

INTRODUCTION

The District of Columbia, commonly referred to as DC or the District, Department of Health (DOH) Community Health Administration's is submitting this application for the *Reducing Loss to Follow-up after Failure to Pass Newborn Hearing Screening* funding opportunity to address infants that have not passed a physiologic newborn hearing screening examination prior to discharge from the newborn nursery. The purpose of the program is to improve the loss to documentation/loss to follow-up by utilizing specific interventions, such as quality improvement methodology, to achieve measurable improvement and the following aim statements during the grant period:

1. Improve the tracking of infants with referred screening results from birth to enrollment into the DC Early Intervention Program.
2. Decrease the number of infants without newborn hearing screening documentation through database audit and employing modified or new internal processes at all levels (hospital, early intervention, and state).
3. Increase provider and public awareness of the importance of newborn hearing screening and parental follow-up, and resources available to District residents.
4. Design, implement, and evaluate new quality improvement strategies to enhance productivity over the Early Hearing Detection and Intervention (EHDI) continuum by utilizing the PDSA (Plan, Do, Study, Act) model.

NEEDS ASSESSMENT

The District has a unique status as the nation's capital, and serves multiple roles as a city, county and state. It consists of an urban land area of 63 square miles and much of it is owned and/or occupied by the federal government. Properties acquired by the federal government are immune from taxation by the states or municipalities¹. Although DC residents elect a mayor and city council, they do not have voting representation in the US Congress which has exclusive authority over legislative acts, including those pertaining to the budget. This status, combined with limitations of the local government's authority to tax federal and other property and incomes of commuters, severely limits the availability of resources.

According to the Census Bureau, the District's 2012 estimated population of 632,323 showed almost a 5% increase from 2009. The population distribution was 50.1% African American (4% decrease from 2009), 42.9% Caucasian (almost a 3% increase from 2009), 9.9% Hispanic (1.1% increase from 2009), 3.8% Asian, 0.2% Native Americans, Alaskans, Hawaiians, and Pacific Islanders, and 2.5% is mixed (two or more races).

DC has seven birthing hospitals and one birthing center that provide obstetrical and/or neonatal services, four of which provide tertiary care for deliveries and neonates: Georgetown University Hospital (tertiary), George Washington University Hospital (tertiary), Washington Hospital Center (tertiary), Howard University Hospital (tertiary), Providence Hospital, Sibley Hospital,

¹ District of Columbia Tax Expenditure Report 2012, 163

United Medical Center and DC Birth Center. The District also has 52 Community Health and Primary Care Health Centers (see Attachment 8).

The births to District residents are approximately 9000 births per year. Table 1 demonstrates the total number of births by year to District residents. The District has an opportunity to reduce the loss to documentation/loss to follow-up through tracking enhancement, public awareness, improved collaboration with external partners, and increased quality improvement initiatives.

Table 1: Number of Births to District Resident 2010 – 2012

Year	Total District Birth	DC Resident Births
2010	14,772	9128
2011	13,837	9289
2012	13,874	8870

The District is broken down into eight wards based upon zip codes, census tracts and City Council representation. Economic, social and health status indicators vary considerably across the 8 wards. For example, in Wards 7 and 8, African Americans comprised more than 90% of the population in 2010.² The median income for Ward 8 ranged from ██████ to ██████; and 25% to 49.9% of the families live in poverty in 8.³ In Ward 3, Caucasians made up more than 80% of the population³. The median income was ██████ to ██████ and poverty affects 1.3%-24.9% of the families in Ward 3³. The following is a summary of the health and socioeconomic profile of each of the wards. Information provided about each ward is based on data reported by the DC Department of Health State Center for Health Statistics, Center for Policy, Planning and Epidemiology^{2,3,4,5}

- Ward 1 is centrally located in the heart of the District of Columbia and is a melting pot for all races and ethnicities, such as Black, White, Hispanic, Asian, Vietnamese, etc. The majority of Ward 1 residents are working-aged adults who are employed in the civilian sector. The Ward has up to 200 practicing physicians and/or specialists that are licensed and registered in the District. There are four pediatric facilities, in the area to serve the local community. In 2011, live births in this ward totaled 1,174 and the infant mortality rate (IMR) was 3.4 per 1000 births.⁶ Heart disease and cancer are prevalent in Ward 1 in 7.5% and 9.6% of the population respectively. In 2010, 96.2% of Ward 1 residents were covered by a health plan.
- Ward 2 is bordered by the Potomac River to the west and is located primarily in the southwestern section of the District of Columbia. This area of the city has the largest number of residents with an average population of 79,915. Ward 2 had a low rate of unemployment in the District, at 4 %. Ward 2 has up to 500 practicing physicians and/or

² DC DOH, State Center for Health Statistics Community Health Needs Assessment (2011, Rev.2013), 8

³ Ibid, 11

⁴ DC DOH SCHS Needs Assessment, 59

⁵ DC DOH, CPPE, 2011 Infant Mortality Rate for the District of Columbia, 20

⁶ Ibid

specialists that licensed and registered in the District. Also, the area has four ambulatory care centers and two pediatric facilities to improve patient outcomes. In 2011, live births in this ward totaled 601 and the IMR was 6.7 per 1000 live births.⁷ Heart disease is prevalent in 5.4% of the ward and the cancer rate is 6.2 per 100,000 people. In 2010, 95% of Ward 2 residents were covered by a health plan.

- Ward 3 is located in the northwestern section of the District of Columbia, which has a predominantly white community representing 80% of the ward's population. Ward 3 has lowest rates of unemployment in the District, at 3.4 %. Generally, in this vicinity, there are 500 practicing physicians and/or specialists that are licensed and registered in District. Ward 3 has four pediatric facilities to serve the community. In 2011, the total live births in this area were 842 and the IMR was 5 per 100 live births.⁸ Heart disease is prevalent in 9.1% of the population. The cancer rate is 11.5 per 100,000 people. In 2010, 97.4% of Ward 3 residents had coverage from a health plan.
- Ward 4 is located in the northernmost tip of the District of Columbia with a predominantly African-American community and a growing population of both Whites and Hispanics. The rate of unemployment is at 7.6%. Generally, the area has up to 100 practicing physicians and/or specialists that are licensed and registered in the District. Also, this area has one ambulatory care center and three pediatric facilities to improve patient outcomes. In 2011, the IMR for Ward 4 declined from its 2010 report of, 11.3 per 1000 live births to 8.4 per 1000 live births, which is still relatively high⁹. Also, Ward 4 has the second highest number of reported live births at 1,423. Heart disease is prevalent in 15.8% of the population and the cancer rate is 15.7 per 100,000 people. In 2010, 91.6% of the population is Ward 4 was covered by a health plan.
- Ward 5 is located in the northeastern quadrant of the District of Columbia with a predominantly African-American community representing 75% of the ward's population. The rate of unemployment is at 13%. The Ward has up to 500 practicing physicians and/or specialists that are licensed and registered in the District. The area is reported to have the highest IMR for 2011, with a rate of 12.9%.¹⁰ The total numbers of live births for 2011 were 1,089. Heart disease is prevalent in 18.5% of the population and cancer rate is 18.6 per 100,000 people. In Ward 5, 86.2% of the population had health plan coverage in 2010.
- Ward 6 crosses all four quadrants of the District. The community is a "melting pot" for people of all races and ethnicities, including those that have migrated to the District of Columbia, such as, African Americans, Whites, Hispanics/Latinas and Middle Eastern/Asians. The majority of its residents are working-aged adults who are employed in the civilian sector. The rate of unemployment is at 8.4%. Ward 6 has up to 200 practicing physicians and/or specialists which are licensed and registered in the District. The area has one pediatric facility to service the community. As reported in 2011, the

⁷ Ibid

⁸ Ibid

⁹ Ibid

¹⁰ Ibid

ward ranked third with the highest number of live births at 1,245 and the infant mortality rate was 5.6 per 1000 live births.¹¹ Ward 6 has a 12.8% heart disease rate and 11.1 per 100,000 people have cancer. In 2010, 97.6 % of Ward 6 residents had coverage from a health plan.

- Ward 7 is located in the easternmost tip of the District of Columbia. The majority of its residents are African-American and nearly 30% of the population is 19 years old or younger. The rate of unemployment is at 19%. The area has up to 50 practicing physicians and/or specialists that are licensed and registered in District. Ward 7 has two pediatric facilities to help improve newborn outcomes. The 2011 infant mortality rate for this zone was 6.6 per 100 live births with the number of live births totaling 1,218. Ward 7 has a heart disease rate of 16.9 % and a cancer rate of 14.6 per 100,000 people. In 2010, 90.5% of Ward 7 residents had health coverage.
- Ward 8 is located in the southernmost tip of the District of Columbia. The majority of its residents are African-American and nearly 40% of the population is 19 years old or younger. The rate of unemployment is at 17%. Ward 8 has up to 100 practicing physicians and/or specialist which are licensed and registered in the District. The area has five pediatric facilities to ensure healthy baby outcomes. Ward 8 showed an increase in infant mortality from 17 as reported in 2010, to 20 in 2011. The IMR is 12 per 1000 live births, which is the second highest of all 8 wards in the District. In addition, it has the highest number of live births at 1,667 for 2011. Ward 8 has a heart disease rate of 13.4% and a cancer rate of 12.2 per 100,000 people. In 2010, Ward 8 had 89.7% of its residents covered by a health plan.

