

## The role of community-based strategies in addressing metropolitan segregation and racial health disparities

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This paper is a conceptual analysis of the effects of racial residential segregation, which is a major contributor to racial and ethnic health disparities. Metropolitan segregation has had adverse health consequences for economically disadvantaged and minority populations because they are exposed to higher levels of environmental pollutants and have limited opportunities to gain a quality education, access to healthcare, and increase their economic opportunity. Based on our empirical and theoretical analysis we provide a holistic framework that takes an ecological systems approach to understand the affects of urban health and health disparities. We contend that in order to improve the urban/environmental health conditions for the most vulnerable urban populations, it will require comprehensive community and regional focused strategies that link local community development efforts to larger macro-level metropolitan regional strategies.

**Keywords:** health disparities; segregation; community development; ecosystems; salutogens

### Metropolitan segregation and health disparities

Where a person lives and grows up can have a significant impact on their life-chances and quality of life. This is especially the case within the United States where the health status of an individual or group of individuals can vary widely depending on the block, neighborhood, or metropolitan area in which they reside (Fitzpatrick & LaGory, 2000). In the US federal, state, and local policies along with institutionalized racism have contributed to inequitable development across metropolitan areas, resulting in widening racial/ethnic and class divisions and unequal social and economic opportunities for economically disadvantaged residents (Dreier, Mollenkopf, & Swanstrom, 2004; Frug, 1999; Lopez, 2004; Williams & Collins, 2001). Moreover, inequitable metropolitan development results in the concentration of unhealthy living conditions and environments, which contributes to racial and ethnic health disparities.

According to the latest National Center for Health Statistics mortality data, racial and ethnic health disparities between blacks and whites and Hispanics and whites are significant (see Table 1).

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Table 1. Age-adjusted death rates by for black, Hispanic and white ratios for the 10 leading causes of death, United States 2007.

Rank	Causes	Black to white ratio	Hispanic to white ratio
	All causes	1.3	0.7
1	Heart disease	1.3	0.7
2	Cancer	1.2	0.6
3	Stroke	1.5	0.8
4	Pulmonary disease	0.7	0.4
5	Accidents	0.9	0.7
6	Alzheimer's disease	0.8	0.6
7	Diabetes	2.1	1.5
8	Flu and pneumonia	1.2	0.8
9	Kidney disease	2.2	0.9
10	Blood poisoning	2.2	0.8

Note: Taken from Centers for Disease Control (2010).

Blacks have an overall mortality rate that is 1.3 times that of whites and Hispanics have a lower overall mortality rate than whites at 0.7. In analyzing the top 10 leading causes of death for 2007, the disparity in mortality ratio between blacks and whites was the highest for kidney disease (2.2) and blood poisoning (2.2), followed by diabetes (2.1), and stroke (1.5). Hispanics had a higher mortality ratio between whites only for diabetes (1.5). Although it appears that Hispanics have overall lower mortality ratios compared with whites it is worth noting that this could be for several reasons. According to David Williams and others, a high number of non-black minorities are classified as white on the death certificate, which leads to an underestimate of the death rates for Hispanics (Hahn, 1992; Sorlie, Rogot, & Johnson, 1993; Williams, 1999). In addition, a high proportion of Hispanics are foreign-born, thus reflecting the fact that immigrants tend to have better health status than the native-born population (Hummer, Rogers, Nam, & LeClere, 1999; Singh & Yu, 1996; Williams, 1999).

Perhaps one of the biggest factors contributing to differences in racial and ethnic health disparities has been residential segregation (Acevedo-Garcia, Osypuk, McArdle, & Williams, 2008; Corburn, 2009; Massey, 2004; Williams & Collins, 2001). Racial residential segregation directly impacts ethnic minorities' socioeconomic status (SES) at the individual, household, and community levels, which can negatively influence their health status (Ahmed, Mohammed, & Williams, 2007; Corburn, 2009; Massey & Denton, 1993; Williams & Collins, 2001). Lower socioeconomic and racially segregated minority communities and neighborhoods tend to have limited access to necessities such as quality housing, education, medical care, healthy foods, and economic opportunities – all of which are important determinants of health, especially economic opportunities. Sociologist William Julius Wilson describes the effects of deindustrialization and racial residential segregation on the economic opportunities for blacks in Chicago. He argues that highly concentrated urban poor communities “offer few legitimate employment opportunities, inadequate job information networks, and poor schools,” all of which lead to the disappearance of work (Wilson, 1996, p. 52).

In addition to limited employment opportunities, poorer racially segregated communities within urban metropolitan communities offer less access to a broad

range of services provided by municipal governments (Alba & Logan, 1993; Hutson, Kaplan, Ranjit, & Mujahid, 2011; Williams, 1999). A recent study that analyzed the largest 171 metropolitan areas within the United States according to metropolitan jurisdictional fragmentation and racial segregation found that metropolitan areas that were highly fragmented based on the number of governmental jurisdictions had higher overall black white mortality ratios compared with metropolitan areas with less jurisdictional fragmentation (Hutson et al., 2011).

Residential segregation also limits minorities' access to medical care and exposes them to neighborhood environments with higher levels of social disorder, violence and environmental toxins, all of which influence health (Ahmed et al., 2007; LaVeist, 1993; Massey, 2004; Morello-Frosch & Lopez, 2006; Williams, 1999; Williams & Jackson, 2005). In terms of access to medical care, the Institute of Medicine (2002) report *Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare* found that some evidence suggests that bias, prejudice, and stereotyping on the part of healthcare providers may contribute to differences in care (2002, p. 195). Lower SES also contributes to lower levels of health insurance for poor, minority residents, resulting in fewer visits to the doctor and less access to preventive medicine (Williams & Jackson, 2005).

