Reducing Heart Disease Related Deaths in Alabama

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The Problem:

Alabama has one of the most widespread heart disease problems in the country, remaining above the 4th highest heart disease death rate since 2005[1]. The prevalence of related deaths (222.5 deaths per 100,000 people in 2016) places it as the top cause of death in the state[2]. Other top causes of death in Alabama residents are often linked to diet and exercise habits linked to heart disease, such as stroke and diabetes.

The cause of Alabama having such a high rate of heart disease is multi-faceted. Chronic issues like poor diet, health education, access to routine healthcare, and lack of exercise – all of which are poverty-related – combine to create a culture in which heart disease is effectively the norm. Prevention is key to remedy the issue of heart disease, but Alabama also falls behind in treatment of the consequences of this culture The state has one of the lowest successful resuscitation attempts in out of hospital cardiac arrests (CA's)[4], comorbidities are poorly recognized by the population and, as a result, undertreated, and first responders have a subpar education in treatment of acute complications of heart disease.

While this issue is severe in Alabama, it is not an isolated incident. Heart disease is the leading cause of death in the world[3] making this a public health problem of global proportions. Tackling this issue in one of the most impacted states would provide an opportunity to revolutionize the way this topic is addressed, have a major positive impact on the community, especially those that are currently underserved, and leave the region a healthier place overall. The effects of this grand challenge will leave an impact on the state and the country, having impacts that go beyond lowering the rate of death due to heart disease, including lower prevalence of cardiac related death and disability, increased cardiac arrest survival, and an overall healthier population.

The Plan:

While the plan is variable as different specialists provide their insight to fixing this problem, there are several goals that will reduce heart disease and the associated disability and death. In the short term, improving the first responder system to include better training and use of resources will immediately decrease deaths and disability. This will treat a symptom of the problem and not address the major factors. To fix this issue in the long term, early education, improved access to health care, and improved access to healthy food and exercise options are key as methods of primary prevention.

To improve heart disease related treatment, bystanders should be educated on what to do by utilizing the education system and community engagement methods. There has been a small push to better educate people on how to identify and react to suspected cardiac events, from early signs of heart attack to cardiac arrest, but these efforts are likely not as effective in rural areas that don't see the hospital sponsored billboards or receive training. Public events can be used in

underserved areas to teach some of this information, including hands-only cardiopulmonary resuscitation (CPR) and healthy practices. This part of the campaign can extend to mass media in the form of public service announcements (PSA's): give a quick segment on how to recognize symptoms and what to do and run television advertisements to teach hands-only CPR, a practice done in the UK and other countries. A similar campaign of bystander training in CPR has led to King County, Washington has led them to improve their out of hospital CA survival rates to be the best in the country.

This extends to involving emergency medical services (EMS) and first responders. Many rural settings utilize volunteer responders, who tend to be basic life support (BLS) providers with lower levels of cardiology training and resources. Advanced EMS providers (paramedics) are often over 20 minutes away or only arriving by helicopter. Implementing training programs for BLS providers would help these communities; getting them involved in the education of their communities will engage both groups. Further involving the EMS system and their recent changes, community paramedicine, which uses paramedics to check in with high-risk patients under the instruction of a practitioner, could find an early role in this effort by checking vital signs, capturing electrocardiograms (ECGs), aid in medication compliance, and answering healthcare and diet related questions.

Fixing the problem is a much longer and complicated task. Health education in Alabama is underwhelming; people receive little direction on appropriate exercise habits, food choices, their importance, and how to fit them into their lives. Many feel they cannot afford to eat healthier or simply don't want to. I propose making this a two-dimensional approach by involving moral arguments in addition to scientific ones. Religious leaders can play a role by reinforcing the idea of supporting and taking care of one's body. Many of the most at-risk communities have family-oriented tendencies, so encouraging them to take care of themselves for their kids' sake might be an effective motivator.

Improving access to healthy options is arguably one of the hardest aspects of this challenge. Alabama has a disproportionately high prevalence of food deserts, leading to increased cost of food, particularly fresh produce. Improving availability by engaging the community or implementing services to get food to these underserved communities would increase the rate of healthier eating. As this is also a cultural issue, it is unlikely that you'll get a family to go from eating their incredibly high fat and salt-laden foods to eating salad three times a day. As such, teaching ways to make 'traditional' foods healthier would supplement the encouragement to change old habits.

Finally, improving access to healthcare leads to early identification and treatment of heart disease. This is a complicated issue as many are uninsured or can't afford copays. UAB and its partners are in a unique position to help with this problem. Providing a roving medical center that can do basic checkups at a significantly discounted rate would likely be the only healthcare many people receive. To supplement this, telemedicine could be used to provide continued care of patients, though access to reliable internet to make these appointments may need to be arranged. Partnering with community businesses could lead to easy ways of incentivizing these checkups with coupons, free items, drawings, etc.

Potential Partners:

These organizations are those we've identified to help in this challenge. None have been contacted for support with this proposition.

1. University of Alabama at Birmingham
    a. School of Nursing
    b. School of Public Health
    c. School of Medicine
    d. Department of Psychology
    e. Sociology Department
    f. School of Education
    g. Department of Philosophy
2. Alabama Department of Public Health, including the Office of EMS (OEMS)
3. County Departments of Health
4. American Heart Association
5. Red Cross
6. Shipt – Grocery delivery service headquartered in Birmingham
7. Student Volunteer Organizations, e.g. pre-health programs
8. Religious Organizations
9. Department of Education
10. Media outlets
11. Grocery stores (e.g. Piggly Wiggly, Dollar General Market, Family Dollar, Walmart)

References

1. https://www.cdc.gov/nchs/pressroom/sosmap/heart_disease_mortality/heart_disease.htm
2. https://www.cdc.gov/nchs/pressroom/states/alabama/alabama.htm
3. http://www.who.int/gho/mortality_burden_disease/causes_death/top_10/en/
4. https://jamanetwork.com/journals/jama/fullarticle/182614