

The Persistent Three: Combating Heart Disease, Cancer, and Stroke in North Carolina

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Significant advances in science and medicine have not been adequate to dethrone heart disease, cancer, and stroke from their positions as three of the top killers of North Carolinians. In this issue, authors from across the state describe efforts to employ more holistic, comprehensive, and innovative approaches to primary and secondary prevention, as well as ensuring everyone who needs it has access to care and support through their disease journey. The articles in this issue include data and trends, as well as community examples, to explore evolving approaches to prevention, screening, treatment, and research.

Introduction

In North Carolina and across the United States, heart disease, cancer, and stroke consistently rank among the top five leading causes of mortality and morbidity, with notable racial/ethnic, geographic, and age disparities [1-3]. Significant advances in science and medicine over the last few decades have not been adequate to dethrone these three killers from their inauspicious positions as leading causes of death. If the persistent three are to be thwarted, more holistic, comprehensive, and innovative approaches to primary and secondary prevention are needed, as well as new approaches to ensuring everyone who needs it has access to care and support through their disease journey. In this issue, we discuss data and trends and explore innovative approaches to enhancing prevention of heart disease, cancer, and stroke as well as screening, treatment, and research. We also include a focus on community organizations that help address gaps in access to treatment and support.

Heart Disease

In addition to being a leading cause of mortality and morbidity, heart disease trends are getting worse, not better [4]. To tame the heart disease beast, more effort needs to be spent on identifying and addressing the preventable root causes of heart disease. In this issue, Adam Hege of the Department of Public Health and Exercise Science at Appalachian State University examines the effect of adverse childhood experiences (ACEs) on heart and other diseases and argues for life course approaches that account for intergenerational exposures, which can impact human development biologically, behaviorally, and psychologically [5]. He

explores promising frameworks and resources to address population-level risks for ACEs and the downstream influences on cardiovascular disease outcomes. Hege also highlights a program implemented by AppHealthCare, the local health department serving Watauga County, which centers on a prevention model aimed at understanding the connection between community environments and ACEs and their impact on individuals and families.

Moving downstream, Katherine M. Connors of the UNC Gillings School of Global Public Health and colleagues explore the promise of artificial intelligence (AI) in improving early detection of heart diseases [6]. By enhancing risk assessments for and diagnosis of heart disease, integrating AI in a thoughtful and deliberate manner holds the promise of contributing to significant improvement in quality and outcomes.

Cancer

The word “cancer” induces fear on multiple levels. Many of us are familiar with the federal Cancer Moonshot Initiative, launched in 2016, which sought to 1) accelerate scientific discovery in cancer, 2) foster greater collaboration, and 3) improve the sharing of cancer data [7]. More recently, the Biden Administration strengthened the commitment with a new goal of reducing the cancer death rate by half within 25 years [7]. Achieving these goals will require a systems approach by patients, communities, researchers, and clinicians to understand root causes and improve prevention, screening, treatment, supports, and research.

Prevention

In North Carolina, rates of all cancers associated with human papillomavirus infection (HPV) are higher than the national average and up-to-date HPV vaccination rates among adolescents are at only 55%, far behind rates for other recommended adolescent vaccines, according to Nadja Vielot of UNC Family Medicine and coauthors [8]. Their article discusses existing and novel approaches to

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encouraging HPV vaccination, including recommending HPV vaccination beginning at age 9 and partnering with diverse stakeholders that can provide funding, data, and resources.

Access to Screening and Treatment

Some populations experience greater challenges in accessing screening and treatment. Darla K. Liles of ECU Health and coauthors focus on addressing barriers and challenges to cancer screening and treatment in the 29 counties that comprise Eastern North Carolina. These counties are historically underserved, and the authors highlight strategies designed to improve access to cancer screening and treatment, including workforce recruitment and availability of clinical trials [9].

In seeking to proactively mitigate disparities in screening and treatment, Carla Strom of Atrium Health Wake Forest Baptist Comprehensive Cancer Center and coauthors provide an overview of an innovative navigation program in Winston-Salem, which is a minority-majority area of the state [10]. Significantly, the Population Health Navigation (PHN) program was developed by Atrium Health Wake Forest Baptist Comprehensive Cancer Center, with input from community members and organizations. The PHN program is designed to reduce access-to-care barriers faced by patients from traditionally underserved communities during cancer treatment and has increased participation of targeted populations in clinical research.