Highly racially segregated neighborhoods also tend to have higher exposures to environmental toxins and industrial land uses. For example, within New York City, Julie Sze argues that the most manufacturing zone increases over the years have occurred in the Bronx, an area with the highest concentration of poor and minority residents while Manhattan has experienced the greatest decreases in manufacturing zoning (Sze, 2007). Sze argues that the high level of zoned land for manufacturing within the Bronx exposed its residents to a disproportionate amount of environmental toxins compared with other communities within New York City. The Bronx, like many other poor communities of color, are exposed to unhealthy land uses and industrial production that over time can have an adverse impact on their quality of life and the overall health (Massey, 2004; Morello-Frosch & Lopez, 2006).

It is clear that racial residential segregation indirectly impacts individuals' SES, resulting in a number of deleterious influences that impacts the health status of poor, minority individuals. This raises very important questions. What can be done to address the current racial and ethnic health disparities gap that exists in the United States? What community-based strategies are most effective in addressing metropolitan segregation and racial health disparities?

### **Conceptual framework to address community development issues and health disparities**

We should employ a comprehensive framework that considers ecologic features of the built and social environment to enhance community development in unserved and underserved communities hurt by health disparities. This framework (see Figure 1) incorporates elements of community development, urban planning, and the public health perspectives to categorize communities at different levels including neighborhoods, towns, cities, and metropolitan areas as human ecological systems, whereby the overall health of the human ecological system influences health and the degree of health disparities within and between human ecosystems (Wilson, 2009). This approach focuses on understanding how context, place, and local socio-environmental conditions impact the health of populations and individuals (Wilson,

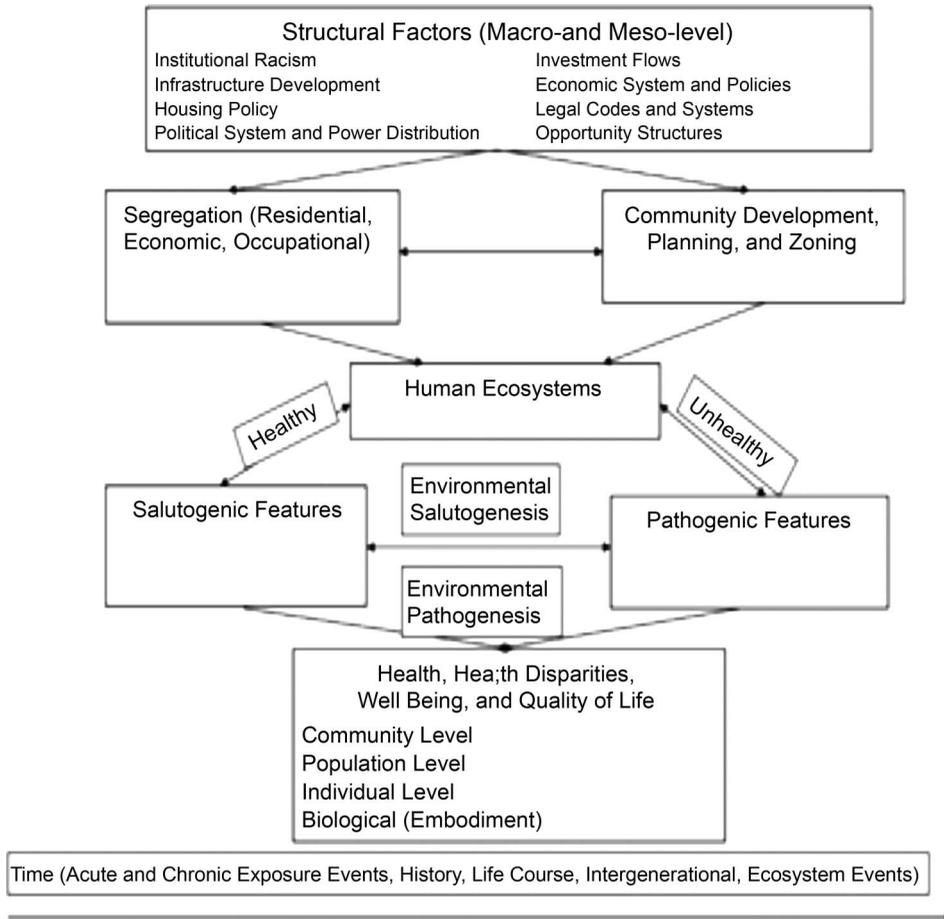


Figure 1. Ecologic framework to address development issues and health disparities. Note: Figure taken from Wilson (2009).

2009). By modifying the health and quality of our human ecosystems, we can positively impact the lifestyles, health behaviors, health outcomes, and quality of life of populations who reside, work, or play in different ecosystems particularly disadvantaged, historically marginalized, and underserved populations (Wilson, 2009).

The framework builds upon an emerging area of environmental justice research that has explored the contribution of neighborhood stressors, structural factors, neighborhood-level resources, and the built environment to community health and the creation of health disparities (Brulle & Pellow, 2006; Gee & Payne-Sturges, 2004; Morello-Frosch & Lopez, 2006; Payne-Sturges & Gee, 2006; Payne-Sturges, Gee, Crowder, et al., 2006; Soobader, Cubbin, & Gee, 2006; Wilson, 2009), particularly disparities in asthma, adult mortality, infant mortality, cancer, obesity, cardiovascular disease, diabetes, and crime-related health outcomes. Figure 1 shows a conceptual framework that illustrates the role that different fundamental factors and spatial drivers of community context have in how human ecological systems are developed and maintained. The primary structural factors shown in Figure 1,

including institutional discrimination and racism, political power, socioeconomic inequality, housing policy, economic systems and development, and investment flows and patterns, operate through and drive spatial processes of segregation and community development (Wilson, 2009). By operating through these spatial processes, these structural factors act as the main determinants of positive and negative health outcomes at the national, regional, metropolitan, neighborhood, population, and individual levels (Wilson, 2009). We can categorize human ecosystems as “healthy” or “unhealthy” based on the number and quality of and access to health-promoting and health-restricting structural (built and social) features measured across physical, social, political, economic, and spiritual spheres (Wilson, 2009).

