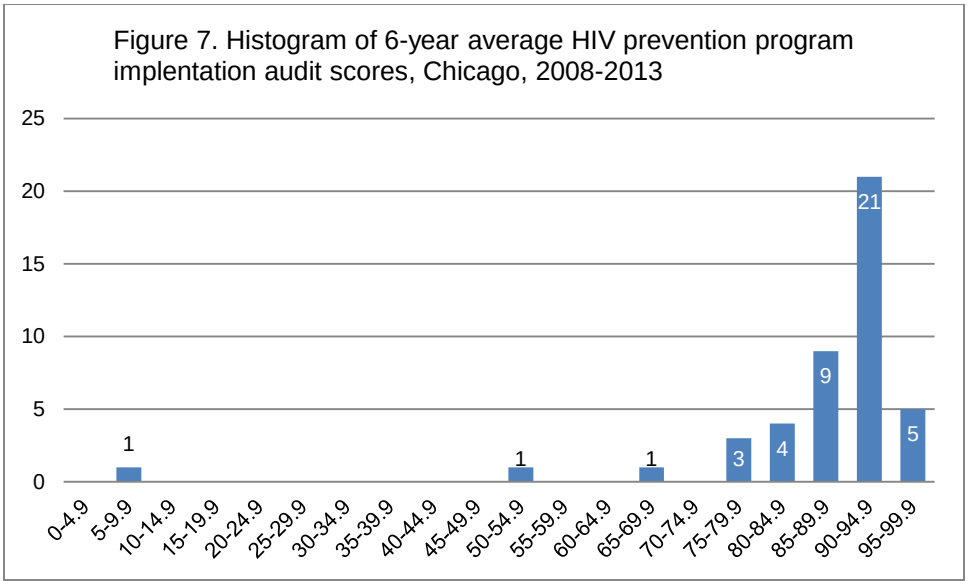


Table 3 features the average HIV prevention program implementation audit scores from 2008 thru 2013. Decreases in average audit scores begin in 2010, consistent with implementation of NHAS locally. Some delegate agencies are experiencing challenges meeting NHAS targets, especially linkage to care and seropositivity rates. This decline in average audit scores is not unexpected given the new performance targets and role expansion into case management now expected of delegate agencies. Average HIV prevention program implementation audit scores vary by population and geographic area targeted for services (Table 4). Different factors exist as to why there is a variation in scores: (1) HRH is the default for coding an individual who receives HIV prevention services, if they don't self-identify into a risk group; (2) some risk populations have become challenging to engage with high impact prevention (HIP) strategies; (3) some HIV prevention strategies are incentive-based and/or no geographical boundaries (i.e., Citywide); and (4) various contextual programmatic factors when targeting specific populations or regions.

Table 3. HIV Prevention Program implementation audit scores, Chicago, 2008-2013						
Year	Number of Programs	Average Score	Median Score	Minimum Score	Maximum Score	Percent Scoring Above 85
2008	51	90.3	93.8	65.9	100	53%
2009	51	94.0	95.0	82.0	100	69%
2010	45	93.3	96.0	37.8	100	58%
2011	45	92.5	96.0	53.0	100	76%
2012	60	88.7	93.7	7.5	100	63%
2013	60	82.4	95.2	64.1	100	63%

