ISSUE BRIEF

Shifting Loci of Responsibility Upstream to Advance Healthy Behavior and Equity

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Healthy behaviors contribute to healthy people and communities, and a prosperous state. They are, however, more than simply individual choices. This issue of the *North Carolina Medical Journal* contextualizes current behavioral trends, progress toward advancing healthy behaviors, and policy levers to address substance use, sugary drink consumption, and sexual health practices.

Introduction

Healthy people and communities are paramount to a prosperous state. Healthy North Carolina (Healthy NC) 2030, a process and report modeled after the national Healthy People initiative, is a blueprint for improving the health of North Carolinians across this decade [1]. Since the genesis of Healthy People, much attention has centered on behavioral drivers of health, whose consequences affect individuals, families, and communities. Health behaviors are ways in which we act that are either beneficial or detrimental to our health or to the health of others. They are socially patterned and often co-occur [2]. Encouraging healthy behavior is important; however, to sustainably and equitably improve health, we must be willing to expand how we frame behavior and loci of responsibility.

Healthy NC 2030 highlights the growing health paradigm shift from an individual, biomedical model to a framing that acknowledges root causes of health as well as behavior [1]. Behaviors are more than simply individual health choices. They reflect dynamic, temporal interactions between people and the contexts in which they live, learn, work, and age that make certain actions easier or harder. Improving health behavior requires grappling with how history and commercial and political drivers have shaped contemporary contexts in ways that make the production of healthy behaviors inequitable and challenging. It demands we acknowledge the structurally violent ways that institutions behave to prevent groups of people from meeting their basic needs—including health—and recenter our behavioral focus upstream.

To meet the ambitious goals of Healthy NC 2030, we must be brave enough to ask tough questions: Are organizations, communities, and public institutions engaging in behaviors that create healthy conditions for all people in North Carolina? Achieving Healthy NC 2030 goals requires our collective commitment to the principles of equity that undergird the report, and attention to the non-medical drivers of health it outlines. This issue of the *North Carolina Medical Journal* highlights the six interrelated health behavior indicators chosen to represent priority health issues by a range of communities across our state: drug overdose deaths, tobacco use, and excessive drinking; sugar-sweetened beverage consumption; and HIV diagnoses and teen births [1].

Context and Background for Health Behaviors as Healthy NC 2030 Indicators

The COVID-19 pandemic reinforced how much our social, economic, and environmental contexts drive opportunities to engage in healthy behaviors. The pandemic has also highlighted a need to support—not blame—individuals or groups engaging in behaviors driven by available opportunities and resources. Smoking, alcohol or drug use, unhealthy diet, and unsafe sexual practices are widely acknowledged as harmful, but with adequate support these behaviors can be changed before they lead to chronic health conditions or adverse outcomes. In North Carolina, chronic diseases and injuries are responsible for two-thirds of all deaths [3]. Heart disease and cancer accounted, respectively, for 156.2 and 148.4 deaths per 100,000 people in our state in 2020 [4, 5], while the rate of fatal overdose was 31.5 deaths per 100,000 residents [6]. Reducing behavioral risk factors would positively impact population-level health outcomes.

Under-resourced communities and systematically marginalized populations are overrepresented in behavioral risk statistics in North Carolina [1]. However, this is not a naturally occurring or biological phenomenon, nor is it attributed to the state becoming more racially and ethnically diverse. While a robust literature has rendered visible many associations between race/ethnicity and health risks, structural racism—not race—is the fundamental cause of racial differences in socioeconomic status and health that many have grown accustomed to documenting [7–10]. We cannot advance health equity and produce healthy behaviors unless

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we specifically and collectively acknowledge how racism operates and dismantle it to create communities of opportunity. Racism—an organized system of power—differentially allocates societal resources and opportunities based on a hierarchal ideology of human value determined by socially defined race [11]. It drives inequities in the neighborhood contexts in which we live, learn, and work, producing unfair disadvantages for some communities and, reciprocally, unfair advantages for others, profoundly affecting longevity, quality of life, and well-being [8, 11].

In North Carolina, amidst spatially patterned counties with higher proportions of residents of color lie clusters of *riskscapes* with poorer social and economic opportunities and more behavioral risk factors [12]. This clustering is no accident. Such communities and populations are placed at risk because of the combined ways—historically and presently—that societal systems (e.g., judicial, education, housing, economic), longstanding social policies (e.g. forced removal and assimilation, segregation), institutional practices (e.g., redlining, exclusionary zoning), and norms perpetuate racial inequity [9, 10]. The *racialized geography* of health behavior inequities—which reflect the complex interplay of racism, classism, and place—is a consequence of how policies have structured relationships, inequitably administered power, and distributed or withheld resources [13, 14]. For example, persistent residential segregation within neighborhoods has often resulted in opportunity deserts, laden with concentrated poverty, that overlap both food deserts and swamps of unhealthy retail, such as fast food or tobacco [15]. Residential segregation has also structured opportunities for commercial determinants of health: acts of commission or omission by corporate actors that either positively or negatively shape our environments and dictate available choices [16, 17]. When opportunities are inadequate for individuals to access the basic resources they need to lead healthy lifestyles, behavior risks increase and health can be negatively affected.