Spatially uneven and fragmented community and economic development, implementation of housing policies, and opportunity infrastructure have contributed to the production of urban landscapes with a high concentration of locally unwanted land uses (e.g. chemical plants, factories, heavily-trafficked highways, landfills, incinerators, waste treatment facilities, hazardous waste sites), limited number of health-promoting resources, low-quality schools, unemployment, economic instability, urban degradation, crime, violence, and drugs. These unhealthy urban landscapes known as “risksapes” (Morello-Frosch & Lopez, 2006) or unhealthy urban geographies disparately burden segregated, disadvantaged, and marginalized urban communities (Wilson, 2009). In recent years, urban revitalization and smart growth initiatives have been implemented and supported by community developers, planners, local, state, and federal governments, architects, and non-profit environmental and economic organizations as approaches to improve health and sustainability of urban communities. Unfortunately, many of these initiatives do very little to provide benefits to historically disadvantaged populations (Wilson, 2009). These programs, instead of having positive community benefits for all demographic groups in our cities and towns, may lead to more segregation, gentrification, and community development inequities characteristic of suburbanization and related highway expansion in the mid-1950s and urban renewal later in the 1970s and 1980s (Wilson, 2009).

Fortunately, the new ecosystems approach to human health presented in this paper may allow us to holistically assess, understand, and improve health by using community development to change socioenvironmental conditions. Human ecosystems with negative socioenvironmental conditions can lead to adverse health outcomes, drive bad health behaviors, and result in unhealthy lifestyles for populations within the ecosystems. On the other hand, living in human ecosystems with positive socioenvironmental conditions may lead to good health outcomes, health behaviors, and lifestyles, and improve individual-level, population-level, and community-level quality of life. The integration of the health promotion and prevention approach in community development and planning may catalyze a change in the life-course trajectory of at-risk and vulnerable populations and human ecosystems (Wilson, 2009). Therefore, the use of community development and planning initiatives and environmental health policies that help foster salutogenic (health-promoting) social and built environments may have important implications for public health in human ecosystems, particularly for disadvantaged, underserved, and marginalized populations who are disparately burdened by both environmental (i.e. landfills, incinerators, environmental hazards, air pollution, water pollution) and psychosocial (i.e. crime, violence, poverty, racism) stressors (Wilson, 2009).

### Salutogens and pathogens in human ecosystems

City and regional planners and community developers may be able to use this ecological framework to improve the health of populations who reside in human ecosystems by tracking the number of and quality of the ecologic features present in the built and social environments (Wilson, 2009). Salutogens are ecologic features of the built and social environments that decrease a population's vulnerability to illness and adverse health outcomes (Antonovsky, 1987; Gee & Payne-Sturges, 2004; MacDonald, 2005; Payne-Sturges, Gee, Crowder, et al., 2006). Salutogens buffer at-risk and susceptible populations from the negative effects of pathogenic environmental exposures and increase opportunities for improvements in health, resiliency, vitality, and social capital (Wilson, 2009). There are several features of human ecosystems that we classify as salutogens, including good housing stocks, parks, medical facilities, schools, open space, supermarkets, recreational facilities, sewer and water infrastructure, equitable and just transportation networks, community gardens, farmers' markets, churches, dentists, and social service organizations (Wilson, 2009). The spatial density, distribution and quality of the salutogens are important indicators of human ecosystem health and points of intervention for improving historically disadvantaged, marginalized, and underserved communities, particularly environmental justice communities. Salutogens constitute the strengths, assets, and resources found in human ecosystems that community development professionals and advocates can use as the foundation for health promotion and prevention in the nation's efforts to eliminate racial/ethnic, socioeconomic-related, and geographic-related health disparities (Wilson, 2009).

Ecologic pathogens are features of the local built and social environments that enhance a population's vulnerability to negative health outcomes (Antonovsky, 1987; Gee & Payne-Sturges, 2004; MacDonald, 2005; Payne-Sturges, Gee, Crowder, et al., 2006), and drives negative health behaviors and lifestyles in a human ecosystem (Wilson, 2009). Ecologic pathogens act as stressors in the neighborhood environment and limit the overall health, sustainability, vitality, and quality of life and levels of social, economic, political, resource and spiritual capital in human ecosystems (Wilson, 2009). There are different categories of pathogens. These pathogens include environmental pathogens or pollutogens (e.g. landfills, incinerators, coal-fired electrical plants, hazardous waste sites, urban blight, locally unwanted land uses, heavily trafficked transportation networks, Superfund sites, waste transfer facilities, industrial corridors), social pathogens (i.e. poverty, structural racism, crime, violence, drug environs), resource pathogens (e.g. poor housing stock, low-quality medical infrastructure, poor sewer and water infrastructure, poor quality roads, fast food restaurants, liquor stores, convenience stores), and economic pathogens (e.g. quick loan facilities, pawn shops, payday lenders) (Wilson, 2009).