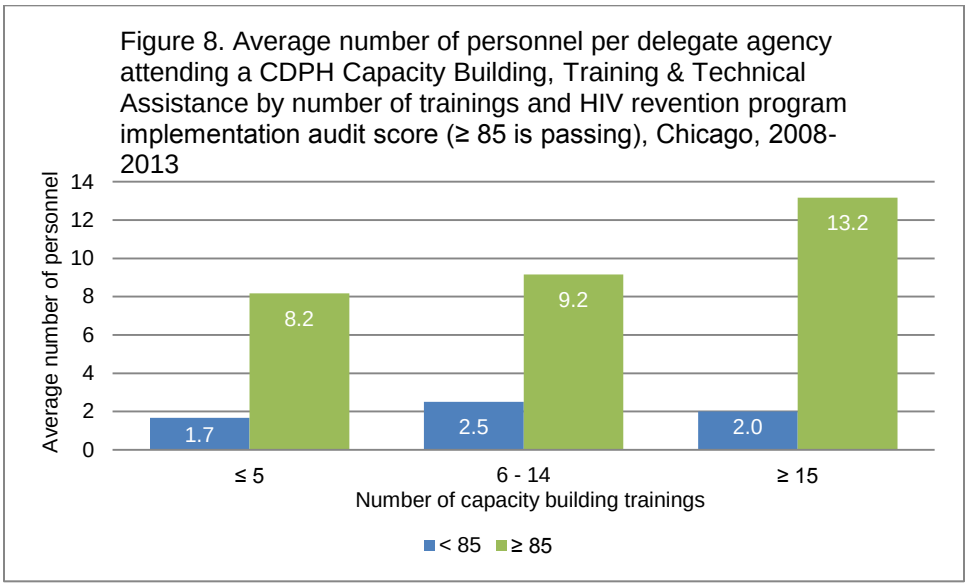


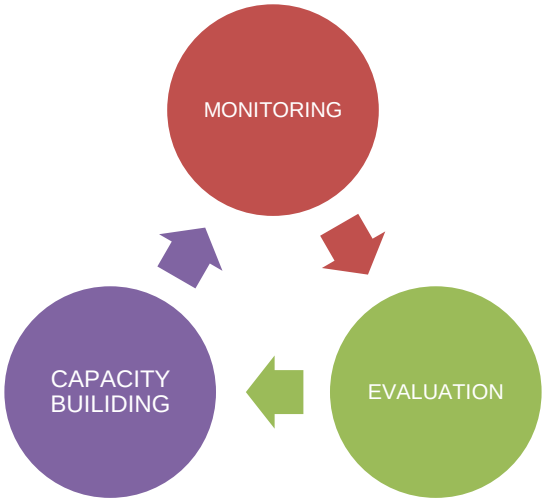
Figure 8 shows audit scores stratified by pass/fail, number of capacity building trainings attended by delegate agency staff broken out into low/medium/high, and average number of personnel per delegate agency participating in training for all years. Figure 8 reveals that the more delegate agency staff who attend capacity building trainings and the more capacity building trainings attended, the likelihood was greater that the program had a passing audit score. Since this is a descriptive study, drawing conclusions regarding the relationship between capacity building and program implementation is premature. An analytic approach is necessary to statistically prove this correlation is significant. However, this finding is consistent with prior research demonstrating a positive impact on program implementation from prevention support systems.

Table 4. Average HIV Prevention Program implementation audit scores by program target, Chicago, 2008-2013						
	Pre-NHAS		Post-NHAS			
Year	2008	2009	2010	2011	2012	2013
Geographical area targeted						
Cluster A- North	91.9	91.0	95.8	97.3	91.7	91.9
Cluster B - West/Central	89.5	93.6	89.6	86.8	85.9	89.5
Cluster C - South	88.5	95.7	92.4	90.2	83.3	88.5
Citywide	91.5	97.6	95.6	97.0	91.3	91.5
Risk population targeted						
High risk heterosexuals (HRH)	91.9	95.7	93.5	89.6	94.1	96.6
Men having sex with men (MSM)	88.3	92.1	91.5	90.8	88.2	90.1
Injection drug users (IDU)	92.3	99.0	97.1	98.3	94.1	95.4
Prevention with positives (PWP)	NA	NA	91.7	96.3	83.6	93.6
Community level interventions (CLI)	NA	NA	NA	NA	NA	90.2
Special populations and/or special demonstration projects *(i.e., homeless, transgender, social networking, etc.)*	91.4	95.3	95.2	96.4	87.2	92.2
Race-ethnicity targeted						
All race-ethnicities	92.3	94.8	91.4	92.5	87.0	91.6
Hispanic	91.6	95.5	89.0	94.9	91.1	98.2
Non-Hispanic black	88.8	93.9	93.3	90.9	91.1	92.3
Non-Hispanic white	81.2	90.3	90.3	94.7	88.3	91.5
Age targeted						
Youth *(12-24 years of age)*	92.5	95.4	95.0	94.0	84.7	89.8
Adult *(>24 years of age)*	87.0	91.2	89.7	88.3	89.7	93.8
All ages	92.9	96.7	95.6	97.3	92.0	93.2

IMPLICATIONS FOR PUBLIC HEALTH PRACTICE

In order to achieve NHAS goals and strengthen the public health workforce, a multi-level strategy is needed to integrate core components of public health practice: monitoring, evaluation and capacity building. The case series study provided the linkage between capacity building efforts and monitoring activities at CDPH, and demonstrated the benefit of training to enhance program implementation in HIV prevention. In addition, the findings identified opportunities for improvement at the macro and meso level, which require incorporating the activities of monitoring, evaluation and capacity building into a continuous, integrated practice as shown below (Figure 9).