Research

It is no surprise that certain demographic groups—racial and ethnic minorities, women, elderly individuals, people from low socioeconomic backgrounds, and those from rural areas—have been underrepresented in clinical research. This, in turn, affects the generalizability of findings across diverse populations [11–13]. To address this substantial shortcoming, the following articles address strategies for improving diversity in cancer research.

Nadine Barrett of Atrium Health Levine Cancer Institute and coauthors discuss the perils of inadequate representation in cancer research and outline a framework to ensure equitable access to and participation in research to achieve better outcomes [14]. The authors also promote the adoption of an equity lens and other strategies (i.e., decentralizing clinical trials, continual training of all constituencies involved in cancer care and research, ensuring workforce diversity, etc.) across the research ecosystem.

Moses A. McDaniel of the Department of Surgery at ECU Brody School of Medicine and colleagues provide an overview of the North Carolina Tissue Consortium (NCTC), which is a tissue bank at ECU that facilitates cancer-related research by procuring, processing, storing, and sharing with researchers normal and malignant tissue specimens from a diverse population [15].

Older adults (aged 65 and older) in North Carolina account for about half of all cancer diagnoses, but they too

are underrepresented in cancer clinical trials. This, in turn, inhibits the development of evidence of effective treatment strategies for this population. Emilie Duchesneau of Wake Forest University School of Medicine and coauthors share their insights on how big data—including cancer registries, prospective cohorts, insurance claims, electronic health records, biobanks, data repositories, and digital health technologies—can fill gaps in geriatric oncology research [16]. Also discussed is how combining big data with clinical trial research can enhance generalizability to address disparities.

Wrapping up the discussion on cancer is an interview with Thomas Shea, MD, of the UNC Lineberger Comprehensive Cancer Center, who shares his insights as a 30-year veteran in oncology about what is behind improvements in cancer mortality and treatment, and what should be future areas of focus [17]. He notes that early detection and treatment have been key, as have multidisciplinary approaches to cancer treatment. He concludes, however, that more still needs to be done in cancer prevention.

Stroke

North Carolina is ensconced in what has become known as the stroke belt, which is the region of the Southeastern United States recognized for its higher stroke mortality [18]. Leading contributing factors, many of which are preventable, include higher rates of adult smoking, adult obesity, and lower rates of physical activity [19]. An article by Anna Bess Brown, executive director of the Justus-Warren Heart Disease and Stroke Prevention Task Force in the North Carolina Division of Public Health, features unique partnerships that have been developed in North Carolina to enhance stroke prevention and outlines policy levers for improving outcomes [20].

Extending beyond onset of disease, stroke survivor Michael Erwin shares his experience, including how he was inspired to found BELIEVE – Stroke Recovery Foundation to assist fellow survivors in understanding and navigating recovery, insurance issues, and costs, and to find meaning [21].

Community Service Organizations

In addition to the BELIEVE – Stroke Recovery Foundation, this issue also includes profiles on two North Carolina organizations that seek to fill gaps in care delivery. Laura M. Magennis of the UNC-Charlotte School of Nursing and coauthors share the history and benefits of NC MedAssist, a community safety-net organization that provides medications to those who are uninsured and who have low incomes [22]. Rounding out this issue is a discussion with Tom Lawrence, President & CEO of the Leon Levine Foundation, which funds nonprofits in health care, human services, and education [23].

Conclusion

The articles in this issue demonstrate the complexity and comprehensiveness of innovations needed to tackle three

of the most persistent causes of mortality and morbidity—heart disease, cancer, and stroke—and achieve equitable outcomes. A wide collection of solutions and programs will be required to focus on upstream efforts to prevent the onset of disease, early screening and identification of disease, innovative programs to ensure equitable access to treatments, diversity in clinical research, and support for patients and survivors. As this issue demonstrates, North Carolina is fortunate to have dedicated and talented individuals, teams, organizations, and communities working to take down the persistent three as we seek to achieve health and well-being for all. NCMJ

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