In conclusion, the use of this place-centric systems approach will allow us to focus our community development efforts in places with the most need and in the places where the most vulnerable or disadvantaged "reside, work and play" to eliminate disparities in burden, health, well-being, and quality of life. We can use community development programs and initiatives to modify features of the built environment to increase connectivity between different neighborhoods, decrease social isolation, improve neighborhood cohesion, and expand capital. In addition, modification of the built environment and salutogenic infrastructure may increase the accessibility of populations to resources (e.g. parks, medical facilities, grocery

stores, churches, social service organizations) within and across spatially-related and unrelated human ecosystems (Wilson, 2009). This is particularly important for marginalized, disadvantaged, and underserved populations (e.g. low-income, persons of color, segregated, elderly, medically vulnerable, immigrants) who may have limited access to health-promoting infrastructure in urban environments and who have been disparately impacted by environmental, economic, and institutional racism and discriminatory policies and laws across multiple generations (Wilson, 2009).

The following case studies provide specific examples of how community-based strategies aim to reduce health disparities by addressing the pathogens described above. These case studies may share a similar goal but are very different with regards to their strategies, collaborations and local context.

### **Community-based strategies to address health disparities**

#### ***Jamaica Plain Neighborhood Development Corporation: an effort to improve the economic opportunities of neighborhood residents and diversify of the healthcare workforce***

Boston, Massachusetts is a city that suffers from a high level of racial and ethnic residential segregation. Despite slight decreases in the level of segregation over the past decade, approximately 92% of Boston's black population still lives in just seven of the city's 16 neighborhoods (Boston Public Health Commission, 2005). In order to evenly distribute ethnic and racial diversity throughout the city, 76% of blacks and 60% of Latinos would have to move from their current census tracts (The Boston Disparities Project, 2005).

The high level of racial residential segregation has had a negative impact on Boston's minority neighborhoods and its residents. According to the Mayor's Task Force Blueprint report, of the 22 waste sites in Boston, one-half are in the neighborhood of Roxbury where blacks and Latinos make up the majority of the population (Boston Public Health Commission, 2005). In addition, the Mayor's Task Force Blueprint report stated that lead poisoning is concentrated in the predominately minority communities of Dorchester, Mattapan, and Roxbury. The disproportionate exposure to environmental pollutants has had an effect on poorer children in the City of Boston. Researchers found that, between 1998 and 2002, children under the age of 5 years who lived in Roxbury were nearly twice as likely to be hospitalized for asthma as children in all other neighborhoods of the city (Boston Public Health Commission, 2005). Overall, Latino and black children were 50% more likely to be hospitalized for asthma than whites in this neighborhood (Boston Public Health Commission, 2005).

Racial and ethnic segregation has also no doubt had an effect on the economic opportunities of minority residents. According to The Boston Foundation's (2007) *Boston Indicators Report 2004–2006* there is still a significant amount of disparity in income between whites and racial/ethnic minorities. For example, in 2005 whites had a median household income of \$56,627 compared with \$31,331 for blacks, \$23,424 for Asians, and \$20,830 for Latinos (The Boston Foundation, 2007). Household income varied greatly by neighborhood. Residents living in predominately minority neighborhoods such as Roxbury, Dorchester, East Boston, and Mattapan all had household incomes well below the city-wide median of \$39,629 (The Boston Foundation, 2007). Unemployment is also high in these neighborhoods. According

the 2000 US Census, the neighborhood of Roxbury had an unemployment rate of 11.6% compared with the city, which had an overall employment rate of 7.2% (US Census Bureau, 2000).

The disparities in income and lack of economic opportunity inspired the Jamaica Plain Neighborhood Development Corporation (JPNDC) and its collaborators to develop a grassroots strategy that focuses on training low-wage residents residing in the Boston metropolitan's underserved neighborhoods for jobs within the healthcare sector. JPNDC and their partners formed the Boston Health Care and Research Training Institute (Training Institute), a training model that is focused on two primary goals: improving the educational and employment opportunities of low-wage adults in the healthcare and research industry; and improving the diversity and quality of care of Boston's healthcare institutions. The Training Institute officially began in 2002 as a partnership between eight major employers in the healthcare and research sector. The original partnership included the Boston Private Industry Council, a labor union, four community organizations, and two community colleges. Since its inception, the Training Institute has evolved to include more partners. In just four years the workforce intermediary grew to include 28 partners across the Boston metropolitan area – 11 employers (including all the largest healthcare employers within the Longwood Medical and Academic Area [LMA]<sup>1</sup>), 17 organizations of higher education, a healthcare industry association, a labor union, the Boston Private Industry Council (PIC), social service agencies and community organizations. Initially managed by JPNDC in partnership with the Fenway Community Development Corporation (FCDC) and the Mission Hill Network (in February 2008, the Training Institute merged with the Jewish Vocational Service of Boston), the Training Institute provides workforce development training, education and social service support to under-skilled, economically disadvantaged individuals who reside primarily in the Fenway, Jamaica Plain, Mission Hill, and Roxbury neighborhoods of Boston and others from surrounding communities. More specifically, the Training Institute provides education and training programs to individuals who fall into one of the following categories:

- pre-employment job seekers with limited English or education;
- entry-level and mid-level workers lacking the language skills, education, and training needed to move into higher paying healthcare occupations; and
- hospital supervisors who would like assistance in learning how to improve their management skills.

Over the years the Training Institute has worked hard to increase the diversity of Boston's healthcare workforce and increase the economic opportunities of neighborhood residents, especially residents residing in Boston's poorest neighborhoods. Working closely with healthcare administrators, city and regional agencies, local elected officials, community residents, educational institutions, and social service providers, JPNDC and their partners have been successful in placing hundreds of low-wage residents in jobs within Boston's healthcare sector. The Training Institute has also worked with educational institutions and healthcare institutions to form career ladders in administration, patient care, and in technician positions. Most of these jobs pay a livable wage and include healthcare benefits enabling residents to not only improve their income but to gain access to better

medical care. Since its inception the Training Institute, with an operating budget of approximately \$1 million, has been successful in obtaining hundreds of thousands of dollars in the form of donations and grants from federal, state, and local foundations, government agencies, and the private sector (Boston Social Innovation Forum, 2005).