Figure 9. Continuous, integrated core public health components



The study reinforced the need for continued capacity building efforts. It was clear from the data that CBOs will utilize opportunities as presented. Expanding technical assistance options offered by CDPH can help to address delegate agency challenges. Specifically, providing customized prevention support will allow CDPH to help delegate agencies not only improve program implementation but build program sustainability. Introducing high impact technical assistance (HiTA) into our existing prevention support system will create the adaptability needed to have a greater impact on program implementation by proactively providing tailored support and ongoing consultation. A Hi-TA focus should be driven by several elements:

4. HIV prevention program implementation assessments that are timely in nature;
5. Continuous and active monitoring of agency-identified facilitators and barriers to program implementation;

6. Pre-and post-training assessments to capture baseline and longitudinal performance of skills acquired for quality management purposes;
7. Using data (HIV infection rates, program metrics, etc.) to guide capacity building efforts for struggling programs.

In addition to expanding capacity building into HiTA, delegate agency collaboratives should also be established. These collaborative can serve as a structured forum for networking opportunities with other public health partners to share ideas in meeting program scopes and, essentially, advancing NHAS goals.

From the study, we learned that the current assessment tool can mask program implementation with fiscal and administrative compliance auditing. Additionally, the assessment tool only measures if scopes were met or not on an annual basis. Information on depth of program implementation, quality of services delivered, performance metrics, and program adaptability is not captured. Improvements should be made to the current tool so that it better reflects program activities and needs that can then be addressed through HiTA. Finally, the assessment process should include a component that features the voice of the customer (i.e., the delegate agency).

With the advent of public health accreditation, focusing on strengthening the public health workforce, CDPH has an advantage compared to other jurisdictions, who rely on external sources for capacity building and technical assistance services for their funded programs. CDPH has taken the lead in not only building its internal workforce, but our external public health partners as well. By leveraging our capacity building system, the department can also make strides in maintaining our accreditation status in several key standards:

Standard 1.4: Provide and Use the Results of Health Data Analysis to Develop Recommendations Regarding Public Health Policy, Processes, Programs, or Interventions

Standard 3.1: Provide Health Education and Health Promotion Policies, Programs, Processes, and Interventions to Support Prevention and Wellness

Standard 4.1: Engage with the Public Health System and the Community in Identifying and Addressing Health Problems through Collaborative Processes

Standard 7.2: Identify and Implement Strategies to Improve Access to Health Care Services

Standard 8.1: Encourage the Development of a Sufficient Number of Qualified Public Health Workers

Standard 8.2: Ensure a Competent Workforce through Assessment of Staff Competencies, the Provision of Individual Training and Professional Development, and the Provision of a Supportive Work Environment

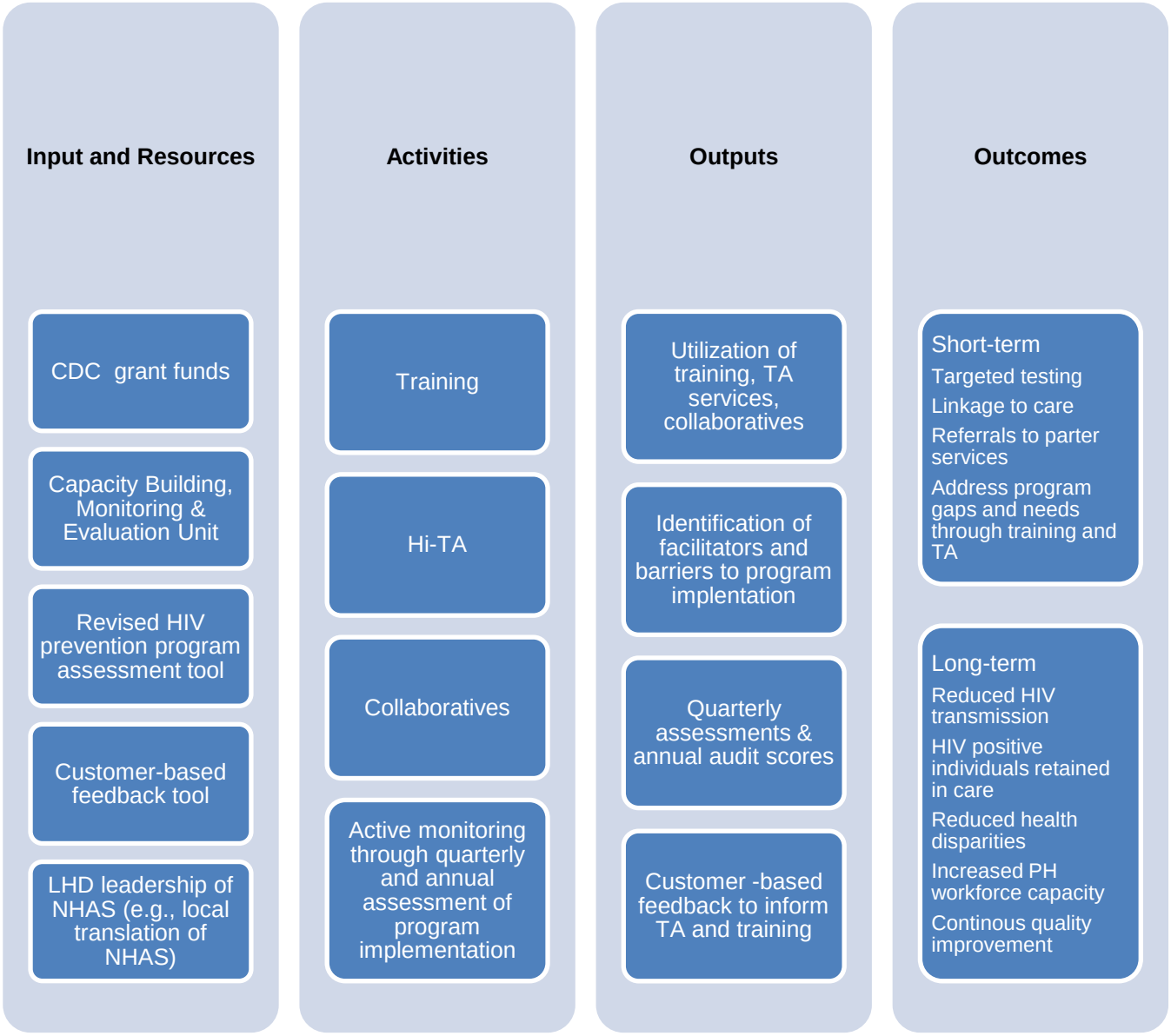
Standard 9.2: Develop and Implement Quality Improvement Processes Integrated Into