The District is faced with a number of socioeconomic and health disparities amongst each ward. According to the Rand Study (2011), Wards 7 and 8 had the highest rates of obesity, hypertension, and other chronic conditions. According to the DC Community Health Needs Assessment, Wards 7 and 8 have considerably high obesity rates that almost double the city's average of 22.4%. In addition, these areas have less than 10% of the District's grocery stores are located in Wards 7 and 8; instead are dominated by carry-outs, convenience and liquor stores all of which contributes to unhealthy eating, obesity and health related illnesses¹²(See Figure 1¹³). Because of the high obesity rates among African Americans in the District, they are more likely to develop diabetes and cerebrovascular disease than their white counterparts.¹⁴ African Americans in the District are disproportionately affected by conditions and diseases that affect the entire population. They are more burdened by cancer, cardiovascular disease, homicide, infant mortality, HIV/AIDS, and Diabetes.¹⁵

Figure 1: Category A * Food Options by Adult Obesity Prevalence in the District of Columbia DC Community Health Needs Assessment

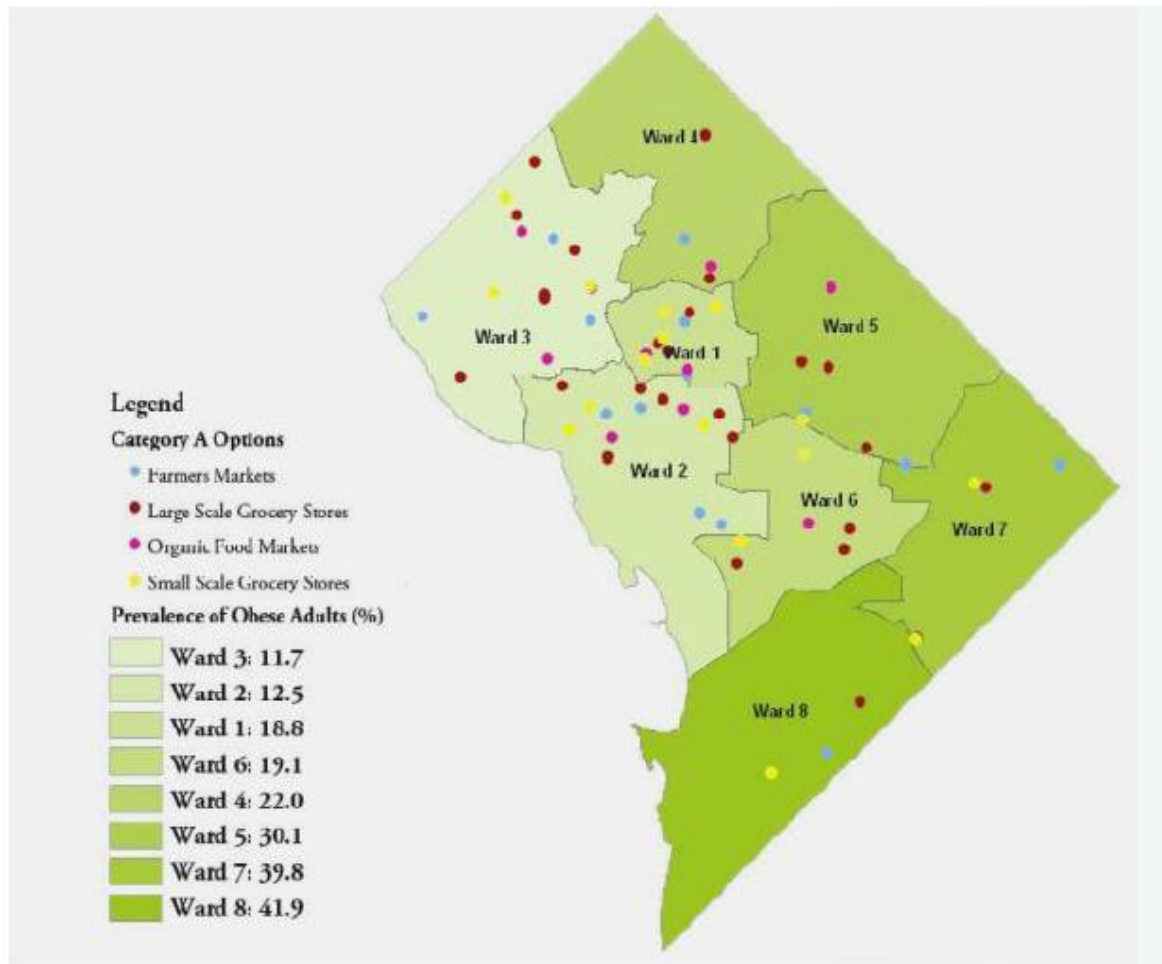
¹¹ Ibid

¹² DC DOH, SCHS, Needs Assessment, 9

¹³ Ibid, 39

¹⁴ Ibid, 10

¹⁵ Ibid, 122



*Category A Food Options include Farmers Markets, Organic Food Markets, Large Scale and Small Scale Grocery Stores.

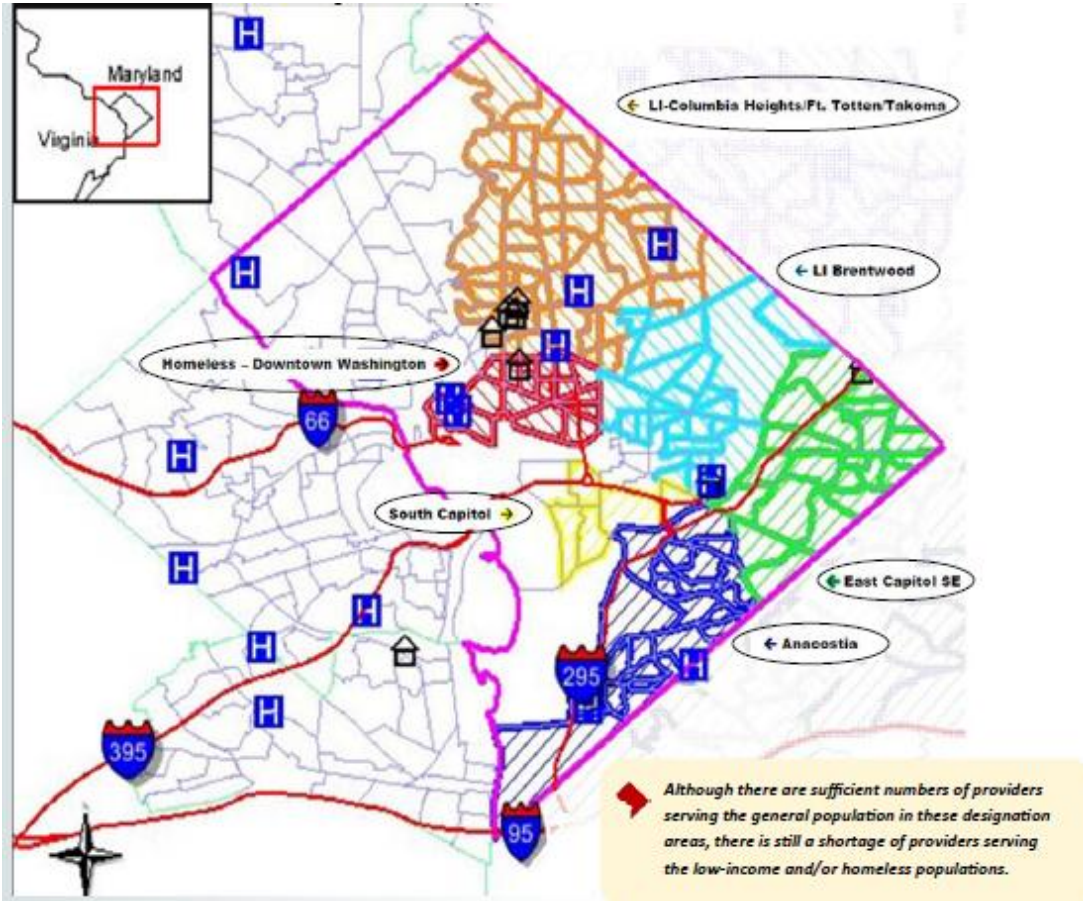
Most of the District residents have at least a High School Diploma. In 2010, The Department of Health reported 54,702 (13.8%) of District residents reported having had some college experience but no degree; 13,337 residents or 3.2% had associate degrees; 96,573 (23.2%) had obtained a bachelor's degree; and 112,251 (26.9%) had a graduate or professional degree. Health related challenges discourage a proportionate number of District residents living at and below poverty levels from receiving preventive care for their families.

