

Life Course, Social Determinants, and Health Inequities: Toward a National Plan for Achieving Health Equity for African American Infants—a Concept Paper

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Introduction

Despite the best efforts by the public health community, the existence of disparity in African American infant mortality appears to be insurmountable. Eliminating this disparity is the public health challenge of the next decade. The public health community has engaged in copious activity regarding the identification and analysis of the etiology of health disparities. The resulting literature is substantial, yet, despite well-meaning interventions that have had varying degrees of success, the problem is so daunting that there has been very little progress in developing a comprehensive national plan to eradicate health disparities, in general, and, African American infant-mortality disparities, in particular. The process of identifying the causal pathways and risks of adverse African American birth outcomes could potentially impact the elimination of other health disparities since infant outcomes are the foundation for adult health. Unfortunately, as a nation, we have never deliberately invested the time and resources into developing an evidence base specific to the achievement of health equity. This endeavor will require dedicated resources, creativity, and a breadth of vision to work within, and exceed, the limits of traditional epidemiological and social science theory and methods.

The literature cites various causes of overall disparities, including adverse health behaviors like smoking or drug use, poor nutrition, inadequate health care, and stress, to name a few [1]. The World Health Organization (WHO) Commission on Social Determinants of Health considers the major contributors to health disparities to be the conditions in which people are born, grow, live, work, and age [2]. In the United States, ethnic minorities, particularly African Americans, are more likely to be in socially and economically vulnerable positions. A number of studies have demonstrated that even while controlling for SES, racial and ethnic disparities are still found in health outcomes [3].

For example, African American women in Illinois at the highest education level have higher, i.e., worse low-birth-weight rates than women of any other ethnicity at lower strata. The process that determines social stratification leading to poorer health outcomes is rooted in history, and while it is not about “race” as a risk factor, scientific investigation has resulted in a corpus of knowledge that places racism, perceived acts of racism, poverty, social-environment degradation, and violence into the etiological pathway [4–10]. These manifestations of “social ecology” are the type that WHO describes as resulting in unfair and avoidable differences in health status [2]. Some think that because racism is a causal factor, any quest for solutions may be doomed to failure, because, as one funding institution’s peer reviewer stated, “It is not a good investment of [our] dollars to study racism [as a cause of health disparities], because even if we fund something, there is nothing we can do about it” [11]. However, pre-term birth (PTB) and low birth weight (LBW) are the causes of first-year mortality for African American infants. Therefore, understanding and eliminating the factors that cause high rates of PTB and LBW should remain at the forefront.

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Could it be that developing a course of action for surmounting racism or poverty seems too large a task for the public health community, so we brush these factors under the rug, hoping that someone else will deal with these issues over the long term? This concept paper is a hue and cry for the public health community to speed the creation of an actionable evidence base that reduces inequities through “dimensionality,” a theory developed by this paper’s authors in response to the inadequacies we have identified in the current, one-dimensional approach to understanding disparities. Dimensionality is a construct that broadens the analytical purview by including an ethnicity-centered, life course, intergenerational theory of equity (ELITE). The authors hope that the recommendations in this concept paper will foster a broad-based, national campaign, led by the public health community in partnership with government, academia, healthcare providers, and other stakeholders, that systematically seeks the creation of evidence-based practices to eradicate the strongest underlying causes of health inequities.

Background

For African American, Puerto Rican, and American Indian/Hawaiian/Alaska Native women, there has been no recent or sustained reduction in the disparity in infant mortality: it is crucial to understand that, while there have been substantial reductions in infant mortality for all population groups in the last five decades (Fig. 1), the disparities have not changed. This failure to alter health inequities demands a reconceptualization of the causes, contributors, and, ultimately, the approach to their elimination. The lack of progress may also be attributable to an oversimplification of the problem and the fact that intervention tools and approaches that are ineffective in reducing overall rates of disease are also being applied to the disparity [12].

The authors are guided by the theories of life course, social determinants of health (SDOH) disparities, and intersectionality. Barker [13–15] agrees that analyzing the

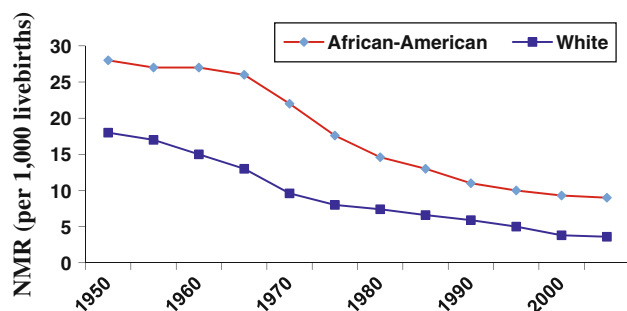


Fig. 1 How likely a baby will die in the first month of life (neonatal mortality rates)

problem and positing remedies requires an understanding of the effects of history and social context on SDOH [16, 17].