The early efforts by JPNDC and its collaborators are having a positive impact across the Boston metropolitan area. The Training Institute has become a fixture within the healthcare and research institutions across the Boston metropolitan area as it works to increase the diversity of the workforce and improve the quality of patient care, especially for underserved and minority populations. Moreover, the Training Institute has also focused a significant proportion of its resources reaching out to low-wage, low-skilled residents in an attempt to increase their economic and educational opportunities. These efforts have resulted in the Boston Redevelopment Authority (BRA) to require all developers or healthcare institutions planning development within Boston's LMA to make "an assessment of current and projected workforce needs, and to work with the BRA and the Office of Jobs and Community Services (JCS) staff to formulate a workforce development plan to address those needs" as part of the development review process (Boston Redevelopment Authority, 2003). The BRA's LMA Interim Guidelines specifically mention that it is expected that LMA institution's workforce development plans would include an increased investment in the Training Institute (Boston Redevelopment Authority, 2003). This strategy of tying development to community benefits (in the form of economic, educational, and access to medical care) helps to ensure that the poorest and least healthy residents residing in the Boston metropolitan area will have some opportunities to improve their quality of life.

In 2005 the City of Boston under the leadership of Mayor Menino released several reports and data documenting racial and ethnic disparities in the city and discussed recommended strategies to address those disparities. The initiative known as The Disparities Project is an effort to reduce racial and ethnic health disparities and to bring Boston's institutions and organizations together in order to promote fairness, equality and good health for all residents (Boston Public Health Commission, 2005; National Association of County and City Health Officials, 2011). Improving the diversity of the healthcare workforce is one of the major goals of the initiative. In an effort to improve the quality of healthcare and address workforce diversity, The Disparities Project has included the Training Institute as one of its local best practices (currently The Disparities Project oversees the implementation of 33 hospital and community-based projects in all neighborhoods in Boston) (National Association of County and City Health Officials, 2011). The hope is that, with time, efforts such as the Training Institute will be effective in diversifying the Boston metropolitan area's healthcare workforce, which will result in more culturally competent care and an overall improvement in service delivery for patients. Although a comprehensive analysis of the Training Institute's impact at increasing the economic opportunity of lower-skilled, economically disadvantaged residents has not been completed, and nor has one documenting the increases in diversity of Boston's healthcare workforce and its impact at reducing health disparities, it is clear that under the direction of JPNDC and its collaborators it has been able to begin making a difference at the local, city-wide, and regional level – only time will tell of how much of a difference it has made.

***ReGenesis: an environmental justice organization's revitalization efforts in South Carolina***

The City of Spartanburg is located in northwest South Carolina and has population of 40,000 with 50% black and 50% white (US Environmental Protection Agency [USEPA], 2003, 2006). This former "textile town" has undergone a transformation from its revitalized downtown to the high concentration of international business firms within the city limits (Fleming, 2004; USEPA, 2003, 2006). However, the Arkwright and Forest Park neighborhoods, two predominantly black neighborhoods with a combined population of almost 5000 residents located just beyond the City's downtown, have not benefited from these revitalization efforts (Fleming, 2004; USEPA, 2003, 2006). The closing of local mills and plants and the lack of zoning regulations and land-use controls (Fleming, 2004; Habisreutinger & Gunderson, 2006; USEPA, 2003, 2006) have left the population poor (25% in poverty), underemployed (10% unemployment) (USEPA, 2003, 2006) and negatively impacted by environmental injustice, underdevelopment, and limited access to health-promoting resources.

The residents live in a riskscape made of several environmental pathogens including the 40-acre International Mineral and Chemicals (IMC) fertilizer plant (a Superfund site), the Arkwright dump, the 30-acre former municipal landfill (a Superfund site), Rhodia chemical plant (in operation), Mt. Vernon textile mill (in operation), and six brownfields (Fleming, 2004; Habisreutinger & Gunderson, 2006; ReGenesis, 2008; USEPA, 2003, 2006). Approximately 4700 residents lived within one mile of the IMC site, 200 live within a quarter of a mile of the landfill, and several residents live adjacent to the Rhodia plant (Fleming, 2004; ReGenesis, 2008; USEPA, 2003, 2006). Due to these exposures, there is a high rate of cancer, particularly bone, colon, and lung cancer; high rates of respiratory illnesses, adult mortality, infant mortality, miscarriages, and birth defects; and in 2000 alone over 60 people died (ReGenesis, 2008; USEPA, 2003, 2006). In addition to these problems, neighborhood residents had poor transportation infrastructure, limited sewer and water services, lack of access to medical care, public safety issues, few economic opportunities, and declining property values (USEPA, 2003, 2006).