Since 2010 Affordable Care Act, the District's Health Department has implemented an early expansion of Medicaid eligibility, which has led to 96% of children receiving coverage. Barriers that contribute to this issue include limited access to healthcare providers, health facilities and medical outpatient costs. Despite 93% of the city being medically insured, 83.3% of DC residents have a primary care home where as only 77.4%¹⁶ have routine checkups. Overall, health coverage is accessible through Medicare, private insurance and those which Medicaid disburses through managed care organizations.

¹⁶ Ibid, pp 57-59

Figure 1 shows that many of these identified areas are due to low income in the neighborhoods as well as homelessness.

Figure 1: Medically Underserved Areas in the District¹⁷



The health and well-being of women and children in shelters, transitional homes and on the street continue to be a major concern of DOH. The District's Annual Homeless Assessment Report (AHAR) is reported and distributed by both the Community Partnership for the Prevention of Homelessness (CPPH) and US Department of Housing and Urban Development (HUD). The purpose of the data reporting is to understand the nature of homelessness and analyze continuum of care effectiveness and utilizations. On January 31, 2013, The CPPH conducted the Point in Time census and survey of homeless persons in the District of Columbia. CPPH reports that on any given night in the District there are 512 unsheltered persons (persons on the street), 4,010 persons in emergency shelters and 2,343 persons in transitional housing. Overall this is a 1.3% decrease from 2012. In 2013, there were 1,880 children residing in family programs. In the last five years (2008-to-present) 2,090 families representing close to 7000 people were served in front line shelters. A frontline shelter is defined by CPPH as any shelter typically utilized for immediate placement of families who are facing of a housing crisis. Of these families, 28% spent

¹⁷ DC DOH, Community Health Administration, Bureau of Primary Care; DC DOH SCHS, Needs Assessment, 68.

at least 181 days in the shelter and 56% utilized more than one front line shelter over the past five years.

From October 1, 2010 - September 30, 2011 AHAR reports that females were the predominant gender in family emergency shelters, family transitional housing, and permanent housing.¹⁸ Blacks represented more than 90% of the shelter population in the three aforementioned shelter types. Children under the age of 1 year old represented 9% of the children in family emergency shelters, 5% of the children of the families in transitional housing, and 12% of children in permanent supportive housing. AHAR reports the age distribution on the number of persons in family shelters as follows: Under 1 year old (9%), 1-5 years old (27%), 6-12 years old (16%), 13-17 years old (7%), 18-30 years old (26%), 31-50 years old (13%), 51-61 years old (1%). There were no numbers reported for ages 62 and up.

The aforementioned data supports the idea that a substantial amount of the population important to newborn hearing screening program is transient and may not have permanent housing solutions. Based on the data, 36% of shelter population is between the ages of 0 and 5. Many of the infants the Program will follow up fit this demographic. Infants under the age of 1 year old represent 9% of the shelter population. The hearing screening program provides linkages to appropriate care for this demographic. Most times those linkages to care in contingent on having accurate locating information on families. If families are lacking permanent housing solutions this may pose a problem for the Program to provide adequate follow up services and increase the likelihood of an infant being lost to follow up and documentation. The Program also helps link families with infants up to age 3 years old to necessary follow up care. This means that a portion of the 27% of the 1-5 years old shelter population may be candidates for being lost to follow up and documentation as well. Lastly, a significant amount of women of child bearing age don't have stable housing arrangements. This may play a major part not only in contacting families to receive follow up but it may also impact the coordination of comprehensive care for the family.

From 2010 to 2012, the American Community Survey (ACS) conducted under the United States Census Bureau reports poverty status across the United States. The poverty status for the District of Columbia for the past 12 months indicates that 14.6% of the families in DC were below the poverty level. The racial ethnic distribution of the families is as follows: African American (22.7%), White (2.5%), Asian (4.1%), Hispanic or Latino origin of any race (16.2%), some other race (20.1%), and two or more races (11.6%). Of these families living below the poverty level 22% of them have children under the age of 18 years old. The educational attainment of the householder varies: 36.8% have less than a high school diploma, 26.5% have a high school diploma, and 17.2% have some college or an associate's degree. Of the married couples in the District, 3.6% of them are in poverty whereas 29.9% of the female headed households (no husband is present) are living below the poverty level.

Presently, there are two Healthy Start programs in the District. Both programs are overseen by the DC Department of Health and work to eliminate perinatal disparities. These programs provide outreach and client recruitment, case management and health education to the District high risk pregnant and postpartum women and their infants. Even though services are available

¹⁸ Data submitted for HUD's 2011 Annual Homeless Assessment Report; Demographic Characteristics of Sheltered Homeless Persons (Washington, DC)

to promote healthier birth outcomes, some of the Districts residents and medical providers do not have information about these services. This is thought to be a result of the transiency of the District's residents and provider turnover.

Overview of the Problem

In the most recent result of the Annual Survey of Deaf and Hard of Hearing Children and Youth (2011), the prevalence of deafness and/or hard of hearing in DC children was 3.3%, 2.75 times the national average of 1.2%. The onset of hearing loss at birth occurred in 64.5% of DC children that are deaf and/or hard of hearing. This is a 23.2% increase from the 2008 survey. A total of 82.2% of deaf and/or hard of hearing children in DC experienced the onset of hearing loss between the ages of 0 and 2 years old. Of the survey respondents that reported whether or not their child had been identified through infant screening, 91.8% responded yes. Maintaining a growing thriving infant hearing screening program is vital to address the needs of the District's population.

The Center for Disease Control and Intervention (CDC) states that 1 in 4 children with hearing loss weighed less than 2500 grams. In 2007 11.1% of births to DC women weighed less than 2500 grams. The CDC also states that 30% of all infant hearing loss cases are due to maternal infections. Prenatal care is important and may serve as a driver in preventing infant hearing loss. A healthy pregnancy to avoid potential incidence of hearing loss in infants is recommended by the CDC. In 2007, 70% of the births to DC women had adequate prenatal care, a decrease from 2006. Wards 7 and 8 had 66.2% and 62.1% (respectively) of women enrolled in prenatal care in 2007, the lowest amounts in all of DC's eight wards. An unhealthy pregnancy can be associated with the possibility of an infant experiencing hearing loss.¹⁹ A healthy pregnancy reduces a woman's chance of delivering a baby prematurely and/or low birth-weight. District mothers who either began care late or had no prenatal care for their unborn child, 64% were black women.²⁰ According to recent studies by CPPE, women with Medicaid-paid deliveries were more likely to experience risk factors during pregnancy such as depression, stress, and smoking, compared to other moms with private insurance.²¹ In 2011, 75.3% of infant deaths were attributed to the five leading causes: short gestation, low-birth weight, maternal complications, placenta, cord and membranes, malformations and abnormalities.²² Some of the causes, such as low birth-weight, short gestation and other malformations would increase chances of an infant being diagnosed with a hearing loss. Nearly half the District's hospital deliveries were to Medicaid recipients.²³

Prematurity defined by the CDC is when a baby is born before 37 weeks of gestation.

The CDC reported that premature babies, over the course of their lifetime may also experience other conditions including hearing loss. The CDC states that some premature babies require specialized care in the Neonatal Intensive Care Unit (NICU) and that spending five or more days in the NICU is a risk factor for hearing loss. In 2011, 11% of the babies born to DC women were

¹⁹ CDC (2013) Preterm Birth

²⁰ DC DOH, CPPE, 2011 Infant Mortality Rate for the District of Columbia, 12

²¹ Ibid, pg.16

²² Ibid, pg.28

²³ Ibid, pg.16

born prematurely.²⁴ In the 2009 Annual Survey of Deaf and Hard of Hearing Children and Youth, states that 3.8% of deaf and/or hard of hearing children in DC were due to pregnancy related conditions. Collectively, the aforementioned data supports the idea that there may be a correlation between a healthy pregnancy and hearing outcomes.

While the average incidence as reported by the CDC of infant hearing loss in the U.S. is approximately 1.4 per 1000 births, with variation among states, children living in households below the poverty level are at increased risk for a number of factors associated with hearing impairment (e.g., exposure to infection before birth; experiencing head trauma; spending five days or more in the NICU or having complications while in the NICU).

The poverty in DC is significant. The Census Bureau reported that between 2007 and 2011, 18.2% of DC residents were living below the Federal Poverty Level (FPL), which is above the national average of 14.3%. The 2009-2010 National Survey of Children's with Special Health Care Needs (CSHCN) reports that 48.6% of the CSHCN living in DC are between 100%-400% of the FPL. This survey showed that DC still has some unmet needs. Only 34.2% of the CSHCN in DC receive coordinated, ongoing, comprehensive care within a medical home and only 65% of them have adequate private and/or public insurance to pay for the service they need. Data reported that 25.4% of CSHCN in DC have an unmet need for a specific health care service and 11.6% do not have a personal doctor or nurse.²⁵ Approximately 50% of DC children are without a medical home.²⁶ This data suggests that the target population will have limited access to services and care that they need.