The COVID-19 pandemic cast renewed light on our need to change systems of inequity that pattern our contexts, render population groups vulnerable, and impose demands of resiliency on equitable systems that foster opportunities for health and well-being. As a state, there are numerous actions we can take to improve health behaviors. First, we can see individual and group behavioral strengths—not just deficits—and be open to seeing behavioral deficits within our systems, structures, and institutions—not just strengths. Next, we can ensure equitable distribution of resources and opportunities according to need to rectify historic injustices that have affected economic and environmental contexts and resultant behaviors across generations. Forced resilience in the face of structural violence, like racism and intergenerational trauma, makes leading a healthy life more challenging of an endeavor than need be, and wears on the bodily systems. Collectively, by addressing the drivers of the health behaviors highlighted in this edition of the *NCMJ*—which disproportionately affect under-resourced and marginalized communities—we can make substantial progress toward Healthy NC 2030 goals and advance equity in our state.

Drug Use in North Carolina

All people in North Carolina should have the opportunity to live in communities that support drug-free lifestyles. Most North Carolinians do not use drugs or drink excessively. However, too many North Carolinians have been rendered vulnerable by social and economic stressors and environmental exposure to both legal and illicit drugs. Healthy NC 2030's health behavior indicators include decreasing overdose deaths, tobacco use, and excessive drinking [1]. Reducing the use of alcohol, tobacco, or other drugs will require that we improve the daily lives of all North Carolinians across the age continuum and reduce or eliminate intergenerational effects of social stressors like unemployment, low income, and discrimination, which increase the risk of use [18, 19]. Youth prevention efforts are also particularly vital, as many adults who use substances initiate use during their teen and young adult years, a vulnerable period critical to brain development and the establishment of healthy behaviors [19, 20].

Overdose Deaths

Communities across the state have witnessed increased substance use, which can escalate risk of unsafe sexual behaviors, experiences of violence, poor mental health, and suicide, and affect general health and well-being [19]. Between 2000 and 2020, more than 28,000 North Carolinians lost their lives to drug overdose, and overdose rates vary widely across regions in the state [6]. Today in North Carolina, the rate of death due to drug overdose is on a steep rise, and rates have increased across all segments of the population. Reducing the overdose death rate to the Healthy NC 2030 target of 18.0 per 100,000 people would reflect a reversal of the currently growing overdose epidemic [1]. There is, however, no acceptable rate of overdose deaths. Even as our society proclaims a desire to save lives from drug use and to reduce harm, people who use drugs face enormous stigma, which is a barrier to treatment and must be eliminated. In this issue, Nabarun Dasgupta shares that "[w]hat unites [us] across the spectrum is a genuine desire to improve the health of our state by reducing the substantial negative health and social consequences of drug use" [21]. Perhaps a greater issue is whether we will choose to take adequate and consistent action, as a state, to protect all people from the harmful impact of drugs.

Tobacco Use

For more than half a century, we have acknowledged irrefutable scientific evidence of the deadly hazards of tobacco smoking and the fact that there is no safe level of commercial tobacco use [20]. However, North Carolina's long history with tobacco has stymied the kind of corporate

accountability, regulatory action, and funding allocations necessary to protect youth and adults consistently and equitably in our state from tobacco-related harms. Halvorson-Fried and colleagues begin this issue by highlighting current youth tobacco use trends and policy actions that could limit unhealthy industry behaviors in neighborhoods and at the point of sale [22]. The recent North Carolina settlement holding Juul Labs, an e-cigarette company, accountable for its targeted advertising behavior and role in fueling the youth vaping epidemic is evidence that health-promoting change is possible [23]. And it is needed, as the prevalence of smoking in North Carolina is higher than that of the overall nation, geographic and demographic disparities in rates exist, and tobacco use remains the leading cause of preventable death in our state [1, 24]. "Preventable" means there are things we can—and must—choose to do collectively as a state to avoid tobacco's costly toll of over a quarter of a million (284,000) lives lost across the past 20 years, roughly 14,200 deaths every year [1].