Organizational Practice, Programs, Processes, and Interventions

Standard 10.1: Identify and Use the Best Available Evidence for Making Informed Public Health Practice Decisions

The ideal logical framework (Figure 10) details how CDPH can advance NHAS and department-wide goals through: (1) the integration of monitoring, evaluation, and capacity building in HIV prevention; (2) inclusion of HiTA and collaboratives into CDPH's capacity building model; and (3) continually addressing opportunities for improvement.

Figure 10. Ideal logic model



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ACKNOWLEDGEMENTS

CHICAGO DEPARTMENT OF PUBLIC HEALTH

Kenya Bell
Bechara Choucair, MD
Jaime Dircksen, AM
Dwight Hunter
Laura Roche, *Intern*
Mark Younkins

EXTERNAL CONTRIBUTORS

Ronald Hazen, MPH, *NORC at the University of Chicago*
William Kling, JD, MPH, *University of Illinois at Chicago, School of Public Health*
Linda Lesondak, PhD, *Salina & Associates*
Michael Petros, DrPH, *University of Illinois at Chicago, School of Public Health*
Laura Roche, MSW, *University of Illinois at Chicago, Jane Addams College of Social Work*
Emily Steihl, PhD, *University of Illinois at Chicago, School of Public Health*
Bernard Turnock, MD, MPH, *University of Illinois at Chicago, School of Public Health*
Alfonso Urquidi, MPA, *Public Health Institute of Metropolitan Chicago*

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VITA

Griselle Torres, DrPH(c), MPH, MSW

EDUCATION

University of Illinois at Chicago, School of Public Health — Chicago, Illinois
DrPH, Doctor of Public Health in Leadership Program — 8/2014

University of Illinois at Chicago, School of Public Health — Chicago, Illinois
MPH, Division of Health & Policy Administration, Public Health Informatics — 5/2004

University of Illinois at Chicago, Jane Addams College of Social Work — Chicago, Illinois
MSW, Child & Family Concentration — 5/1994

University of Illinois at Chicago, College of Liberal Arts and Sciences — Chicago, Illinois
BA, Applied Psychology: Industrial/Organizational — 5/1991

SPECIAL PROJECTS

Chicago Department of Public Health — 6/2013
Finance/Revenue Quality Improvement (QI) Project: standardizing expenditure payment processes and delay reduction.

Public Health Accreditation Board (PHAB) — 6/2013
Selected and trained as a national site reviewer for health departments across the country applying for public health accreditation.

Chicago Department of Public Health — 4/2013
Lead Evaluator for the National HIV/AIDS Monitoring & Evaluation: data collection, monitoring and analysis of HIV testing (clinical and non-clinical settings), seropositivity rates, LTC (linkage-to-care), referral to Partner Services Program, client-level data for 30+ CBOs (community-based organizations) and CDPH STI (Sexually Transmitted Infections) Clinics.