DC Hears recognizes the various social, economic, and health differences among the city and its residents. The above data suggests that a significant portion of the population served by DC Hears is likely to be young, low income, lacking a medical home, without higher education, and less likely to obtain follow-up services for their children. Therefore, making a concerted outreach effort to ensure connections with a medical home and education about the importance of newborn hearing screening is critical. Another important task will be to conduct outreach to area medical professionals to ensure that they are aware of the EHDI program and have information they may need regarding newborn hearing screening. The (District) target population consist of diverse families of all ethnicities/cultures, low-income, limited education, transient, mothers who receive late prenatal care, lack nutrition, break in continuity and most likely to have premature births and low birth-weights. Partnering with various programs and agencies that promote and provide prenatal care would be beneficial in educating the public about how healthy pregnancies can reduce the risk of an infant experiencing hearing loss and the importance of early screening and follow-up.

Loss to Follow-up/Loss to Documentation in the District of Columbia

²⁴ DC Department of Health, State Center for Health Statistics, 2007 Natality Report, 18

²⁵ Data Resource Center for Child & Adolescent Health, 2009/10 National Survey of Children with Special Health Care Needs

²⁶ Data Resource Center for Child & Adolescent Health, 2011/12 National Survey of Children's Health

The District of Columbia mandates that all newborns have a hearing screening, and that if they do not pass their birth screening, they are to have a follow-up screening, and/or diagnostic test, as needed. Tables 3 and 4 demonstrate the 2011 and 2012 breakdown of the number of District infants (whether they were residents or not) screened and the results. In 2009, DC Hears established new procedures designed to improve the tracking of infant screening with special emphasis on infants whose referral led to diagnostic procedures and intervention services. As the Program began to collect these measures staff members became aware of deficits in the electronic database. Program objectives and focus areas changed to address the dire need of an enhanced database. During this time, the advisory board worked diligently with DC Hears staff to make sure the new database captured measurements on indicators that would be beneficial for future program planning. A lot of hard work and time was invested to put DC on a better track to provide comprehensive coordinated hearing health care processes. Since then, DC Hears has expanded its collection of patient tracking with a new OZ System database. Table 5 illustrates the number of infants referred and diagnosed for 2011 and 2012; in 2012, there were 21 out of 25 infants enrolled into intervention services due to a hearing loss.

Table 4: All District Births versus Total Number of Infants Screened

Year	Number of Births	Number Screened	Percentage Screened
2011	13837	12643	91.4%
2012	13874	11970	86.3%

Table 5: Infants Referred and Diagnosed

Year	Number of Screened	Number Referred	Number Confirmed Diagnosis
2011	12643	439	45
2012	11970	374	25

In 2012, there were 374 infants that referred of which 131 were identified as DC residents. Of these, 52 are without documentation of (hospital) hearing exams making the lost to follow up/lost to documentation rate (LFU/LTD) 39.7%. The LFU/LTD remains a priority for DC and adequate follow up is a focus.

METHODOLOGY

In the spring of 2013, the DC Hears program changed its database platform by acquiring a new contractor. This was mainly because the program had experienced a number of challenges with

the former database and the advisory board made a strong campaign to petition for a new database. To date, the transition has been smooth. The database is housing both the hearing and metabolic data making it comprehensive for users at the hospital and state levels. Having the new database has increased the number of reports that the Program can create. Hospital and state users are able to look at data trends amongst a number of indicators not limited to ethnicities, ages, conditions, and the nursery status of an infant.

DC DOH has designed a multifaceted approach to reduce the loss to follow up and loss to documentation after failure to pass the newborn hearing screening. There will be several initiatives implemented to improve tracking through the new database, provider outreach, and continuous quality improvement (QI) strategies.

DC Hears is convening a strategic planning committee to assess program needs, plan, implement, and evaluate program initiatives. This committee will be derived from the current advisory board members as well as additional persons not limited to early intervention professionals, parents, and other stakeholders. The ideal committee will have professional representation from every part of the EHDI continuum: screening, diagnosis, and intervention. Additional members would be comprised of individuals from various professional arenas not limited to the hospital, school system, early intervention services, and local agencies. The strategic committee's sole purpose would be to identify areas of improvement, design small interventions to address them, analyze performance and recommend changes that best fit the needs of the city. Within the first year, the strategic committee would have outlined a strategic plan to reduce the number of infants that are lost to follow-up. This plan will be heavily embedded in QI strategies. The strategic plan would be used as a blue print for DC Hears to reduce the loss to follow up rate. The strategic committee would help DC Hears address the aim statements outlined for the next 3 years.

Aim Statement 1: By the end of the project period, improve the tracking of infants with referred screening results from birth to enrollment into the DC Early Intervention Program.

As mentioned above, each year about 9000 out of approximately 15,000 DC births are to actual DC residents. This is because the DC metropolitan area is really a tri-state area. It is common for residents of DC, Maryland (MD), and Virginia (VA) to work in one state and live in another. This is also true for their social life and where they receive health services. With that, it is common for a family that lives in DC to receive services outside of the state and vice versa. Communicating with neighboring states is vital to program tracking and surveillance. DC Hears will enhance the reports created for neighboring states. With the new database, DC Hears is able to provide immediate electronic access to Maryland and provide more information for Virginia.

QI strategies via the PDSA model will be used to evaluate the effectiveness of the reports that are sent monthly to MD and VA. Surveys, meetings, and correspondences will be used to relay changes and an agreed upon format for each state. DC Hears will transfer data electronically if possible to ensure timely delivery of data. DC Hears will also utilize the Plan, Do, Study, Act (PDSA) model to evaluate how effective data sharing is when receiving information from neighboring states. Measures that will be collected include such measures as the number of infants that were born out of state and refer on the initial hearing screening, the number of infants that are transferred from DC Hears to the MD and VA EHDI programs, and the number of

infants that are transferred from MD and VA EHDI programs to DC Hears. PDSA's will be used to investigate how often data should be shared. Finding a systematic and smooth process is important as it not only benefits the children of DC but of MD and VA as well.

DC Hears staff works diligently to make sure that every family with an infant that refers receives educational counseling. This is done through various avenues including telephone calls and/or letters in the mail. Once a child is referred someone from the DC Hears program will contact the family to provide educational counseling on the importance of the hearing test. While some hospitals are able to schedule infants for follow up appointments before being discharged, not all facilities are able to do that. Currently the staff does not routinely collect appointment information if the family has not made a follow up appointment. The DC Hears staff member will provide resource information but not make the appointment for the family. In an effort to reduce the loss to follow up/loss to documentation rate, DC Hears staff will investigate utilizing the PDSA model and other opportunities to reduce the loss to follow up/loss to documentation rate during the educational counseling process.

QI strategies will be used to explore additional follow up techniques. An initial PDSA will be used to assess the effectiveness of assisting and collecting appointment dates for families with infants that refer. This requires DC Hears staff to assist the families that do not have standing follow up appointments. If the family has identified a medical home for the child DC Hears staff will collect that information as well so that the primary care physician (PCP) can be engaged and kept abreast of the hearing health of the child. Indicators from this initiative will include such measures as the number of appointments that DC Hears staff assists with, the number of infants that refer and don't have follow up appointments, the number of infants that miss follow up appointments, and the average time it takes to assist a family with scheduling an appointment. After the initial PDSA is done, DC Hears will use that information as a guide to define a follow up protocol that yields success.

Since the inception of the new database DC Hears is able to view progressive client information in an easy manner. This not only includes screening and diagnostic data but it also includes early intervention data. The new database has provided a once-stop-shop for all persons across the EHDI continuum to view medical history and connect with other health professionals. Since entrance into early intervention services must be timely the new database will be utilized to provide the early intervention data for clinicians. It is common in DC for a family to refuse intervention services. This is mainly because DC has a thriving deaf/ hard of hearing community and often traditionally deaf families feel that they are aware of resources available to them. By utilizing the new database, information regarding the consent status on all infants diagnosed with a hearing loss will be noted in the database. In the prior database early intervention was provided in a different system. Updates regarding infant progress and health status will now be noted in the database.

QI measures will be utilized to look at the demographics regarding the infants that are diagnosed with a hearing loss. Measures that are be collected will include the number of infants that are diagnosed with a hearing loss, the number of families that consent to early intervention services, the number of families that don't consent to early intervention, infants that refer with a history of hearing loss in the family, and an early intervention entry rate will be calculated. PDSAs will be

used to guide what key information clinicians and early interventionists look for when providing services. This will be used to ensure that the database is comprehensive.