Excessive Drinking

Similar to tobacco, the long-standing epidemic of excessive drinking is often obscured by the drug's legality, despite the fact that one in three North Carolinians drink excessively and at significant cost [25]. Tobacco and excessive alcohol use collectively cost our state over $15 billion in medical expenditures and lost productivity each year [25]. As the third-leading cause of preventable death in North Carolina, excessive alcohol consumption has significant impacts on individuals, families, and communities and is associated with increased risk of violent behavior [25]. Preventing environmental and economic stressors, as well as improving family well-being, can help reduce risk of early onset of alcohol use. Alcohol marketing behaviors, like those of the tobacco industry, are also associated with earlier onset of use, and exposure to marketing increases the likelihood of excessive drinking [25]. During the development of Healthy NC 2030, communities brought this issue to the forefront and, in this issue of the *NCMJ*, McEwen highlights recent data showing a rise in excessive drinking rates during the COVID-19 pandemic and a need to remain vigilant in the post-pandemic transition [26]. Higher rates of excessive drinking are reported among those with higher incomes than those with lower incomes; however, disaggregating reported data across and within subpopulations may capture behavioral trends important for prevention efforts, considering alcohol retail density is highest in low-income communities and communities of color [25, 27].

Herndon and colleagues remind us in this issue that taking health-promoting action to address epidemic drug use is a matter of equity and justice, considering youth, rural, and many marginalized communities have been targeted with harmful drugs and experience uneven protections that put them at disproportionate risk of use and associated health outcomes [28]. Unhealthy corporate marketing practices and relatively low-cost harm-inducing products underly increases in drug overdose deaths and use of harmful products within our state. To turn the curve across this decade, we must ensure all North Carolinians live in conditions that protect them from exposure to harmful drugs, reduce harm associated with use, and provide adequate access to treatment to help them safely recover from addiction.

Sugary Drink Consumption

Assuring communities have the opportunities and resources to adhere to evidence-based dietary standards has positive implications for population health in our state. Unfortunately, rates of obesity, type 2 diabetes, tooth decay, and added sugar consumption are much higher in North Carolina than they could be. In 2018, 68.1% of North Carolina adults were overweight or obese [29]. As the only food or beverage shown to increase the risk of overweight and obesity, sugary drinks are the largest source of added dietary sugar yet offer little or no nutritional value [1]. Increased consumption of sugary drinks by even one serving per day elevates risk for type 2 diabetes and heart attack [1]. In this issue, Yount and Wilson share how collaborating with local partners to deliver evidence-based programs, like Healthy Together 5210, can help bring awareness to the benefits of reducing sugary drink consumption [30].

Commercial determinants have rendered physical environments within low-income communities and communities of color in our state replete with fast food options, poor drinking water quality, and unhealthy product advertising, rather than healthy resources as are present in some communities around the state [16, 17]. Unsurprisingly, rates of sugary drink consumption are higher among low-income populations, communities of color, and American Indian/Alaska Native populations, as are rates of overweight and obesity [1]. Sankofa Farms, a Black-owned agricultural enterprise in Efland, North Carolina, aims to "assist changing the food intake habits of those living in and affected by food deserts," and serves as a reminder that businesses can also choose to act in health-promoting ways [31]. It is also an example of resilience in the face of structurally induced conditions. Although marginalized groups actively seek and develop community-based solutions to problems affecting their health and behavior, placing the burden of responsibility there is unjust. Healthy NC 2030 set a target to reduce adult consumption of sugary drinks from 34.2% to 20% and youth consumption from 33.6% to 17% [1]. To meet these targets, we must collectively create environments with robust opportunities for all to access healthy food, drinks, and clean drinking water.

Sexual Health Practices

All people in North Carolina should have the opportunity to live in communities that support their health, which also includes sexual health. Unfortunately, sexual health inequities remain persistent challenges in North Carolina.

Communities of color, men who have sex with men, people with lower incomes who lack health insurance, sex workers, and incarcerated individuals have higher rates of HIV diagnosis [1]. Moreover, despite a remarkable decrease in overall teen births in the state, teens from low-income families, who reside in under-resourced communities, or who have histories of adverse childhood experiences (ACEs), have higher rates of teenage pregnancy and births [1]. Support means equitable access to quality and culturally responsive prevention and treatment services and the removal of structural drivers of inequities.

HIV

The Southern United States bears the greatest burden of HIV and HIV-related deaths [32]. Nearly 35,000 people living with HIV are members of our North Carolina communities [33]. Though much has changed in the four decades since HIV was identified as the cause of AIDS, still far too many people living with HIV face HIV-related stigma. Stigma and associated stress have implications for mental health, risk of substance use, testing and treatment-seeking behavior, and rates of transmission. Healthy NC 2030 targets improving sexual health by decreasing the number of new HIV diagnoses from 13.9 to 6.0 per 100,000 people across the next decade [1]. Given the development of new biomedical tools, like pre-exposure prophylaxis (PrEP) and community-based interventions, such high rates of HIV diagnoses are unnecessary and preventable [1]. In this issue, Tanner and Rhodes highlight persistent barriers to PrEP uptake [34], while Mathews and colleagues remind us that addressing the complexities of HIV in North Carolina will require using culturally informed approaches led by trusted community-based organizations and people with lived experience [35].