Life course gained prominence in the 1980s with the introduction of the Barker hypothesis, which emerged originally from geographic analyses that showed a strong correlation between high rates of infant mortality and high rates of specific chronic diseases. The Barker hypothesis posits that there are two critical changes that occur in utero that contribute to poor health outcomes in later life. The first is plasticity—a period when developing organs adapt to stressor cues in the fetal environment. These adaptations can help the fetus survive the immediate danger, but in the long term, the adaptation becomes a physiologic limitation. The second is epigenetics—a response to external environmental stressors that causes a differential expression of genes that may also be protective in the short term, but maladaptive in adulthood. Life course, therefore, examines how the places people are born, grow, live, work, and age contribute to their health outcomes; it searches for critical or sensitive periods of risk and for the effects of cumulative exposures [18].

Some critics of the Barker hypothesis state that there are no inherited physical characteristics at all; that the social and physical environment of the adult mirrors the environment one experienced in childhood, and, thus, inherited social disadvantage plays a role. Over the decades, several retrospective studies of adults found that childhood experiences and health exposures were correlated with increased risks for several chronic diseases. For example, Rich-Edwards found that decreases in birth weight were associated with increases in risk for non-fatal cardiovascular disease [19].

The authors argue that the Baker hypothesis and the cumulative effects of the environment are not mutually exclusive, and depend on the population and outcome studied [20]. We also contend that life course approaches currently do not include social and political history as contributors to etiologic pathways. The starting points from which life trajectories take off are defined by social and political history, and these starting points are a large, yet currently unconsidered and unaddressed, aspect of the etiologic picture.

Historic Inequality and the Foundations of Infant Mortality Disparities

That African American people experienced various forms of racism—from low-level interpersonal prejudice to lynchings—by the majority population for nearly four centuries on an unmitigated basis should prove to be the basis for aggressively pursuing remedies to the sequelae as

manifested in MCH outcomes and other inequities. Clark et al. state, “if exposure to racism is among the factors related to negative health outcomes in African Americans, specific intervention and prevention strategies could be developed and implemented to lessen its deleterious impact. These strategies would provide a needed supplement to efforts aimed at reducing health disparities in American society” [21]. More importantly, Shaw-Ridley (2010) states, “[H]ealth educators, researchers, consumers, and other health professionals [,] who fail to observe and confront the fundamental causes of disparities risk oversimplifying, mystifying, or attributing erroneous properties to the complex web of human interactions with their environments and social conditions ... [A]ny historical accounting of health disparities has to be examined through the lens of power, politics, and racism within the United States. Health disparities have their roots in structural and social inequalities embedded in the nation’s political, economic, and social climate” [22].

Table 1 displays African American citizenship and health status across four centuries (1619–2006). Over that epoch, African Americans spent 250 years in slavery, 100 years under de jure segregation and discrimination, and 45 years under the protection of the Civil Rights Act of 1965. Therefore, as of 2010, African Americans experienced citizenship rights for 11% of their time in the United States, and are hindered by a nearly 400-year handicap that

impedes the opportunity to eliminate disparities. Historic inequities without reparation are why systematic inequalities still exist.

The impact of history can be understood by imagining that there is an intergenerational relay marathon: When one reaches a certain point, one generation passes the baton of accumulated wealth and privilege to the next generation. Then imagine that one team is forced to run with a 500-pound weight tied to its legs for four generations. The 500-pound weight represents slavery, Jim Crow, lynchings, disenfranchisement, and other forms of discrimination against African Americans. After four generations, should it be surprising that African Americans are systematically behind? Concerning the effects of the 500-pound weight on African American women, Beale stated, “As blacks they suffer all the burdens of prejudice and mistreatment that fall on anyone with dark skin. As women they bear the additional burden of having to cope with white and black men” [23].

Imagine, further, that after 400 years someone said, “Hold on here, the 500-pound weight is not fair,” and was able to garner the political will to achieve the removal of the weight, but nothing else that would undo the effects of past inequities. And the race continues. The once-weighted down group may now be able to run at the same speed as others, so everyone rejoices in this “equality,” but, in reality, there can be no true “equal opportunity” until the reasons for the inequality are addressed.