In 1997, Harold Mitchell, a resident concerned about the environmental contamination in his community, personally impacted by the loss of family members and his own health issues, and passionate about revitalizing his community, began organizing community meetings and forums to discuss environmental justice and health issues in the community (Fleming, 2004; ReGenesis, 2008; USEPA, 2003, 2006). These meetings began to empower local residents and motivate efforts by the government and industry to clean up the contaminated Superfund sites and brownfields, and later the community-driven collaboration became known as the "ReGenesis Project." In 1998, ReGenesis evolved into an environmental justice organization with official 501c3 status under the leadership of Harold Mitchell (Fleming, 2004; ReGenesis, 2008; USEPA, 2003, 2006). ReGenesis built an environmental justice partnership with the City of Spartanburg, Spartanburg County, EPA Region 4 Office of Environmental Justice, the South Carolina Department of Health and Environmental Control, Spartanburg Housing Authority, Spartanburg County's Community and Economic Development Department, local industry, and the University of South Carolina Upstate based on collaborative problem-solving principles to address the impacts of the brownfields, Superfund sites, and other environmental pathogens on local health and adopt strategies that

could be employed to revitalize the Arkwright–Forest Park neighborhoods (USEPA, 2003, 2006).

With help from EPA Region 4, ReGenesis was designated one of the first 15 national demonstration projects of the Federal Interagency Working Group on Environmental Justice in 2000, which gave ReGenesis access to financial resources (\$20,000) and technical experts and information (USEPA, 2003, 2006). With this designation, new funding was made available and local, state, and federal agencies began to understand that immediate action was needed in the Arkwright–Forest Park neighborhoods to save and improve lives (USEPA, 2003, 2006). The County of Spartanburg was awarded \$200,000 through the EPA's Brownfield Initiative to perform site assessments of the brownfields on behalf of ReGenesis (Habisreutinger & Gunderson, 2006; ReGenesis 2008; USEPA, 2003, 2006). The brownfields assessment found contamination and led to government agencies providing additional funding to clean up the sites for redevelopment (Habisreutinger & Gunderson, 2006; ReGenesis, 2008; USEPA, 2003, 2006). For example, the South Carolina Department of Health and Environmental Control provided a \$490,000 grant for brownfields redevelopment (ReGenesis, 2008; USEPA, 2003, 2006). HUD provided a \$650,000 grant to ReGenesis and the City to clean up the brownfields and blighted properties and to help with neighborhood redevelopment efforts (ReGenesis, 2008; USEPA, 2003, 2006). In addition, the City of Spartanburg signed a cooperative agreement with the EPA to assess the nature and extent of contamination at the Arkwright Dump site, review the human and environmental health risks, and examine clean-up alternatives (Habisreutinger & Gunderson, 2006; ReGenesis, 2008; USEPA, 2003, 2006). The City of Spartanburg received \$1.2 million dollars and used it to conduct water quality monitoring and remediation at the site (ReGenesis, 2008; USEPA, 2003, 2006). Eventually, the industrial owner of the property provided nearly \$3 million in funding to the EPA for oversight, assessment, and remediation of the site (ReGenesis, 2008; Habisreutinger & Gunderson, 2006; USEPA, 2003, 2006).

The success of ReGenesis in working with its collaborative partner for assessment, cleanup, and redevelopment of brownfields and other industrial sites as part of the community revitalization efforts led to additional efforts to improve the salutogenic infrastructure in the Arkwright–Forest Park neighborhoods. ReGenesis received a US Department of Transportation (DOT) appropriation for \$2 million dollars for road design and construction in order to connect the Arkwright–Forest Park neighborhoods to the greater Spartanburg community and improve access to emergency care services (ReGenesis, 2008; USEPA, 2003, 2006). ReGenesis also received \$102 million dollars in HOPE VI funding to build energy-efficient, affordable housing and improve safety in the community (ReGenesis, 2008; USEPA, 2003, 2006). One of ReGenesis' greatest successes is the establishment of its Community Health Center (CHC) in 2003 through a \$645,000 grant from the Department of Health and Human Services (ReGenesis 2008; USEPA, 2003, 2006). This health center provided the only source of care when it was established for many residents in the medically underserved community. The CHC is one of only 19 federally approved community health centers in the state of South Carolina and currently provides a medical home for approximately 14,000 patients (USEPA, 2003, 2006). The CHC is at the core of the long-term development and revitalization plans for the community.

Due to the collaborative effort of more than 200 agencies who contributed to the Environmental Justice partnership, the ReGenesis project has acquired \$141 million in funds as of 2006 (USEPA, 2006). ReGenesis has expanded its community

development and revitalization efforts to pediatric health, development of minority-owned businesses and job training through the ReGenesis Economic Development Organization, and urban greenways (ReGenesis 2008; USEPA, 2003, 2006). ReGenesis' use of the collaborative problem-solving framework has been celebrated by the EPA, who named it a model community-based environmental justice organization (ReGenesis, 2008; USEPA, 2003, 2006). Harold Mitchell has taken ReGenesis' community development and revitalization agenda to the South Carolina House of Representatives, where he has authored several affordable housing bills and environmental justice legislation to help improve the lives of underserved South Carolinians (ReGenesis, 2008).