Chicago Department of Public Health — 3/2013
Agency Performance Dashboards: Lead project administrator for the development of a performance dashboard, quality management and communication tool for 30+ delegate agencies in the areas of high impact prevention, seropositivity rate, link to care and referral to Partner Service (PS) program rates.

Chicago Department of Public Health — 2/2013
HIV RAMP (HIV Resource Allocation Model Project): The aim of the project is to pilot an HIV resource allocation model developed by the Centers for Disease Control and Prevention (CDC). The model is intended to help state and local health departments better allocate their HIV prevention budgets across populations and interventions to achieve the maximum reduction in the number of new HIV infections, in line with the goals of the National HIV/AIDS Strategy. The pilot collaboration is a project between the Office HIV/AIDS and Infectious Disease Policy (OHAIDP) at the U.S. Department of Health and Human Services, the White House Office of National AIDS Policy (ONAP), and the CDC (Centers for Disease Control). The collaboration aims to: 1) develop, pilot, and evaluate the CDC resource allocation model; 2) develop and evaluate a technical assistance strategy to assist future health department users; and 3) potentially to develop a software version of the CDC model. John Snow, Inc. (JSI) has been contracted to provide technical assistance to health departments who participate in the pilot, collecting the data needed for the model and to interpret the model's results. JSI will be collecting feedback from you on ways the model might be refined to be more accurate and useful.

Chicago Department of Public Health 9/2012

PM/QI (Performance Management/Quality Improvement) Team & Quality Committee: Team member responsible for tracking and training staff in QI processes; assist in tracking and trending performance data; provide technical assistance to programs conducting QI or quality planning, which may include data collection/analysis, advice on quality methods/tools or meeting facilitation.

Chicago Department of Public Health 9/2012

Co-contributor the CDPH QI (Quality Improvement) Plan: In preparation for Public Health Accreditation Board (PHAB) requirement.

Chicago Department of Public Health 9/2012

Co-author the CDPH Workforce Development Plan: In preparation for Public Health Accreditation Board (PHAB) requirement.

Chicago Department of Public Health 5/2012-9/2012

Co-chair of the Leadership Implementation Team to develop and implement a new workforce development policy and plan.

Chicago Department of Public Health 11/2012- present

Lean Six Sigma Project: Process standardization, reducing errors and delays in salary certification and effort reporting for Finance/Revenue Unit.

Chicago Department of Public Health 11/2012-3/2012

Project Manager in moving paper-based reporting to E-reporting for HIV prevention projects (delegate agencies).

Chicago Department of Public Health 10/2011

Co-author Enhanced Comprehensive HIV Prevention Planning (ECHPP): Workbook III & Core Processing Data reports.

Chicago Department of Public Health 9/2011-present

Healthy Chicago, Public Health Agenda: Staff implementation team member. Assist with development strategies and tracking of performance measures in HIV as one of twelve public health priorities.

Chicago Department of Public Health 9/2011-present

Department wide Public Health Accreditation Board (PHAB) Team: Lead for Domain #8: Maintaining A Competent Workforce.

Chicago Department of Public Health 5/2011-present

Lead budget coordinator for all grants under Division of STI/HIV. Consolidate all resource management for tracking various funding-streams, personnel and funding allocations.

Chicago Department of Public Health 5/2011

Co-author/lead CDPH RFP-2011-03: HIV Prevention Projects (PS10-1001) aligned the HIV comprehensive plan, 2008 epidemiological data, and resource allocation.

Chicago Department of Public Health 3/2011-present

Performance Management (PM)/Quality Improvement (QI) Coordinator within Health Department. Provide technical assistance in the development, ongoing assessment and monitoring in performance measures and quality improvement. Liaison to the Department's Division of STI/HIV and co-assist Emergency Planning and Preparedness. STI/HIV Programs include: Housing Opportunities for People Living with AIDS (HOPWA); HIV Prevention; Capacity Building, Training, & Technical Assistance; HIV CARE Program; STI Prevention Services; Partner Services; Adolescent Health; Surveillance, Evaluation, & Research Section.

Chicago Department of Public Health 3/2011
Developed technical plans of implementation of social media platforms within HIV Prevention and Care services for the Mayor's Office, Health Information Technology (Apps, Facebook, Telemedicine, IPS/IPN [internet partner service s/internet partner notification]).

Chicago Department of Public Health 10/2010-present
Co-Assist in the development of Enhanced Comprehensive HIV/AIDS Planning (ECHPP), including grant writing, localized planning /development, and conference call with cross-agency involvement coordinated by DHHS and involving: CDC, HRSA, SAMSHA, HIS, NIAID, NIH, and CMS in determining strategic leadership capacities needed, applying principles of public health to health issues and concerns in achievement of a coordinated national response and strategically align with the National HIV/AIDS Strategy. Further development of the Enhanced Comprehensive HIV/AIDS Planning's (ECHPP) situational analysis, goal setting, creation of SMART objectives to achieve a more coordinated response, reduce new infections and health related disparities and enhanced localized plan that aligns jurisdiction's activities with the NHAS (National HIV/AIDS Strategy and 2015 targets).