Table 1 African American citizenship status and health experience from 1619 to 2006

Time span	Citizenship status	Citizenship status (number of years in US)	Citizenship status (percent of time in US, rounded upwards) (%)	Health and health system experience
1619–1865	Chattel slavery	246	64	Disparate/inequitable treatment Poor health status and outcomes “Slave health deficit” and “Slave health sub-system” in effect
1865–1965	Virtually no citizenship rights	100	25	Absent or inferior treatment and facilities De jure segregation/discrimination in South, de facto throughout most of health system “Slave health deficit” uncorrected
1965–2006	Most citizenship rights: USA struggles to transition from segregation and discrimination to integration of African Americans	41	11	Southern medical school desegregation (1948) Imhotep Hospital Integration Conference (1957–1964) Hospital desegregation in federal court (1964) Disparate health status, outcomes, and services with apartheid, discrimination, institutional racism and bias in effect
1619–2010	Struggles for humanity and equality	387	100	Health disparities/inequities

Adapted from Byrd and Clayton [33]

Current Social Effects of Historical Inequality

Some expect that the lot of African Americans will be improved through sociopolitical factors that include education and the presence of laws enacted to prevent discrimination in education, housing, and employment. However, the demographic realities of black America demonstrate the weight of history. In 2009, nationally, 25.8% of the African American population lived below the poverty level, versus 9.4% of non-Hispanic whites [24]. The national unemployment situation in November 2010 showed that 8.4% of whites were unemployed versus 16% of blacks [25]. The Community Service Society in New York City reported that in New York, “for the 18-month period from January 2009 to June 2010 [the level of African American male unemployment was] 54%, meaning just over one in two working-age black men held a job in the city last year” [26]. Similar statistics pertain to other urban areas.

In Milwaukee, for example, at 53.3%, black male joblessness in 2009 was approximately two-and-a-half times higher than the 22.3% of white Milwaukee area males between the ages of 16 and 64 who were jobless [27]. In regard to educational attainment, in 2008, African Americans earned 152,457 bachelor’s degrees, compared with 1.1 million earned by whites [28].

Regarding net worth, Brandeis University’s Institute on Assets and Social Policy reported that “the wealth gap between white and African American families has more than quadrupled over the course of a generation ... Even when African Americans do everything right—get an education and work hard at well-paying jobs—they cannot achieve the wealth of their white peers in the workforce, and that translates into very different life chances” [29].

Homeownership is a primary factor in the calculation of net worth, and, according to Masnick “there is perhaps no greater indicator of the persistence of social inequality in the United States than that measured by enduring racial inequality in home ownership” [30]. In the 2000 United States Census, homeownership rates among whites was 71%. The African American rate was 46% for the same period. These and other factors may explain the disparity between African American women with college educations compared with their white female cohorts [31]. Thus, the marathon of life continues, leaving African Americans behind; yet now the public health community is face-to-face with the consequences.

Public Health Response to Historic Social Inequity

The “holes” in viewing the vast body of knowledge acquired through decades of health disparities research

become readily apparent when one ponders deeply the fact that no appropriate, evidence-based interventions specifically responding to the needs of African American women have been developed. Shaw-Ridley questions the motivations of some members of the public health community, stating, “is it possible that certain stakeholders benefit from having a persistent problem to solve? ... After many years of ... efforts and the expenditure of incalculable amounts of money, is it ironic that the[se] ... efforts [are] not evident in the health status of racial/ethnic minorities and other underserved groups?” [22] The needs of African American women are deeply rooted in history; there should be a collective response to create a level playing field. What is preventing this from happening? The commonly held perspective is that if an intervention works for white women, then it should work for African American women, too, despite evidence to the contrary, such as that provided by pre-term labor monitoring. But because these populations have two different starting points regarding life course and social determinants, it is a fallacy to conclude that what works for white women will work for African American women. Thus, health-science policy decisions that invest most scientific resources in improving prenatal care quality, for example, actually prevent the development of the best systems for preconception care, and, therefore, contribute to health inequity. Inaction in the face of need and wrong action in the face of need for any subpopulation is a serious lapse in science ethics [22]. As a nation, we made the decision to place resources into prenatal care (PNC) as the most important strategy to eliminate disparities in preterm birth (PTB) even though evidence is weak even for normative populations. This decision makes it clear that public health must convene a conference, a working group, and/or another initiative that will draw from the expertise of a cross-section of professionals and lay community members to create a comprehensive plan that prominently accepts the role that continued exposures to perceived racism play within the realm of maternal and child health.