***The West End Revitalization Association: a story of success in North Carolina***

Mebane, NC, is a small town located between Burlington and Chapel Hill, North Carolina. In this small community, black residents are concentrated in four historic neighborhoods (West End, White Level, Buckhorn/Perry Hill, and East End) (Heaney, Wilson, & Wilson, 2007; West End Revitalization Association [WERA], 2002, 2008; Wilson, Bumpass, Wilson, & Snipes, 2008; Wilson, Heaney, & Wilson, 2010; Wilson, Wilson, Heaney, & Cooper, 2007/2008). The WERA is a community-based organization fighting against environmental injustice, inequities in community development and planning, built environment insults, and health disparities in West End, White Level, and Buckhorn/Perry Hill (Heaney et al., 2007; Wilson, Bumpass, Wilson, & Snipes, 2008; Wilson, Heaney, & Wilson, 2010; Wilson, Wilson, Heaney, & Cooper, 2007). These neighborhoods have many low-income and elderly residents who are descendants of slaves and own land and property in Mebane passed down across multiple generations (Heaney et al., 2007; WERA, 2002, 2008; Wilson, Bumpass, Wilson, & Snipes, 2008; Wilson, Heaney, & Wilson, 2010; Wilson, Wilson, Heaney, & Cooper, 2007). The West End community hosts an old garbage dump, city landfill, and Mebane's sewage treatment plant (WERA, 2002, 2008). The West End community has been denied access to municipal sewer and water services even though residential health had been impaired by foul odors and air pollution from the sewage treatment plant, garbage dump, landfill, and a 50–100% failure rate of backyard septic systems (Heaney et al., 2007; WERA, 2002, 2008; Wilson, Bumpass, Wilson, & Snipes, 2008; Wilson, Heaney, & Wilson, 2010; Wilson, Wilson, Heaney, & Cooper, 2007). In addition, these neighborhoods are disparately impacted by a closed furniture production factory and underground storage tanks leaking carcinogenic compounds (e.g. benzene, xylene) (Heaney et al., 2007; WERA, 2002, 2008; Wilson, Bumpass, Wilson, & Snipes, 2008; Wilson, Heaney, & Wilson, 2010; Wilson, Wilson, Heaney, & Cooper, 2007).

The WERA was founded in 1994 as a community development corporation and incorporated as a North Carolina 501(c)3 non-profit in 1995 when the North Carolina Department of Transportation (NCDOT) released plans to construct the 119-bypass through two African-American communities (West End and White Level) (Heaney et al., 2007; WERA, 2002, 2008; Wilson, Bumpass, Wilson, & Snipes, 2008; Wilson, Heaney, & Wilson, 2010; Wilson, Wilson, Heaney, & Cooper, 2007). NCDOT plans to extend the 5-mile 119-bypass from I-85/40 north into the planned 27-mile interstate eight-lane highway corridor through White Level to Dansville, Virginia (Heaney et al., 2007; WERA, 2002, 2008; Wilson, Bumpass, Wilson, & Snipes, 2008; Wilson, Heaney, & Wilson, 2010; Wilson, Wilson, Heaney, & Cooper,

2007). Through right-of-way acquisition and displacement, the NCDOT planned to pay from \$25,000 to \$52,000 for houses regardless of their replacement value. Century old churches, small businesses, and a Masonic Temple would not be compensated. For over 15 years, local governments and the NCDOT planned the project without community knowledge or input (Heaney et al., 2007; WERA, 2002; Wilson, Bumpass, Wilson, & Snipes, 2008; Wilson, Heaney, & Wilson, 2010; Wilson, Wilson, Heaney, & Cooper, 2007). Community involvement and public hearings were held on the 119-bypass after WERA and African-American residents filed a joint Environment Justice Executive Order 12898 and Title VI of Civil Right Act complaint in 1999 at the US Department of Justice. In 1999, the NCDOT transportation corridor was placed on moratorium by the Federal Highway Administration until mitigation and corrective actions were implemented (Heaney et al., 2007; WERA, 2002; Wilson, Bumpass, Wilson, & Snipes, 2008; Wilson, Heaney, & Wilson, 2010; Wilson, Wilson, Heaney, & Cooper, 2007).

To address environmental justice, community development and planning, built environment, and health disparity issues, the WERA moved from being just a community development corporation to a community-based environmental protection organization and developed the community-owned and managed research (COMR) approach in order to empower WERA board, staff, members, and residents and use research to obtain redress for issues to impact WERA neighborhoods (Heaney et al., 2007; Wilson, Bumpass, Wilson, & Snipes, 2008; Wilson, Heaney, & Wilson, 2010; Wilson, Wilson, Heaney, & Cooper, 2007). The COMR approach is an evolved version of the community-based participatory research framework that focuses in parity in management of scientific research and equity in research funding. The use of COMR has increased community awareness and understanding of research related to public health, promoted public and civic engagement, enhanced public trust in community facilitation of research and ownership of databases, increased scientific literacy and community-driven research on environmental issues, and empowered community members (Heaney et al., 2007; Wilson et al., 2007).

In addition to the development of the COMR approach, the WERA developed a long-term multi-stakeholder collaborative partnership based on the EPA's environmental justice collaborative problem-solving principles (Heaney et al., 2007; Wilson et al., 2007). This partnership includes partners from the government, universities, health sector, community development and revitalization professionals, non-profits, environmental justice communities, and funders (Heaney et al., 2007; Wilson et al., 2007). These partners worked together on several workgroups using conflict resolution, resource leveraging and mobilization, consensus building and other collaborative principles (Heaney et al., 2007; Wilson et al., 2007) and other initiatives to address built environment, development, and health issues in WERA neighborhoods. These partners have been instrumental in sustaining the collaborative partnership over a period of 10 years and improved WERA's ability to address issues in WERA communities and other historically marginalized, disadvantaged, and underserved communities in Mebane, North Carolina, and nationally.

