Group 3 IPE Activity Executive Summary

Juvenile Diabetes (DT1)

Riley Andrews. Stephanie Bettis. Brandon Clarida. Chrisney Pettit. Essence Prince. Emma Schramm.

Old Dominion University

MPH615 / DNTH 416/516

Professor Praveen Durgampudi/Denise Claiborne

April 10, 2022

Public Health Problem (Brandon Clarida)

Diabetes mellitus is a metabolic disorder characterized by an autoimmune reaction that leads to the damaging and destruction of pancreatic beta cells that are responsible for production of the glucose controlling hormone insulin. Without the controlling effect of insulin, the blood glucose levels increase past recommended ranges, normal range being between 100-200 mg/dl. This disorder is common in children and requires maintaining routine medical treatment to prevent complications that can be life-threatening (Gupta, 2018). The risk factors for children in developing type 1 diabetes increase with a family history and certain genetic markers. Research has shown exposure to certain viruses can trigger the autoimmune response seen in the pancreatic cell destruction. In addition to these children with diabetes are at an increased risk of developing additional autoimmune disorders such as thyroid disease (Mayo Foundation for Medical Education and Research, 2022). The complications of unmanaged juvenile diabetes affect many major organs and tissues of the body including heart and blood vessel disease, nerve damage, eye disorders, kidney damage, and osteoporosis. Diabetes is a manageable disorder with proper education and access to necessary medical supplies (Bimstein, 2019).

Social Determinants of Health (Chrisney Pettit)

Children at risk of developing diabetes, as well as those living with the disease, encounter many obstacles to equity in their daily lives. Access to quality care is a necessity for children living with diabetes. In addition, the introduction to and implementation of adequate health behaviors from an early age is imperative to improving the quality of life for individuals living with this condition. Finally, emphasizing early screening and the importance of sharing and understanding family medical history can have a positive impact on the detection, prevention, and proper treatment planning for children at risk of developing diabetes.

Healthy People 2030 aims to address lack of access to quality care by increasing the proportion of adolescents participating in preventive health care visits, ensuring those with special health care needs are entered into a care system, and increasing the proportion of low-income youth that attend preventive dental appointments (United States Department of Health and Human Services [USDHHS], 2020). Since the cost for affected individuals can be exceptionally high, adolescents from families with lower socioeconomic statuses may not be able to afford the routine screening or medical treatment options recommended to prevent or treat their conditions, making progress toward comfort or optimal health difficult. It has been found that poverty and level of parental education are two leading indicators of oral health and access to care (Leadbeatter & Holden, 2021). In implementing a free, mobile service to the community, as proposed to the community health center (CHC), the financial burden is nearly eliminated, making individuals of all socioeconomic statuses more likely to participate in preventive services. Employment commitments may still negatively impact the amount of community members participating in the offered services, but the mobile nature of the clinic also eliminates the barrier of not having a reliable mode of transportation to attend screening appointments.

Poverty and parental education can additionally impact attitudes toward preventive health services and treatments. A review of oral health disparities amongst African American children found that adolescents with families participating in the Supplemental Nutrition Program for Women, Infants, and Children (WIC) documented parental reports of not having enough time or resources to promote, provide, or prepare healthy foods (Como et al., 2019). This review also found that participating children and their parents believed that dental care is aesthetic, and the threat of oral disease is low (Como et al., 2019). With the increased proportion of processed and sugar-sweetened foods consumed due to lack of time or resources to provide healthy alternatives, as well as the low perceived threat of health consequences, adolescents' nutritional and oral health could be improved by the presence of education, training, and other relevant preventive services.

Finally, individual behavior and response plays an important role in dental hygiene, food choices, and adopting preventive strategies. Increasing participation in School Breakfast and School Summer Food Service Programs is one way to change the feeding behaviors contributing to increased incidence of diabetes and untreated cavities and is congruous with Healthy People 2030 goals (USDHHS, 2020).

Funding and Ethics (Emma Schramm)

Defunding diabetic programs would negatively affect our specific targeted population, diabetic children, in numerous ways. Per the CDC, the incidence of type II diabetes increases at a rate of 4.8% each year (CDC, 2021). By defunding these programs this means there would be no funds given to the state and local health departments that provide an abundance of programs and activities that prevent/delay the onset of type II diabetes in children. This would lead to a decrease in all of the following: access and health benefit coverage for the National Diabetes Prevention Program (NDPP), prediabetic screening, testing, referrals, and enrollment into the NDPP programs, Diabetes Self-management Education and Support (DSMES), and pharmacist-patient care processes to help patients manage their medications (CDC, 2021).

With diabetic numbers increasing each year, prevention in this healthcare division is key when it comes to the younger population. One ethical dilemma that is associated with the burden of diabetes is the access to primary care as compared to the technological care for diabetic complications. As diabetic numbers rise, including the child and adolescent community, public health interventions need to be implemented in order to address and reduce the number of children diagnosed with diabetes. Defunding primary prevention and research will only cause intensified political, social, and ethical dilemmas and debates (D'Souza, 2017).

Solutions and Interventions (Stephanie Bettis)

Preventive strategies start with pediatricians testing and diagnosing children between the ages of 4 to 6 or puberty age 10 to 14. For these children to be tested, symptoms must occur for a test to be conducted. Early testing without symptoms, juvenile diabetes could be diagnosed earlier. When diagnosed with T1D, children and parents will need to schedule weekly follow up

appointments first then they will start to schedule monthly appointments. This can become costly without insurance, there are programs that the pediatrician can recommend to parents that are disadvantaged like the Medicaid and Children's Health Insurance Program (CHIP). The CHIP program is very special because it covers children aged 19 and younger whose families earn too much money for Medicaid qualifications. CHIP covers children that need routine check-ups, prescriptions, laboratory services, and much more. (HealthCare, N.D.)