Deconstructing Disparity Trends: The Idea of Dimensionality

The omnipresent graphs on disparities have become so cliché that we cease to really understand all dimensions of what we see. Figure 1 exemplifies the type of chart that is frequently seen in articles that present infant mortality findings across race: this visual representations indicate that African American neonates are dying at a higher rate than white neonates.

Recall from Algebra 101 that there are specific characteristics of a line—its intercept, slope, and trajectory. These

characteristics symbolically represent any one woman's path toward achieving the Healthy People 2010 goal to decrease health disparities [32].

Intercepts/Starting Points

The intercept of a line on the graph is the point at which the line crosses 0 on the x -axis. It is the starting point, i.e., if, in the past, someone was behind in the “relay race,” she will remain behind unless something is actively done to bring her to the same starting point as members of the majority non-oppressed population. What one sees when looking at graphical trends in disparity is the fact that African Americans consistently have higher intercepts, that is, they start out at higher rates of adverse indicators, i.e., worse, more-disadvantaged positions related to risk and outcome. Reproductive history and SES are examples of factors represented in the intercept. So, because of the unequal African-American/white starting points defined by such a critical factor as history, even if equivalent interventions are offered, the lines will never converge unless there are special efforts to achieve their convergence. Causing the lines to converge requires changing the slope, which is the force that moves the lines along their trajectories.

Slopes

Elimination of disparities would require that the trend lines for African Americans and whites converge and potentially intersect. Note that because of the unequal starting points (intercepts and lack of adequate acceleration in progress for African Americans), the slopes in Fig. 1 never meet. The slope represents the degree of improvement in outcome (change in y) for every input/intervention (change in x) to which a woman is exposed. So, the slope essentially illustrates the effectiveness of interventions.

A woman's journey toward a good outcome during pregnancy is represented by the trajectory, which shows the path of the line in two dimensions and determines the likelihood of reaching the target outcome goal—in most cases, the Healthy People 2010 objectives. As epidemiologists and caregivers, we want pregnant women to travel a specific trajectory to ensure a positive outcome, so, evidence-based programs and treatments are implemented. But when the interventions do not prevent poor outcomes, the challenge is to understand why they do not work and why women do not reach the projected outcome goal related to the intervention's effectiveness. The public health community must now begin the process of engaging in the most useful inquiries into what can be done to not just identify evidence-based practices, but to change the

slope and trajectory of the lines and the relationship of the lines to achieve more positive outcomes. A crucial element in this process is to engage in dialogue that will result in evidence-based practices that consider the burden carried by vulnerable populations as a result of historical and life course factors. Much effort has gone into broadening the scope of SES variables and improving their measurement to capture disparities, but the specificity of African American women's reproductive risk remains to be characterized. This process cannot just entail engaging in a higher-level analysis of the same risks; it requires an analysis of the factors that are specific to historical and life course experience.

Substrate and Trajectories

When using the prisms of life course, SDOH, and dimensionality, the apparent conclusion is that the historic inequities experienced by African Americans have had a deleterious effect upon MCH. These inequities filter down to the current era, manifesting themselves in an inequitable social environment, or substrate, that women navigate as they live work, and play. Imagine the substrate/social context for some women is filled with air. The health provider nudges them in the desired direction with an intervention, and they travel that path to a positive outcome without much resistance. In healthcare lingo, they “come to care and are compliant.” The “air” substrate/context suggests these women have no real worries regarding childcare, transportation, or social hardship. For other women, however, their substrate is filled with “water,” and because the water offers some resistance, the women must use a bit more effort to perform health-supporting behaviors, but most will make it along the pathway without much problem from the provider's perspective. In reality, however, the degree of energy these women expend in trying to attain transportation and childcare, for example, is enormous. Their attempts to comply with medical and public health recommendations requires managing weak support networks to seek care and services for themselves and their children, and, perhaps, additional difficulties in navigating dangerous neighborhoods—efforts that are unseen by most providers. Lastly, there are the women whose substrate/context is filled with landmines. The substrate is replete with multiple, overlapping hardships and crises that are difficult to predict and manage on a day-to-day basis. The landmines this group of women must navigate might include food insecurity; job loss; lack of practical and emotional support; incarceration of a partner; domestic, social, and/or political violence; housing insecurity; illiteracy; etc. Providers nudge these women along a certain trajectory toward an outcome goal, but the adverse factors

in the social environment make it difficult to proceed as the providers expect or wish. For each intervention pushing toward a forward trajectory, there is something in the substrate blocking motion or pushing in the opposite direction, so, after a 9-month period, women in this category may not achieve the desired outcome.