Teen Births

The high rate of teen births is also preventable. In 2018, the North Carolina teen birth rate for girls aged 15–19 was 18.7 per 1,000 population [1]. The Healthy NC 2030 goal is to reduce the number of teen births to 10 per 1,000 by reducing racial disparities. While overall rates have declined, Thacker and colleagues remind us that aggregate improvements in health often mask the experiences of historically marginalized populations, who face significantly higher teen birth rates [36]. Persistent residential segregation and economic disinvestment contribute to the proliferation of under-resourced schools and neighborhoods, which are associated with fewer social or recreational opportunities for youth involvement and lower educational attainment, and which place teens of color and rural teens at disproportionate risk for unintended pregnancies [37, 38]. Teenage pregnancies and births are associated with social, health, and financial burdens that affect teen parents as well as their children, families, and communities. Providing equitable access to comprehensive sex education and sexual health and reproductive services can help reduce immediate and long-term health risks associated with teen births and improve opportunities for social and economic mobility [38].

Potential Levers for Change

There is much we can do to reduce behavioral risk factors and improve the health of individuals, communities, and populations in our state, including being willing to address the political and commercial drivers of health behavior. Articles in this issue highlight four thematic levers for change: 1) leveraging policy to restrict access to health-detracting products, especially those that illegally target youth; 2) expanding access to life-saving products or preventive services (e.g., evidence-based tobacco cessation medications, naloxone); 3) effectively regulating the harm-inducing products that remain accessible in ways that minimize population harm; and 4) assuring local communities and people with lived experience have autonomy to act.

Engaging in smoking or excessive drinking, using drugs, or consuming sugary drinks requires access to these substances. Therefore, eliminating or limiting the accessibility of these substances could drive reductions in use behavior. Mechanisms for reducing access—particularly for legal substances—include reducing days/hours of product sales (e.g., alcohol), requiring and/or limiting retailer product licenses or procurement within a geographic area, and restricting legal age of purchase (e.g., 21 to buy). However, careful attention is warranted to ensure harmful substitutes or replacements do not fill gaps created by supply or availability reductions, as did illicit opioids and vaping products.

Substance use disorders (SUDs), HIV, and other behavioral health conditions require ongoing care and treatment. Effective preventive services and treatments exist; however, access to and distribution of services varies greatly across the state. Louise Vincent, an expert in harm reduction, shares that people who use drugs "...have the desire and the right to utilize the medical resources available to other groups in our society" [39]. Drawing from the strengths of this community can help us overcome the barriers of formalized support systems to make a real impact in preventing overdose deaths. Increasing access to evidence-based treatment for all North Carolinians who use tobacco, as recommended by Herndon and colleagues, and reducing barriers to effective preventive resources like PrEP, would also effect change. To reach our Healthy NC 2030 targets, communities must have access beyond emergency situations—without stigma and discrimination—and programs that deliver reproductive health services, drug treatment, and tobacco control must be adequately resourced so they are nimble enough to meet the next decade of challenges.

Individuals are held responsible when their behaviors cause harm to others; it is only just to ensure those entities that distribute products that inflict population harm are also held accountable. Recent efforts by the North Carolina Attorney General's Office to hold drug companies accountable for the opioid and youth vaping epidemics serve as

excellent examples and are highlighted in my interview with Attorney General Josh Stein in this issue [40]. Appropriate, equitable stewardship of forthcoming opioid settlement funds will facilitate access to needed prevention and treatment services. Accountability may also come in the form of increased taxes on products that have a negative public health impact, like alcohol, tobacco, and sugary drinks, as recommended by authors in this issue. Excise taxes can potentially reduce business revenue from health-harming products by changing the relative price of the product for consumers, which can also reduce consumption. For example, Herndon and colleagues point out that a 10% increase in cigarette price reduces consumption 3%–5% [28]. In this issue, Golden and colleagues discuss the effectiveness of this lever on behavior change [41].

Starting where the people are means listening to the voices of those whose health and behaviors stand to be affected by policy and commercial activities. Our state can choose actions that promote health, such as removing laws that preempt localities closest to those affected from being able to legislate on certain issues. Preemption impedes health behavior improvements in local contexts by elevating industry behavior over the health behavior of individuals and communities. It also restricts the contexts within which North Carolinians make behavioral choices. Allowing local autonomy to act on health-harming products, and returning power and control to local communities to act in health-promoting ways, could speed progress toward reaching Healthy NC 2030 health behavior targets. NCMJ

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