Chicago Department of Public Health 11-12/2009
Site Supervisor/Operations Support Manager for mass public health events (H1N1 vaccinations), and facilitate integration of PHEP efforts.

Chicago Department of Public Health 6-9/2009
STI/HIV Division Project Manager for City of Chicago website revamp in collaboration with the Department of Information Technology (DoIT).

Chicago Department of Public Health 6/2008-present
STI/HIV Division Project Manager for department-wide Microsoft SharePoint development, implementation, and maintenance; division liaison.

Chicago Department of Public Health 2007-present
Initiated/lead development, implementation and access of distance based learning to external public health partners via learning management system (LMS).

Chicago Department of Public Health 6/2006
Co-lead and implemented RFP technical and panel review process for Announcement CDPH-RFA-PS06-01: HIV Prevention Projects.

Chicago Department of Public Health 9/1999-2003
Chicago-Michoacan, Mexico Bilateral Health Project: Establishment of a Bi-National Collaboration in Exploration of the Magnitude and Characteristics of HIV/AIDS among Michoacan Migrants in Order to Develop a Bilateral Plan to Promote HIV Prevention and Treatment, Sponsored by the Chicago Department of Public Health, The Chicago Community Trust, and Michoacan, MX.

AIDS Foundation of Chicago 1997
Implemented/assisted in the financial/program capacity start-up plan for CBOs wanting to provide additional case management services (unrestricted/fee per case) and unable to financially "float" program while building caseloads.

AIDS Foundation of Chicago 1996
Initiated, developed and implemented case management training program client level assessment, intake, service planning , service coordination and referral tracking.

Pilsen-Little Village C.M.H.C. 1994
Introduced/implemented DORS program and increase annual budget by $25,000 in unrestricted funds while enhancing services to persons living with AIDS and incorporating comprehensive program services.

PROESSIONAL PRESENTATIONS

Torres, G. (2012, August). Qualitative Methods Seminar: Observation Case Study in the Development of a Workforce Policy in a Local Health Department. Presentation and discussion presented at the Summer 2012 Interdisciplinary Public Health Sciences 594, University of Illinois at Chicago, School of Public Health.

Torres, G. (2012, May). Healthy Chicago: A single case-study design of a local health department's public health agenda. Presentation and discussion presented at the Spring 2012 Interdisciplinary Public Health Sciences 505, University of Illinois at Chicago, School of Public Health.

Torres, G. (2012, May). Policy Action Framework and Paramours: Implementing Workforce Development. Presentation and discussion presented at the Spring 2012 Interdisciplinary Public Health Sciences Seminar 510, University of Illinois at Chicago, School of Public Health.

Torres, G. (2012, April). Policy Analysis Framework for Domain 8: Maintaining a Competent Public Health Workforce and Workforce Development Plan. Presentation and discussion presented at the Leadership Team, Chicago Department of Public Health.

Torres, G. & Amarathithada, D. (2012, March). Chicago's ECHPP Experience: Process, Outcomes, and Lessons Learned. CDC HIV Prevention All Grantee Meeting, Atlanta, GA.

Torres, G. (2011, December). Use of SIPOC+CM Investigative/QI Tool for the Chicago Department of Public Health Behavioral Risk Factor Survey (BRFS). Presentation and discussion presented at the Fall 2011 Interdisciplinary Public Health Sciences Seminar 512, University of Illinois at Chicago, School of Public Health.

Torres, G., Ebbert, S., Tiema-Massey, J. & Williams III, Charles. (2011, May). Chicago Department of Public Health: Performance Management Initiative and Strategic Management Leadership Dimensions and Tools. Workshop and discussion presented at the 2011 Interdisciplinary Public Health Sciences Seminar, University of Illinois at Chicago, School of Public Health.

Torres, G. (2011, March). Informatics Analysis, Strategy & Strategic Transition as an Application of Strategic Planning and Management Tool. Workshop/discussion presented the 2011 Interdisciplinary Public Health Sciences Seminar, University of Illinois at Chicago, School of Public Health.

Torres, G., Ebbert, S., & Tiema-Massey, J. (2010, December). The Chicago Department of Public Health: Performance Management Initiative. Workshop/discussion presented at the 2010 Interdisciplinary Public Health Sciences Seminar, University of Illinois at Chicago, School of Public Health.