In addition to substrate realities, there are cultural factors that the public health community either ignores or fails to see. These factors are significant in women being “compliant” in care. In the Back to Sleep campaign,¹ for example, the creators of that initiative assumed pediatricians were the most influential source of information for new mothers and fathers, and were used as the primary source of disseminating information about the intervention. SIDS-prevention education was provided in a clinical setting to new mothers, and then the women went home to their communities to implement that education. This culturally neutral approach ignored the important influence that extended family members have upon African American and some Latino parents in deciding childrearing practices. For example, a mother reliant on a grandmother or outside child care provider may not have the ability to monitor or influence the practices with respect to her baby’s sleep position while in care.

If the home context and environment do not support the women in being able to carry out the care plan, the intervention is incomplete, i.e., only part of the intervention happens in the clinical or public health setting—the rest takes place in a cultural context. Because cultural context plays a major role in educational and intervention effectiveness, we cannot measure adherence at the door of the clinical setting. Unfortunately, there is little data that tells us what happens once women leave the confines of the clinic. Further, while this may be difficult for the public health community to admit, in the process of day-to-day practice, practitioners often make decisions that protect the business aspect of the intervention, but adversely affect vulnerable population groups. The decision to use metrics that do not consider social equality will continue to disadvantage poor, vulnerable, and, usually, African American women.

Conclusions/Recommendations

Because the etiology of African American infant mortality disparity is historical and biopsychosocial, whatever evidence-based practices that are devised must be created

¹ The Back to Sleep campaign began in 1994 as a way to educate parents, caregivers, and health care providers about ways to reduce the risk for Sudden Infant Death Syndrome (SIDS). The campaign was named for its recommendation to place healthy babies on their backs to sleep. Placing babies on their backs to sleep reduces the risk for SIDS, also known as “crib death”.

through an interdisciplinary, multi-level, multi-phased approach that addresses life course/historic factors as well as current social contributors. If the public health community continues to sweep this aspect of the disparities challenge under the rug, then perhaps Public Health should abdicate the lead role and responsibility in addressing health inequities in the United States. Perhaps the Justice Department, the Department of Education, or the Congress can coordinate the responsibility of addressing multiple social/contextual factors contributing to disparities, and then define and fund the public health community’s role. The authors sincerely doubt the public health community will want to cede control of this issue, so, as a community, we had better ramp up efforts to define and coordinate holistic approaches. It is imperative to array the scientific, social, and programmatic development resources of the public health community to lead the charge in creating a roadmap for all stakeholders, including policymakers, the philanthropic sector, healthcare providers, educators, the criminal justice system, and others in their work toward ending MCH disparities.

The public health community should convene a national steering committee to define how to go about ensuring the promise of health equity, because “the industry’s purported role in eliminating health disparities now raises questions about its leadership, quality assurance, and ethics” [22]. An action plan could be developed through this process by asking the following questions.

- How can the public health community play an informative and coordinating role over other sectors that have power to change the causal factors of African American infant mortality?
- How can the public health community end the perpetuation of negative trajectories and processes because nothing or the wrong thing is done in the face of a specific population’s need?
- What is the public health community doing to actively disassemble processes that feed inequity in our own institutions?
- Has the public health community undone racism within our own institutional processes?
- Does the public health community specifically address class- and gender-related inequities within our own institutional processes?
- How does one take an evidence-based intervention, and make it more effective (change the slope) among African Americans?
- What can we do to repair the damage and setbacks due to historical and life course factors and, thus, increase the slope for African Americans?
- In what ways do the public health community and healthcare providers contribute to the existence of

“land mines” that exist in a woman’s substrate (social context)?

- Are the health care system/providers doing anything to remove the land mines or to help women negotiate them without adding more?

These questions must define the public health agenda over the next decade in order to ensure progress toward achieving health equity. In 1990 and again in 2010, we were and are still pondering the lack of progress and the long road ahead. Let’s resolve that by the year 2020, public health professionals will be able to focus on exploring what specific efforts led to the successful achievement of health equity, rather than being stuck in the tired stance of trying to figure out how to do it while avoiding the causes staring us in the face.

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