Interventions that need to be considered are improving foods served in public schools for children that are disadvantaged. In public schools, cafeteria food is not regulated for diabetic children and they need to take the food they are given to the nurse's office for them to monitor intake of food. Issues with this system is that if the food provided is full of carbohydrates, the child could not get enough food to last them all day. However, National School Lunch Programs (NSLP) serves children in nearly 100,000 public school's nutritional lunches to underserved children that are free or lower in price. (U.S. Department of Agriculture, 2022) These lunches are to reduce the risk of obesity and type 2 diabetes (T2D), and more importantly aid children with T1D to have a healthier lunch and to be able to consume more of it. (American Diabetes Association, 2019) In addition to lunches, the School Breakfast Program (SBP) serves low-cost or free nutritional breakfast to children. Children having access to both SBP and NSLP programs have a lower intake of sugary foods and beverages and lower percentage of calories. Both nutritional and low cost/free meals, allow children with T1D or T2D to enjoy a full meal at school. Furthermore, this would eliminate the children having to go to the nurse's office and give them more time for social development along with their school peers.

Implications for Policy and Practice (Essence Prince and Riley Andrews)

To summarize, diabetes mellitus involves impaired metabolism functioning that negatively affects many other major body systems and often becomes fatal if left untreated. Comprehensive data has revealed a continuous growth in incidence rates of juvenile diabetes, which may be attributed to biological and sociodemographic characteristics such as gene inheritance, low-income and/or education, and poor diet (CDC 2021). In consideration of the juvenile diabetes experiences worsened by aspects of a patient that often could be addressed or changed, a public health need for intervention is indicated. As previously mentioned, schools have a significant influence on a child's life by shaping their education and lifestyle choices. There is a need for promotion of diabetes education and healthy living in schools to prevent the risk factors associated with juvenile diabetes. Educators creating a program that includes the importance of staying physically active and maintaining a healthy diet would intervene with the growing rates of juvenile diabetes. Educating parents about school meal programs will provide low-income students with access to healthy meals. Meals served through the school programs must meet nutrition requirements to allow the children access to well-balanced meals. According to the CDC, research shows that students participating in the school meal programs consume a better overall diet quality than those not participating (2021). Assisting low-income students with consuming healthy eating options will in turn decrease the incidence rates of juvenile diabetes.

References:

American Diabetes Association. (2019, November). *Supporting Healthier School Meals*. https://www.diabetes.org/blog/supporting-healthier-school-meals.

Bimstein, E. Z. (2019). Type 1 Diabetes Mellitus (Juvenile Diabetes) – A Review for the Pediatric Oral Health Provider. *The Journal of clinical pediatric dentistry*, 417-423.

Centers for Disease Control and Prevention. (2021, February 8). *Diabetes in youth.* Centers for Disease Control and Prevention. Retrieved March 28, 2022, from https://www.cdc.gov/diabetes/library/reports/reportcard/diabetes-in-youth.html#:~:text=Of%20the%20estimated%2026.9%20million,younger%20than%20age%2020%20years.&text=The%20increasing%20frequency%20of%20both,clinical%20and%20public%20health%20concern.

Centers for Disease Control and Prevention. (2021, June 21). *School Meals*. Centers for Disease Control and Prevention. Retrieved April 9, 2022, from https://www.cdc.gov/healthyschools/npao/schoolmeals.htm

Centers for Disease Control and Prevention. (2021, August 3). *State, local, and national partner diabetes programs*. Centers for Disease Control and Prevention. Retrieved March 11, 2022, from https://www.cdc.gov/diabetes/programs/stateandlocal/

Como, D. H., Stein Duker, L. I., Polido, J. C., & Cermak, S. A. (2019). The persistence of oral health disparities for African American children: a scoping review. *International journal of environmental research and public health*, *16*(5), 710.

D'Souza, R. (2017). *Ethical issues associated with diagnosing and managing ...* Retrieved March 23, 2022, from https://globalbioethicsenquiry.com/wp-content/uploads/2021/02/1f710ba87717424ead24b1789d7ad70f.pdf

Gupta, R. (2018). An Update on Juvenile Diabetes Mellitus. *Journal of Childhood & Developmental Disorders*, 1-2.

HealthCare. (N.D.). *The Children's Health Insurance Program (CHIP)* https://www.healthcare.gov/medicaid-chip/childrens-health-insurance-program/.

Leadbeatter, D. & Holden, A. C. L. (2021) How are the social determinants of health being taught in dental education? *Journal of Dental Education, 85*, 539– 554. https://doi.org/10.1002/jdd.12487

Mayo Foundation for Medical Education and Research. (2022, March 26). *Type 1 diabetes in children*. Retrieved from Mayo Clinic: https://www.mayoclinic.org/diseases-conditions/type-1-diabetes-in-children/symptoms-causes/syc-20355306?msclkid=08fe9ec0ad2a11ecb84432ee439769a8

U.S. Department of Agriculture. (2022, January). *National School Lunch Programs*. https://www.ers.usda.gov/topics/food-nutrition-assistance/child-nutrition-programs/national-school-lunch-program/.

United States Department of Health and Human Services. (2020). *Proposed Objectives for Inclusion in Healthy People 2030.* https://www.healthypeople.gov/sites/default/files/ObjectivesPublicComment508.pdf