Torres, G. (2010, October). Storytelling & Web 2.0 Culture in Building Organizational and Systems Leadership. Workshop/Discussion presented at the 2010 Interdisciplinary Public Health Sciences Seminar, University of Illinois at Chicago, School of Public Health.

Torres, G. (2000, June). Community Planning: Parity, Inclusion, & Representation. Workshop presented at the 2000 Latino Prevention Network 2nd Annual Conference: Linking Prevention Research to Latino Communities: Si Se Puede II, Chicago, IL.

Torres, G. (1999, October). Bilateral Health Project: Binational Collaboration with the Chicago Department of Public Health and the state of Michoacán, Mexico: Findings, Updates, and Strategies for Next Steps from Capacity Building Perspective. Presentation conducted at the HIV Prevention Planning Group, Chicago, IL.

Torres, G. (1999, September). Bilateral Health Project: Chicago Department of Public Health Capacity Building Program Activities: Organizational Infrastructural Development, Program Planning and Implementation via Technical Assistance Services. Presentation conducted at the Governor's Office and Delegates in Michoacán, Mexico. Presentation conducted in Spanish language only.

Torres, G. (1999, July). New Capacity Building Program Initiative and Implementation for the Chicago Department of Public Health: Findings, Frameworks, and 2000 Goals. Presentation conducted at the HIV Prevention Planning Group, Chicago, IL.

PROFESSIONAL EXPERIENCE AND SIGNIFICANT ACHIEVEMENTS

CHICAGO DEPARTMENT OF PUBLIC Health — CHICAGO, IL 7/2010 to present
Public Health Administrator (PHA) III

Oversee the Quality Management (QM) program and data collection of client level data (CLD) for Chicago jurisdiction in HIV prevention. Co-organize ECHPP M & E (Enhanced Comprehensive HIV Prevention Plan Monitoring & Evaluation) categories and activities. Co-Performance Management Liaison: Coordinate/develop Performance Management for the Division of STI/HIV program sections to ensure that all programs within have measureable metrics utilizing a balanced scorecard framework that assesses program intervention, outcomes, community and customer engagement, and resource management. Successfully co-written competitive grants for various public health program funding, including budget reviews/development, and writing interim and annual reports. Co-manage components of CDC and HRSA grant budgets with respective program directors.

Key Results:

- Project Manager for Data Migration Project: initiating all paper-based delegate reporting tools to a web-based application, the City of Chicago's, Department of Public Health Alert Network (HAN) with the goal of developing integrated information systems to report real-time data
- Developed technical plans implementation of social media platforms within HIV Prevention and Care services for the Mayor's Office, Health Information Technology.
- Co-write and co-monitor Enhanced Comprehensive HIV Prevention Planning, a strategic plan to align divisional infrastructure with the HIV/AIDS National Strategy.
- Department PM/QI Coordinator in developing and monitoring performance measures for the Division of STI/HIV.
- Public Health Accreditation Team: Lead for Domain #8: Maintaining a Competent Workforce.
- Department-wide selected candidate for Lean Six Sigma Black Belt Training with the American Society for Quality (ASQ) beginning 12/2011.

PHA III 4/1999 to 7/2010

Lead PHA to direct capacity building initiatives in the provision technical assistance (TA) services to over 40+ STI/HIV/AIDS prevention community based organizations (CBOs), 50+ Ryan White (RW) Part A funded CBOs, and special projects of significance (SPNS) (i.e., incarcerated, community re-entry, persons with disabilities, non-English/Spanish speaking populations, subcategories of MSM), in the form of needs assessment, program development, interventions, quality assurance/management (QA/QM), program evaluation, budgeting, & community mobilization. Triage/assess TA requests. Supervise internal/external staff in the provision of TA services. Developed and manage external capacity building providers (e.g., CBOs, collaborative). Designed innovative mechanisms to increase/strengthen overall delivery/accessibility of TA services. Interface with community coalitions, partnerships and local planning groups. Participated in departmental strategic activities/trainings, including request for proposal/announcement (RFP/RFA) (e.g., reviewer, moderator, facilitator, recorder); HIPAA regulation/compliance; public health emergency preparedness (PHEP) activities: dispensing vaccination centers (e.g., meningitis, Influenza [flu], H1N1), assigned Operations Supervisor/Coordinator for mass public health events (HIV testing & vaccinations), and facilitate integration of PHEP efforts with CBOs. Developed/implemented and manage Divisional communication tools: bi-monthly E-newsletter & weekly Eblasts/updates; annual electronic capacity building/TA assessment of 30+ HIV prevention delegate agencies. Staff supervision/evaluation.