WERA's COMR research was funded by three grants: an EPA Environment Justice Small Grant (\$15,000), University of North Carolina (Chapel Hill) EXPORT health disparities grant (\$10,000), and EPA's Office of Environmental Justice Collaborative Problem-Solving grant (\$100,000) (Heaney et al., 2007; Wilson et al., 2007). The experience, knowledge, and skills gained have helped the WERA leverage reduction and removal of hazards that create disproportionate and adverse public

health risks under EPA's Safe Drinking Water Act, Clean Water Act, Clean Air Act, Solid Waste Disposal Act, and Toxic Substance Control Act (Heaney et al., 2007; Wilson et al., 2007). WERA's research on basic amenities (e.g. sewer and water infrastructure) documented *Escherichia coli* and fecal coliforms in residential well water, municipal drinking water, and surface waters that exceeded EPA's Safe Drinking Water Act and Clean Water Act standards (Heaney et al., 2007; WERA, 2002, 2008; Wilson, Bumpass, Wilson, & Snipes, 2008; Wilson, Heaney, & Wilson, 2010; Wilson, Wilson, Heaney, & Cooper, 2007). The efforts of the collaborative-problem solving partnership to obtain basic amenities led to the first-time sewer line installation for 91 homes in the West End community for only \$75 per unit funded by block grants and City of Mebane matching, the connection of many WERA households to municipal water services, first-time paving of neighborhood streets, installation of gutters, removal of dilapidated and blighted housing, and leveraging of resources to continue the moratorium of the 119-bypass construction and changing of the highway plans that no longer disproportionately impact a large number of low-income black residents (Heaney et al., 2007; WERA, 2002, 2008; Wilson, Bumpass, Wilson, & Snipes, 2008; Wilson, Heaney, & Wilson, 2010; Wilson, Wilson, Heaney, & Cooper, 2007). WERA's collaborative environmental justice partnership, community-driven research, and use of Title VI of the Civil Rights Act to obtain compliance with environmental laws and public health statutes and basic amenities is a great model for other communities burdened by environmental injustice, uneven development, planning inequities, and health disparities.

### Conclusion

Numerous research studies up until now have documented the deleterious impacts of racial residential segregation within metropolitan areas across the United States. Residential segregation more often than not creates neighborhoods of poverty that lack access to first-rate medical care, affordable housing, quality education, healthy food, and adequate infrastructure. Instead, poorer and minority residents forced to live in segregated communities are often left to reside in communities that are unsafe and have high levels of environmental pollutants. The persistent exposure to negative social, economic, and environmental conditions leads to poorer health outcomes for disadvantaged and minority populations, thus contributing to racial and ethnic health disparities.

If we as a nation are going to close the racial and ethnic health disparities gap that currently exists in this country, this will require a comprehensive framework that considers ecologic features of the built and social environment to enhance community development in unserved and underserved communities hurt by health disparities. As we have already mentioned, this approach must focus on understanding how context, place, and local socioenvironmental conditions impact the health of populations and individuals. A large portion of this work, as demonstrated by our community development cases, must be done at the grassroots community level. Community organizations and institutions are well-equipped to understand the challenges, assets, concerns, and potential opportunities that exist in local neighborhoods and are positioned to begin improving and modifying the health and quality of our neighborhoods.

An example of a place-based strategy that works to create healthy neighborhoods by using such a comprehensive approach is The Building Healthy Communities

program. Launched in 2010 by The California Endowment, the largest health foundation in the state, the Building Healthy Communities program is a 10-year, \$1 billion program to invest in 14 communities in both urban and rural areas across California.<sup>2</sup> The goal is to improve the health of these underserved and vulnerable communities by “improving employment opportunities, education, housing, neighborhood safety, unhealthy environmental conditions, access to healthy foods and more” (The California Endowment, 2010). A key goal of the Building Healthy Communities program is for it to be community-driven; it ultimately seeks to create communities for children where they are healthy, safe and able to learn (The California Endowment, 2010).

In addition to comprehensive place-based strategies such as The California Endowment’s Building Healthy Communities program, a number of communities have also begun to rely on health impact assessments (HIAs) in order to improve neighborhood or community health. HIAs bring together public input, available data and a range of quantitative and qualitative methods to understand the potential health consequences of a proposed program, project or policy (Health Impact Project 2011<sup>3</sup>). In San Francisco, California, the University of California at Berkeley Health Impact Group, with funding from the Centers for Disease Control and through the federal HOPE VI program, completed a public draft of a retrospective HIA of the redevelopment of two public housing sites (Bernal Dwellings and North Beach Place). The HIA was interested in how redevelopment of public housing impacted the health of residents of two public housing sites in San Francisco (UC Berkeley Health Impact Group, 2009).

Finally in an effort to create healthier communities, a number of cities across California are using their general plan update process to transform their land use and built environment. Some cities, such as the cities of Anderson, Chino, and Richmond, California, are including a separate health element in their general plan and other cities are adding health goals and policies in various general plan elements (Healthy Eating Active Living Cities Campaign, 2011). These efforts are the first step towards what is needed to build healthy communities and reduce the level of health disparities.

As the institutions behind these programs and strategies recognize, real change in our communities requires that community institutions and local residents in partnership with public health agencies, planning institutions, social service agencies, government, non-profit organizations, and the private sector to confront the institutionalized racism and discrimination that creates disadvantaged communities across our metropolitan areas with unequal access to economic, educational, and social opportunities. In addition, addressing institutional racism and discrimination can lead to improved neighborhood environments with more equitable development and planning so that poorer residents are not exposed to an unjust amount of environmental pollutants and land uses. Only a comprehensive community-centered strategy is capable of positively impacting the lifestyles, health behaviors, health outcomes, and quality of life of populations who reside, work, or play in disadvantaged, historically marginalized, and underserved communities.

## Notes

1. The Longwood Medical and Academic Area is located on 213-acre site with 24 institutions and has 15.4 million square feet of development. Each day more than 40,000 employees and 18,200 students provide medical care, conduct research, teach, attend school, or support these functions (Medical Academic and Scientific Community Organization, 2008).

2. See <http://www.calendow.org/healthycommunities/>
3. The Health Impact Project, a collaboration of the Robert Wood Johnson Foundation and The Pew Charitable Trusts, is a national initiative designed to promote the use of HIAs as a decision-making tool for policy-makers. See <http://www.healthimpactproject.org/>

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