While follow up is among one of the major priorities for the program, DC Hears will also employ regular audits of the data for each facility to ensure that the data being entered is consistent at all facilities. By utilizing PDSAs, DC Hears staff will randomly look for certain data fields that must be completed when entering hearing results. This information will be used to ensure that there is a sufficient amount of data being entered regularly. Information collected from these audits will be used by the strategic committee to assess if there are any weaknesses in the data and to determine possible solutions. This will also expose any underlying circumstances that may impact the receipt of timely accurate data entry.

Aim Statement 2: By the end of the project period identify infants without hearing screening documentation by utilizing the new database system and employing modified or new internal processes at all levels (hospital, early intervention, and state).

The transition to the new database is going well. DC Hears wants to ensure that at all times hospitals are capturing accurate correct data. To date, the program staff is able to cross reference locating information with the State Medicaid database. This has been very successful in helping program staff reach families. This is mainly due to the transient nature of the DC population. As a result of this success, the Program would like to establish the same type of rapport with other programs. Currently, the DC Hears is in the process of establishing a monthly data import from the State's Vital Records Division database as another tool to track infants that may be potentially lost to follow up and/or documentation. Having a monthly import function from the Vital Records Division will be beneficial to the program because it will provide a list of reported births that are not in the state newborn hearing screening database. It will also provide an opportunity to cross reference locating information to reach families and update any discrepant data on file. Lastly, working with the data from the State Vital Records Division will allow program staff to establish a more accurate screening rate for each hospital and across the city.

In addition to establishing a good rapport with other programs, DC Hears is looking to utilize state programs that provide services for a population parallel to the identified target population. This is inclusive of programs such as the Women, Infants, and Children (WIC) Program, DC Healthy Start, and Safe Cribs. The target population for these programs is similar to that of DC Hears. In addition to that, residents are more likely to update their locating information to continue the receipt of benefits from WIC. Women in the Healthy Start Program receive home visits regularly and women in the Safe Cribs program are women who are within 2 months of their due date or have recently given birth. Working with these programs will be beneficial in tracking infants that may potentially be lost. In addition to that, working with these programs to ensure comprehensive care across a spectrum of services strengthens documentation on the health status of infants.

Utilizing PDSA's to assess report effectiveness is vital. DC Hears will utilize QI strategies to ensure that reports in conjunction with data received from the Vital Records Division enhance surveillance for the target population. Cross referencing and collaborating with other programs like WIC and Healthy Start will be measured by the number of referrals received. QI strategies

will also monitor the number of potential lost to follow up/loss to documentation infants that have valid contact information as a result of cross referencing. Reports that quantify how often an infant with invalid locating information is no longer lost will be constructed. Regular numbers on the amount of referrals received from existing programs will be collected regularly.

Aim Statement 3: Increase provider and public awareness of the importance of newborn hearing screening and parental follow-up, and resources available to District residents.

In 2012 DC Hears hosted a full day conference for providers and the residents of the city. The main focus of this conference was to increase the awareness of the newborn hearing screening program in the District of Columbia as well as resources available to the public. The conference was well attended and received positive feedback. It was successful in reaching providers, creating new partnerships and it exposed the newborn hearing screening program to many community health professionals. In continuing the provider outreach initiative DC Hears is preparing to forge new collaborative relationships to create additional opportunities to engage providers.

To engage providers, especially primary care physicians (PCPs), the Program will develop two referral tools that can be used to help physicians refer families to appropriate resources. First, the Program will develop a referral form that can be faxed to the Department of Health, newborn hearing screening staff. The referral form will be used to provide state level staff with information about an infant that the PCP has no newborn hearing screening knowledge or documentation on. Often, the primary care provider of an infant will call the Department of Health to get a copy of an infant's newborn metabolic screening results. DC Hears would like to get PCPs to ask the question, "Has your baby had a hearing test?" If the parent or caregiver answers "No" or "I don't know" then the PCP can simply fill out a simple referral form and fax it to the Department of Health so that the family will not be lost to follow up. Ideally, this process will be simple and will not only relieve a physician of completing a long arduous task but it immediately directs the family to the attention of the state and it allows the state to work with the PCP. This undertaking will impact physician office processes and therefore this initiative will be carefully designed and done in phases. Once the form has been carefully evaluated and assessed it will be distributed through the local chapters of major professional organizations such as the American Academy of Pediatrics. In addition to that, the program will engage other organizations that are widely used by the target population such as WIC and the DC Healthy Start Project to ensure that families are accessing important mandated health measures that affect their baby. Engaging programs like WIC and DC Healthy Start will offer additional opportunities for DC Hears to track and engage families that would potentially be lost to follow up by asking one very important question, "Has your baby had a hearing test?" Ultimately, the Program would like to add this question to the home visitation questionnaires and recertification/intake questionnaires.

QIs will be utilized to assess each phase of the development and intervention process. Process evaluations will be put in place so that the strategic committee can assess success regularly. Prior to developing a tool, the strategic committee will collect data on physician views and opinions regarding the hearing screening results. Responses from this initiative will guide referral

development. The number of persons in receipt of the survey and the number of surveys received. Once complete, measurements that will be collected include the number of referrals that are received, the number of practices/facilities utilizing the form, and the number of infants that require follow up services.

In addition to the referral form, the Program is endeavoring to create an additional tool for providers in the form of a Physician Roadmap. A similar tool, The DC Family Roadmap was developed for families and translated into English and Spanish. It was adopted by the DC Hears Advisory Board and is used to help guide families through the referral process. A Physician Roadmap tool will be developed through the advisory board as well. Once the tool is developed it will be distributed city wide to local community health clinics, major hospitals, as well as community organizations. The DC Family Roadmap will continue to be distributed amongst agencies and programs that aid pregnant women and new parents.

To ensure progression, QI measures will measure the number of tools developed and the number of tools distributed.

To increase the public's awareness of newborn hearing screening and its importance DC Hears is relying on collaborative efforts. In order to ensure that the community is engaged in the correct manner and receiving information the right way DC Hears will conduct staff training where necessary. This will help standardize what information is being communicated to the public. Utilizing the professional and parental expertise of the advisory board will assist with providing accurate and culturally appropriate information to effectively reach the target population.

QI measures will evaluate how many people are reached through the efforts and how many collaborative relationships will exist. To leverage resources DC Hears is aiming to make newborn hearing screening a part of every program by getting others to understand its importance in the first few weeks of life. Collecting data on approximately how many are reached is important but utilizing fellow organizations and agencies will help build DC Hears' publicity and increase awareness.

Collaborative efforts will remain a major focus for DC Hears. DC Hears will begin working more closely with the Healthy Start health educators to expose the newborn hearing screening program to more audiences. The health educators have a vast amount of connections to organizations throughout the city and existing relationships with a number of programs. DC Hears will utilize the platform already established by the health educators to present to audiences comprised of mainly expectant parents and providers to brand the program and expose the resources available to DC residents.

The measurements associated with this strategy include the number of presentations done, the number of materials distributed, and the number of new partnerships that are formed. A collaborative with the Healthy Start health educators would be beneficial in reaching the target population.

DC Hears is fortunate in that the program office is physically located in the same building as the DC Healthy Start program. DC Hears would like to start a relationship with DC Healthy Start to

ensure that women in the Healthy Start Program are educated on the importance of the hearing test. This partnership would require information sharing among the two programs. Once a woman in DC Healthy Start delivers her baby and is receiving her first post-partum visit, a DC Hears staff member will reach out to the mom to ensure that the baby has had a hearing test and if not the staff member will work with the case managers to ensure that the baby has a scheduled hearing exam. DC Hears would like to establish this same relationship with the New Heights Teen Parenting Program. New Heights is a program designed for DC public high school students that are parents or becoming parents. It is in several DC high schools and its main objective is to make sure teen parents graduate high school. Once a teen becomes a parent, DC Hears would like to reach out to that student to ensure the baby has received a hearing test and if follow up services needed to be coordinated then the DC Hears staff person would work with parent to schedule services.

The DC Healthy Start program participants and the New Heights participants are important to DC Hears because the Healthy Start Program provides services for women in Wards 5,6,7, and 8. Also, teen parents account for a number of the births in DC and are a part of the target population for this proposal. QI methods for this initiative include collecting number on what percentage of DC Healthy Start and New Height deliveries receive hearing screenings, the number of DC Healthy Start and New Height infants that did not receive a hearing screening or receive follow up, the number of DC Healthy Start and New Height infants that were linked to care because of collaborative tracking, and the hearing screening rate for DC Healthy Start and New Heights deliveries.

In an effort to utilize resources that are already in the community DC Hears will hold trainings for DC Healthy Start employees. These staff members are constantly in the community linking families to care and they also conduct client outreach. They are visible faces in the community. DC hears would like to provide a training for DC Healthy Start staff to ensure that they are aware of the importance of hearing screenings and that they are all delivering the same messages to the community.