Key results:

- Developed, implemented and manage eight distance-based online courses, fostering worldwide and improved accessibility for group level TA, 24/7.
- Provided capacity building and TA in the development and implementation of accredited harm reduction workshops with CEUs (continuing education units) from Social Work, Illinois Department

of Financial & Professional Regulation: Professional Counselor (PC, LCPC, LPC, CPCE), and IAODAPCA (Illinois Alcohol and Other Drug Abuse Professional Certification Association, Inc.).

- Division's Project Manager for City's website revamp. Created 70+ STI/HIV/AIDS content/organization templates with links and metadata.

UNIVERSITY OF ILLINOIS AT CHICAGO, SCHOOL OF PUBLIC HEALTH, DIVISION OF HEALTH POLICY AND ADMINISTRATION (HPA)— CHICAGO, IL — Spring 2012

Teaching Assistant

HPA MPH Capstone Course – (Interdisciplinary Public Health Sciences) IPHS 698. Manage course technology, organizing course resources for efficient use, anticipating and responding in a timely manner to student requests, occasionally assisted in instruction, and preliminary evaluation of student performance. Observed absolute confidentiality about student performance and learning evaluation procedures.

UNIVERSITY OF ILLINOIS AT CHICAGO, SCHOOL OF PUBLIC HEALTH, DIVISION OF HEALTH POLICY AND ADMINISTRATION (HPA) — CHICAGO, IL — Fall 2011

Teaching Assistant

Health Policy & Administration (HPA) 400: Principles of Management in Public Health. Manage course technology, organizing course resources for efficient use, anticipating and responding in a timely manner to student requests, occasionally assisted in instruction, and preliminary evaluation of student performance. Observed absolute confidentiality about student performance and learning evaluation procedures.

AIDS FOUNDATION OF CHICAGO— CHICAGO, IL — 8/1995 to 4/1998

Program Associate

Lead Project Officer for West side region. Monitored performance of RW Title I and II funded consortium of 65+ CBOs providing HIV/AIDS Care Services located throughout nine counties. TA was provided in the form of clinical supervision, resource development, QA/QM, case management training, and program management/evaluation of program outcomes.

Key results:

- Fostered collaboration among providers via monthly regional meetings to improve resource communication & case management support.
- Implemented/assisted in the financial/program capacity start-up plan for CBOs wanting to provide additional case management services (unrestricted/fee per case) and unable to financially "float" program while building caseloads.
- Developed and implemented training components of the Case Management Training Program which included: assessment/reassessment, triage, emergency planning/response, service and discharge plans.

ST. MARY OF NAZARETH HOSPITAL CENTER — CHICAGO, IL — 10/1996 to 8/1998

Flexi Crisis Worker

Promoted to conduct emergency room (ER) assessments and diagnosis of psychiatric and substance using patients in need of psychiatric and detox services. Triage services and referral linkage with state-funded mental health facility, managed care providers, and substance abuse facilities.

Key results:

- Maintained calm and focused as shifts comprised of being on-call and ready to respond on demand while managing the fast-paced and unpredictability of the ER.

Mental Health Counselor/Technician 10/1995 to 10/1996
Conducted admission, psychosocial, and discharge assessments with patients in the Adult Psychiatric and Medical Surgical units. Individual and group counseling provided.

PILSEN-LITTLE VILLAGE COMMUNITY MENTAL HEALTH CENTER — CHICAGO, IL 4/1994 to 8/1995
Program Director

Promoted to manage all HIV/AIDS related programs; supervision of professional 17+ professional staff, including volunteers, funded by different federal, state and city grants with an annual budget of $500,000+. HIV/AIDS program planning & implementation, grant writing, contract compliance, clinical supervision, and quality assurance/management. Grants management: managed site visits, program/annual reporting, & audits.

Key results:

- Introduced/implemented DORS program and increase annual budget by $25,000 in unrestricted funds while enhancing services to persons living with AIDS and incorporating comprehensive program services.
- Implemented program fundraising efforts/activities to enhance services to consumers.
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HIV/Substance Abuse Counselor 7/1993 to 5/1994
Provided mental health and substance abuse/psychosocial assessments for HIV+ and affected consumers. Provided individual and group counseling; case management.

Mentally Ill/Substance Abuse (MI/SA) Case Manager 7/1992 to 8/1993
Case management, case coordination, and discharge planning provided for individuals with dual diagnosis.

UNIVERSITY OF ILLINOIS AT CHICAGO — SCHOOL OF PUBLIC HEALTH, AIDS OUTREACH INTERVENTION PROJECT 5/1991 to 10/1991
Survey Interviewer

Conducted interviews, outreach, supportive counseling, and assisted in site management in a federally funded research project on cohorts of injecting drug users and their sex partners.