This initiative would be effective in helping DC Hears because it helps spread the word about resources and necessary services for newborns. The indicators to measure this initiative would mainly come from the number of staff members trained and the number of trainings conducted.

Message mobilization for newborn hearing screening is important in increasing the public's awareness. It is important that DC Hears provides information, especially literature, in a manner that the public can understand. This is why over the past few years, DC Hears has worked hard to get as much material as possible translated into Spanish. Spanish residents make up a significant amount of the population and it has become imperative to have bi-lingual information to accommodate this growing population. DC Hears was successful in translating all three of its brochures as well as the DC Family Roadmap into Spanish. As the strategic committee creates new tools, making sure that they are available in English and Spanish are important.

QI initiatives will be used to measure how many existing educational tools are provided in English and Spanish as well as how many new tools will be developed in English and Spanish.

PDSA will be conducted to determine if DC Hears should consider providing educational information in other languages to accommodate the various cultural groups within the city.

Aim Statement 4: Design, implement, and evaluate new QI strategies to enhance productivity over the Early Hearing Detection and Intervention (EHDI) continuum by utilizing the PDSA (Plan, Do, Study, Act) model as a training module for DC Hears constituents.

Effective processes are important to DC Hears staff. Ensuring that resources are utilized in the best way to achieve program objectives and the overarching goal is a priority. Routine QI would benefit DC Hears so that challenging areas can be scrutinized and amended to improve outcomes. Last year the DC Hears coordinator had an opportunity to participate in QI cohort under the leadership of the National Initiative of Children's Healthcare Quality (NICH-Q). From this learning collaborative the importance of small tests of change became evident. Evaluating the current processes created amplification on areas of improvement. It helped foster conversation regarding change and priority areas for the advisory board. In keeping with the NICH-Q QI technique, the PDSA model, DC Hears has and will continue to embed QI as a regular part of hearing screening program. The objectives of completing so many PDSA's will help discover good practices, reveal challenges, and give opportunities to evoke change. This model will also foster and ignite conversation centered on enhancing the newborn hearing screening program. It will be utilized by the advisory board and will set a new standard on program innovation and success.

While the strategic committee will be an additional taskforce for DC Hears the strategic committee will not be void of data. Based on the data collected from the NICH-Q learning collaborative through various PDSA's, the strategic committee will have access to the discoveries that were made during the learning collaborative experience. The committee has access to data collected to assess the strengths of the program as well as opportunities for improvement. The committee is there to ensure that QI is continuous and becomes physical change that can be seen. Identifying indicators, measurement methods, data sharing opportunities, ways to spread success, and sustainability will all come out of the strategic planning.

Including so many QI techniques across every stage of the EHDI continuum will be worth the challenge for DC Hears. Not only will DC Hears be able to quantify how many PDSA were completed but the program will also be able to quantify how many PDSA spread and how it has impacted the loss to follow up/loss to documentation rate. Having this type of rigorous evaluation approach will paint a picture for the DC Hears program. It's imperative that the program is able to clearly understand its current state so that proper planning can be suited for its future success.

The DC Hears Advisory Board is comprised of professionals that provide or coordinate services for infants living in the District of Columbia with hearing loss. It is also comprised of parents of children that are experiencing hearing loss. The mission of the Board is to provide oversight and advice on the development of a comprehensive, community-based, family centered and culturally competent coordinated system of newborn hearing screening, assessment and intervention. The Advisory board meets twice a year (contingent on member availability), once

in the Spring and in the Fall. The DC Hears Advisory Board is broken down into two committees. They are the Data and the Intervention Committee. Collectively both of these committees work to fulfill the mission through various activities.

The Data Committee provides guidance on data management, tracking, and quality assurance. They assist by making recommendations for data collection systems that will coordinate data collection and analysis throughout the city's birthing hospitals, birthing centers, community audiologists and primary care physicians. The Intervention Committee is responsible for developing a state plan for intervention services, facilitating the coordination of services with Child Find and Part C services, in addition to reviewing and standardizing materials available to distribute to families. Membership into the DC Hears Advisory Board does not require an application process. It is comprised of professionals that work in some capacity along the EHDI continuum. Traditionally there is representation from each major hospital on the advisory board in addition to passionate community members found in the form of a parent, teacher, program specialist, and even professional student. The advisory board meets twice in a calendar year while the committees meet more often throughout the year.

DC Hears is connected to several programs throughout the city. This is because the Department of Health has existing relationships with other DC Government agencies as well as community agencies. For example, DC Hears has a linkage with the Healthy Start Project and the Home Visitation program. DC Hears is also connected to the State Early Intervention program, the New Heights Teen Parenting Program (an entity of the DC Public School System), Title V program, DC Linking and Tracking System which is a one-time home visitation program that ensures infants at high risk are screening for developmental delays, and the Newborn Metabolic Screening Program. DC Hears is collaborating with health educators from the Perinatal and Infant Health Bureau to distribute information, engage the community and engage providers. A partnership with the DC Healthy Start Consortium has afforded DC Hears opportunities to reach parents on several different platforms. Also, members of the advisory board come from programs that are not traditionally EHDI programs which make linkages to programs such as Head Start and other programs simple.

Sustaining program successes after funding will be done through various initiatives. Partnering and collaborating with local organizations and agencies will be a major factor in sustaining the program. Having processes in place that are easy to reproduce will be a priority. Streamlining when possible will be instituted to ensure smooth transitions from screening to diagnostic evaluations and throughout the enrollment process into early intervention.

RESOLUTION OF CHALLENGES

As with any program, challenges may present themselves. Being sensitive to this, DC DOH has prepared and considered solutions to some of the challenges that may arise. Since this period is grounded heavily in QI DC Hears will welcome challenges as an opportunity to evaluate and assess program function. Table 5 delineates how DC Hears will address potential challenges.

Table 5: Resolution of Challenges

Challenges	Resolution
Language Access	Utilize the language line for proficient speakers of other languages; Try to get additional materials translated into English and Spanish.
Transiency of Population	Collaborate with other agencies and programs that serve the same population. Ensure that all partners have the same information and can deliver the same message regarding the importance of newborn hearing screening.
Limited Provider Knowledge	Ensure that all major facilities have visible information about what to do if an infant has not passed or missed their hearing screening.
Reproduction of Materials	Create and develop new tools that can be reproduced easily without relying on the DC DOH to reorder and supply them.
High Work Demands of Strategic Planning Committee	Ensure that all PDSAs are truly small tests of change. Limit committee investment to circumvent feelings of being overwhelmed and stressed out.

EVALUATION AND TECHNICAL SUPPORT CAPACITY

DC Hears acknowledges that the process of conducting any quality monitoring and evaluation demands attention to detail, adherence to standard evaluation practices, as well as knowledge of data analysis techniques and process to ensure that the data collected are used to answer critical questions about project implementation and outcomes. DC Hears plans to build on the work it has been performing in the past to reduce its loss to follow up rate. The plan for program performance is the rigorous collection and analysis of data. This is highly reliant on the outlined performance plan and identification of key indicators. This is also heavily relying on the regular collection of data by the strategic committee and DC Hears program staff. Regular collection and analysis of data will serve as process evaluations to ensure that the program progression is in the right direction to achieve aims. This will also help provide direction for focus areas for the program as well. Year 1 of the project will be mainly capture data for process evaluations. The logic model (Attachment 6) outlines the description of inputs, key processes, and expected outcomes of the funded activities over the entire project period.

Key staff for the evaluation will be jointly overseen by a data team. This data team is mainly comprised of the in-house quality assurance (QA) team located in the Community Health Administration. The remaining members of the data team will come from the strategic committee and the program coordinator. To date, the QA team works with a number of programs analyzing data. The QA team actively assists DOH programs with outlining yearly program performance plans. The QA team does this by assisting programs identify goals and objectives, key indicators, data collection methods, providing program guidance, assessing areas of needs, and final data reporting.

The QA team works actively to monitor the data of several programs such as the DC Healthy Start program, DC Hears, the Safe Cribs program, the Newborn Metabolic Screening program, the DC Linkage and Tracking System (DCLTS), and the DC Healthy Start Consortium. Each program collects data regularly that is submitted to the QA team. The team is responsible for analyzing the data and preparing it in report format. The report format presents the data so that

program coordinators can get a better illustration of progress made regarding program initiatives. Since the QA team already works with DC Hears the team members are familiar with the nature of the program and the measures it collects. The team is able to manage multiple projects at a time ranging in levels of complexity making it suitable to assist the Program with collecting, analyzing, and reporting so many indicators. It is because of the data management techniques for the QA team that the city is able to present DC data regarding newborn health indicators such as infant mortality, the prevalence of metabolic disorders, and numbers of residents educated on safe sleep practices for infants.

For this project, DC Hears will maintain the same systems and processes to achieve program goals. The program coordinator and program specialist will maintain regular collection of data and ensure that it is being entered from all areas across the EHDI continuum. The program coordinator will work closely with the data team to ensure consistent data receipt. In addition to that, the program coordinator and program specialist will utilize the electronic resources such as the hearing database to generate reports. The Oz database has built-in reporting functions that not only analyze data across a number of indicators but saves the program indirect costs such as time. The DC Hears staff will also utilize statistical software such as Excel to store and analyze data. DC Hears staff members are skilled in utilizing electronic software to collect, store, analyze, and share data. This is done daily as their program necessitates this skill. In utilizing the new database, DC Hears staff will be able to create reports based on race and ethnicity, primary language, newborn nursery status (“Well Baby” versus “NICU”), and number of other sub-categories. With the unique cultures throughout DC understanding whether or not there are distinct cultural differences can be investigated. Knowing this type of information helps the Program to guide efforts in the right direction and for the correct groups. Challenges for achieving such “culture specific” data collection arise if certain data (such as nationality) is not readily available or collected regularly. Ensuring that all persons at the hospital level entering data are trained on key reporting fields will help combat this as well as data sharing with other databases like that of the DC Vital Records Division.

There are standard measures that DC Hears will collect data on. While PDSA results cannot be forecasted it is quite likely that the PDSA results will probably yield additional indicators. The following list enumerates which indicators will be used as a part of the evaluation process.

ORGANIZATIONAL INFORMATION

The mission of DOH is to promote and protect the health, safety and quality of life of residents, visitors and those doing business in the District of Columbia. Its responsibilities include identifying health risks; educating the public; preventing and controlling diseases, injuries and exposure to environmental hazards; promoting effective community collaborations; and optimizing equitable access to community resources. The DC DOH is broken down into seven administrations.

The mission of the Community Health Administration (CHA) is to improve health outcomes for targeted populations by promoting coordination across systems of care; by enhancing access to prevention, medical care and support services; and by fostering public participation in the design

and implementation of programs for District of Columbia women, infants, children (including children with special health care needs) and other family. CHA delivers chronic and communicable disease prevention and control services, maternal and child health programs, school health services, community nutrition programs and pharmaceutical procurement and distribution services in order to improve the health status of all those who live in, work in and visit the District. CHA coordinates efforts to develop an integrated community-based health delivery system, ensure access to preventive and primary health care, and foster citizen and community participation towards improving the health outcomes of women, infants, children (including children with special health care needs), and other family member in the District of Columbia. This Administration also manages the Title V Maternal and Child Health Block Grant and oversees the management, planning, and evaluation of the grant.

The Perinatal Infant Health Bureau (PIHB) is one of five bureaus operating under CHA. PIHB's main purpose is to reduce the perinatal disparities in the District of Columbia. The bureau does this through client outreach, client recruitment, case management, and health education. Initiatives and services will increase the awareness of DC resident's on a number of components including perinatal disparities, infant mortality, and healthy lifestyles to ensure that every infant is off to a healthy start. PIHB works specifically with the target population for this project. The existing partnerships and relationships throughout the city are with organizations that directly provide services for the target population. Additionally, the bureau provides professional expertise and policy implementation for the DC DOH specifically pertaining to the target maternal and child health population. They do this by recommending changes based on assessment of the health status of DC's maternal and child health population. They specifically link the target population to resources and coordinate care to ensure healthy outcomes for infants ages 0-3. As mentioned previously the QA team of the PIHB has documented success in QI initiatives one being the visual decrease in infant mortality over the past 20 years. The QI team of the PIHB is constantly enhancing tracking methods to improve birth outcomes in the areas of Sickle Cell Anemia, educating mothers about Safe Sleep, increasing awareness of Fetal Alcohol Syndrome and

Ms. Karen P. Watts, Chief, Perinatal and Infant Health Bureau (PIHB), is a licensed Registered Nurse with over 30 years of clinical and managerial experience. She has received a MBA with a concentration in Finance; a MPA with a concentration in Health Science Management; and is a certified Project Management Professional. Ms. Watts serves as the chief administrator the following programs and initiatives in the PIHB:

- ***DC Healthy Start I and II Programs***

Healthy Start program staff provides services to identify and reduce behavioral and medical risk factors among pregnant and parenting women, and to improve access to healthcare and the overall health of mothers and children. Services include: outreach and recruitment of participants, home visitation, assessment and screening, referral and linkages to medical and other services, social support, and health education. All participants are screened for risk factors encompassing medical conditions such as obesity, hypertension, and asthma, depression and other mental health disorders, substance abuse (including tobacco, alcohol and illicit drugs,) and domestic violence. All infants and children of participating women receive ongoing assessments

including monitoring of well child care and are screened periodically for developmental delays, including hearing loss. Newborns that show signs of hearing loss are referred to the Newborn Hearing Screening Program. Services for mother and child are provided through the child's second birthday.

• ***The Safe Crib Program***

Program staff in this unit educate parents and caregivers on providing a healthy sleeping environment for infants in the District of Columbia. The program also informs parents and caregivers about other services targeting families with infants to include the Newborn Hearing and Metabolic Screening Programs and stress the importance of proper follow-up after an infant has been identified with an abnormal result. The program's aims to reduce the *DC* infant mortality rate and reduce the likelihood of Sudden Infant Death Syndrome (SIDS); suffocation; and roll-overs caused by co-sleeping.

• ***Newborn Metabolic Screening Program***

Program staff in this unit monitors newborn screening services for certain metabolic and genetic disorders for every child born in the District of Columbia. Services offered to individuals with genetic disorders are genetic counseling and education, clinical evaluation and management, diagnostic procedures including laboratory testing, referrals, and follow-up services including pediatric genetic services. The follow-up data for metabolic results is linked with the hearing screening results through the Oz Database to ensure that all infants who have received Newborn Metabolic Screening Program dry blood spot results have also been screened for hearing loss.

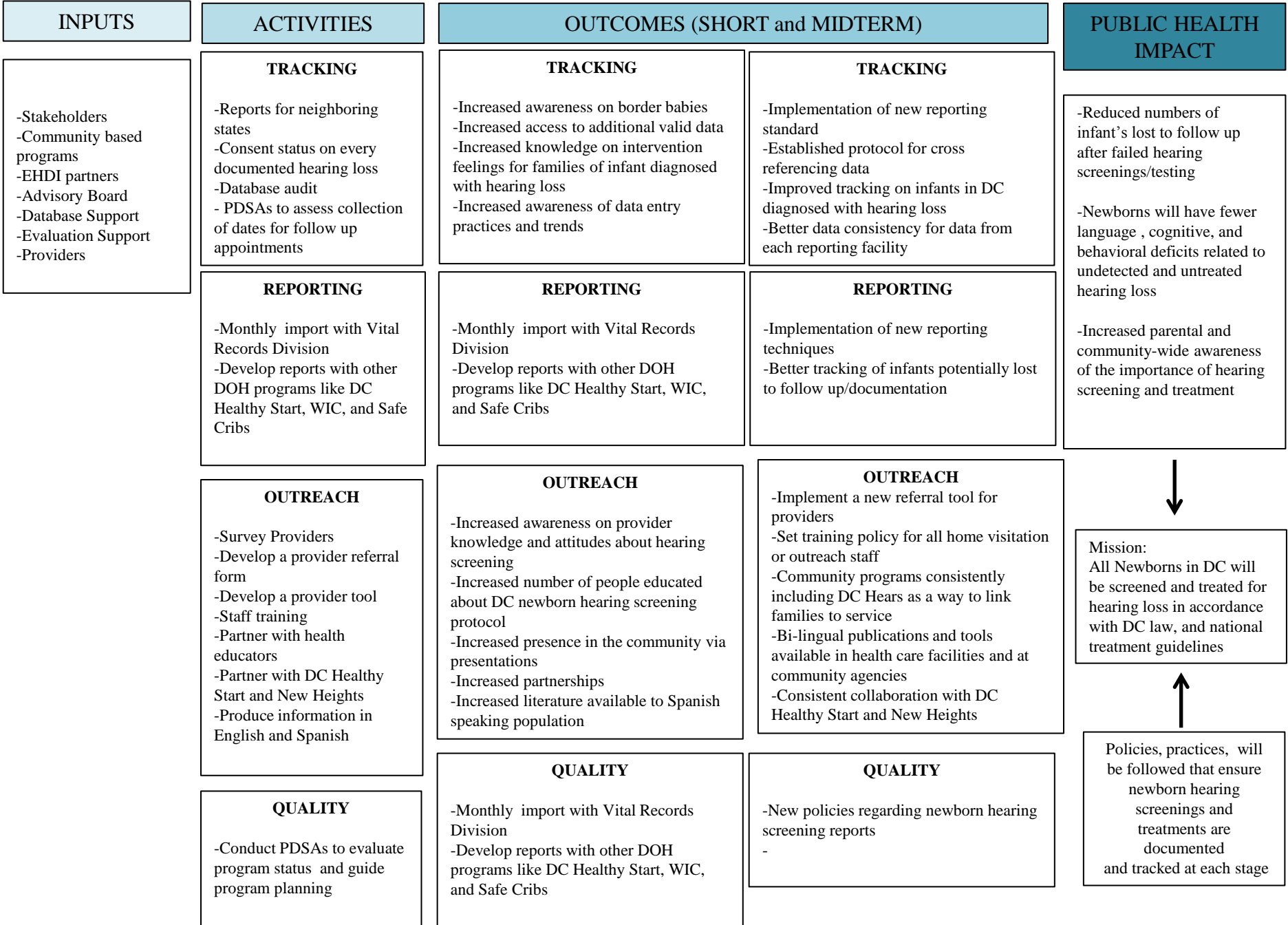
• ***Newborn Hearing Screening Program***

The Newborn Hearing Screening Program staff seeks to develop and sustain a comprehensive coordinated system for universal newborn hearing screening and intervention involving hospitals, primary health care providers, public health workers and others. Program goals include: that every newborn is screened for hearing loss prior to hospital discharge; infants not passing the initial and repeat screening receive appropriate diagnostic evaluation and are linked with medical homes; and families receive culturally competent support throughout the screening, diagnostic, and intervention stages.

The Program Coordinator for this Program is Sandra Davis. She has received a BS in Biology; a Master of Public Health degree, and has over 5 years of experience working with children's health care needs and their families. Ms. Davis coordinates the day-to-day operations of the Newborn Hearing Screening Program.

The Program Specialist for the Newborn Hearing Screening Program is Charlene Robinson. Charlene has a BA in Political Science and a MA in Public Administration. She has worked in the capacity of support specialist for an international Maternal and Child Health agency. She has also co-lead several projects with success.

Logic Model for Reducing Loss to Follow-up after Failure to Pass Newborn Screening HRSA -14-006



WORK PLAN

Goal/Aim 1: By the end of the project period improve the tracking of infants with referred screening results from birth to enrollment into the DC Early Intervention Program.

Objective/Aim 1.1: By the end of the project period, improve tracking of infants with referred screening results from birth to enrollment into the DC Early Intervention Program.

Strategy/Activity	Staff	Outputs	Timeline
Create a timely automatic sharing protocol with neighboring states.	Program Coordinator (PC), Program Specialist (PS)	PDSA results will be used to employ quality assurance initiatives regarding data sharing with neighboring states. Measures to be considered: survey neighboring states to inquire about data sharing frequency survey neighboring states about most useful data fields survey neighboring states about data method delivery # of infants born in neighboring states but are residents of DC and vice versa	This initiative may will be ongoing but the initial PDSA will be done by May 31, 2014
Conduct small tests of change to investigate best practices regarding follow up protocol for infants that do not pass the newborn hearing screening.	PC, PS	PDSA results will be used to employ quality assurance initiatives regarding the best follow up practices for DC. Measures to consider: # of infants lost to follow up/documentation each month #of PDSAs that spread Creating a follow up protocol flow chart/diagram to be used as a guide	The initial PDSA will be done by May 31, 2014

<p>Identify internal areas of need and test 4 small changes regarding how a missed or initial referral should be followed up</p>	<p>PC, PS Strategic Committee (SC)</p>	<p>PDSA results will be used to employ quality assurance initiatives regarding program focus areas. Measures to be considered: # of PDSA's created #of PDSA's implemented #of PDSA's that spread</p>	<p>This may also prove to be an ongoing process but the first 4 PDSAs will be completed by August 1, 2014</p>
<p>Analyze documentation in the electronic database that conveys parent acceptance or refusal of Early Intervention services</p>	<p>Educational Audiologist (EA)</p>	<p>PDSA results will be used to employ quality assurance regarding regular documentation of decisions families make regarding early intervention. Measures to be considered: # of infants with a documented hearing loss diagnosis AND documentation of acceptance or refusal of Early Intervention Services</p>	<p>The initial PDSA will be completed by June 30, 2014. The large timeframe has a lot to do with the frequency of hearing loss diagnosis in infants in the District of Columbia.</p>

Run random “audits” of data to ensure data entry is parallel at each hospital regardless of data entry method	PC, PS	PDSA results will be used to employ quality assurance initiatives regarding accurate data entry. #of records that meet minimum criteria #% of facilities that have noticeable inconsistencies	This PDSA will be used as a guide for other areas of improvement and therefore will be done by May 15, 2014
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Goal/Aim 2: By the end of the project period identify infants without hearing screening documentation by 1 month of age by utilizing the new database system and employing modified or new internal processes at all levels (hospital and state).

Objective/Aim 2.1: Decrease the number of infants without newborn hearing screening documentation through database audit and employing modified or new internal processes at all levels (hospital, early intervention, and state).

Strategy/Activity	Staff	Outputs	Timeline
Develop reporting functions utilizing data transfers from the State Vital Records Division	PC, PS	# of infants without a documented screen based on matching algorithm.	Data collection will be ongoing however the report should be developed and collected by July 1, 2014
Develop reports with local agencies that work with new moms (such as Healthy Start, Safe Cribs, and WIC)	PC, PS	# of infants that are referred via the new form # that required follow up # that received follow up	This will be monitored for the duration of the project period however, the report will be created by August 1, 2014.

Goal/Aim 3: Increase provider and public awareness of the importance of newborn hearing screening and parental follow-up, and resources available to District residents.

Objective/Aim 3.1: By the end of the project period develop a tool crafted for providers to keep them informed on DC newborn hearing standards.

Strategy/Activity	Staff	Outputs	Timeline
Gather information concerning provider thoughts and opinions related to hearing screening importance and follow up	PC, PS, SC	PDSA results will be used to employ quality assurance initiatives regarding provider awareness. Other measures be considered: # survey instruments developed # of survey respondents # of respondents that know outlined DC practices	October 1, 2014
Use results from the survey to create a tool that can be utilized for providers and test its success	PC, PS, SC	# of providers who use it # of practices that use it # of infants that are lost to follow up # of infants that receive timely care	February 15, 2015 will be the first pilot. This initiative will be ongoing.
Develop a Physician Roadmap to distribute to local providers	PC,PS, SC	PDSA results will be used to employ quality assurance initiatives to create a tool. Other measures to be considered: # of tools developed # number of tools distributed	February 1, 2014

		# of tools available electronically	
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Objective/Aim 3.2: By the end of the project period develop and implement ways to increase the public’s awareness of newborn hearing screening and resources available.

Strategy/Activity	Staff	Outputs	Timeline
Establish partnerships to help distribute DC Hears information	PC, PS, SC	# of partnerships formed # of materials available electronically	Ongoing
Partner with the DC DOH health educators to present information to a variety of audiences.	PC, PS	# of educational presentations #of materials distributed	Ongoing
Work with the New Heights Teen Parenting Program and Healthy Start Project to conduct postpartum follow up calls to ensure new parents understand the importance of hearing screening	PC, PS	# of phone calls made # of deliveries from the New Heights and Healthy Start Program # of infants from this population that do not have a documented hearing screen	Partnerships will be made by November 1, 2014 however data collection and monitoring on this initiative is ongoing.

Provide training to agency staff that conduct home visits or community outreach to ensure transparency in delivered messages.	PC, PS	# of employees trained % of pretest posttest results to measure knowledge #of infants that are referred from the home visitation program	Training will be completed by August 1, 2014. Monitoring the infants that are referred will be ongoing.
Ensure materials are available in English and Spanish	PC,PS	# of existing materials translated into Spanish # of new materials in English and Spanish	Ongoing
Investigate whether or not material should be translated into another language aside from English and Spanish.	PC, PS, SC	PDSA results will be used to employ quality assurance initiatives.	November 30, 2014

Goal/Aim 4: Design, implement, and evaluate new quality improvement strategies to enhance productivity over the Early Hearing Detection and Intervention (EHDI) continuum by utilizing the PDSA (Plan, Do, Study, Act) model as a training module for DC Hears constituents.

Objective/Aim 4.1: By the end of the project period develop a strategic plan for DC Hears to reduce loss to follow up/ loss to documentation.

Strategy/Activity	Staff	Outputs	Timeline
Establish a strategic committee comprised of advisory board members, parents, community members and other professionals.	PC, PS, EA, Advisory Board (AB)	# of individuals participating #of meetings	Joining the strategic committee will be ongoing but the committee will be hold its initial meeting by July 15, 2014

Utilize current program data and former PDSAs from the NICH-Q collaborative to outline a strategic plan to reduce loss to follow up/loss to documentation across the DC EHDI continuum	PC, PS, SC	PDSA results will be used to employ quality assurance initiatives. Measure to be considered: Strategic plan outlined	December 31, 2014. The actual plan will be modified continuously as it is heavily grounded in quality improvement.
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