Noncommunicable Diseases in Children and Adolescents

We have made great progress in preventing and managing communicable diseases worldwide. Noncommunicable diseases (NCDs), which result from noninfectious and nontransmissible factors, are often caused by factors that are modifiable. Children are the frequent victims of air pollution and behaviors such as tobacco use, physical inactivity, and unhealthy diets leading to the development of the NCDs discussed in this global health perspectives commentary. The worldwide burden of NCDs is enormous, actually accounting for the majority of all deaths. Risk factors such as high blood pressure, raised cholesterol, tobacco use, alcohol consumption, and overweight coupled with poor economic and social conditions create a perfect storm for many of the world’s chronic illnesses. Drs Proimos and Klein bring new focus to the pediatric perspective and suggest an approach to developing strategies internationally to combat these most common health issues of our time.

—Jay E. Berkelhamer, MD
Editor, Global Health Perspectives

Recent global attention has focused on NCDs and their impact on global morbidity and mortality. NCDs are medical conditions or diseases that are nontransmissible and often enduring. Of the 57 million deaths worldwide in 2008, NCDs accounted for 36 million, mainly due to cardiovascular disease, cancers, diabetes, and chronic lung diseases.1 Eighty percent of NCD deaths occur in low and middle income countries.2 NCDs often result from modifiable lifestyle risk factors, such as tobacco use, problem alcohol use, unhealthy diet, and lack of physical activity, leading to overweight, raised blood pressure, and cholesterol. Left unchecked, NCDs will continue to lower global productivity, threaten quality of life, and cost trillions of dollars.3 Systematic efforts to prevent NCDs, and ameliorate their burden, are now part of a global health strategy.4

In September 2011, the United Nations General Assembly declaration on prevention and control of NCDs first acknowledged the increasing impact of NCDs on children and adolescents and recognized the need to protect them from NCDs.5

CHILDREN AND ADOLESCENTS ARE HEAVILY IMPACTED BY NCDs

- 1.2 million children and youth under age 20 died of NCDs in 20026
- More than 25% of obese adolescents have signs of diabetes by age 157
- Despite improvements in survival for some childhood cancers,8 survival is much lower in resource-poor countries
- 90% of the 1 million children born each year with congenital heart disease live in areas without adequate medical care9
- Tobacco smoke causes asthma, otitis, and respiratory infections in children10
• Mental health disorders,11 motor vehicle trauma, homicide, and suicide12 cause significant morbidity and mortality in children and youth

RISK FACTORS AND BEHAVIORS LEADING TO ADULT NCDS START IN CHILDHOOD

Prenatal exposure to tobacco and alcohol, prematurity and low birth weight, nutritional deficiency, and diabetes have long-term impacts on health and development, including increased risk of adult cardiovascular disease, diabetes, and other social and medical problems later in life.13 It is important to focus on prenatal care, healthy nutrition in pregnancy, and breastfeeding. Safe deliveries, effective resuscitation, and postnatal care with adequate immunizations and safe, smoke-free environments also help prevent the burden of chronic care for children and their families.

The onset of risk behaviors predisposing to NCDs often occurs in children and adolescents. Globally, 100 000 young people start smoking each day,14 and over 90% of adults who smoke started as children or youth.15 Adolescent alcohol consumption is common, risking brain development, unintentional injury and violence, and alcohol dependence in adulthood.16,17 Overweight and obesity are increasing in high-income countries and in low- and middle-income countries,10,18 with increased risk of diabetes and cardiovascular disease.19

A life course approach to preventive efforts addressing NCDs and their risk factors and behaviors will improve child and adolescent health but also decrease lifetime health care costs.20 This approach recognizes that adult health and disease risk develops early in life and can affect disease states and risks across generations.20 Vaccine-preventable NCD programs (eg, human papilloma virus and hepatitis B) are examples of effective primary prevention that have successfully mobilized international resources to help the world’s poorest countries.21 NCD efforts must collaborate with maternal, newborn, and child health systems to achieve efficiency and effectiveness and must also address the social determinants of health and disease. This includes promoting education, which benefits both lifestyle choices and health outcomes, and also community productivity and social stability.22 Living conditions, air and water pollution, and adequate sanitation and open spaces all should be considered by governments in developing policies to promote child health.

Strengthening child and adolescent health systems is essential if low- and middle-income countries are to develop comprehensive approaches to prevention and management of NCDs. Comprehensive family centered “medical home” based care systems (www.medicalhomeinfo.org), integrating primary care for children and youth with community public health systems, are a useful model for a comprehensive, multilevel approach to NCD prevention and management. Increasingly, young people themselves have also been engaged as active participants in promoting community health and social services that meet their needs.23

The United Nations global strategy calls for comprehensive monitoring of trends and progress in implementation of national plans and recommendations for voluntary global targets for prevention and control of NCDs.24,25 Monitoring is crucial to inform policy; however, many countries do not collect comparable mortality and NCD data.26 Only one-third of the world’s population lives in areas where births and deaths are accurately registered. Advocacy for child and adolescent NCD efforts must encourage countries to develop and implement effective monitoring and surveillance systems. Advocacy is also needed to ensure that child and adolescent health targets are included in the monitoring framework and targets being set by the United Nations for NCDs. The International Pediatric Association, American Academy of Pediatrics, and other national pediatric societies have called on countries to pay specific attention to children and adolescents in developing national tobacco, alcohol, mental health, chronic illness, nutrition and physical activity, and reproductive health goals. A broad coalition of family advocates and clinical groups, the NCD Child Network, has also called on the global community to (1) focus attention on NCDs in children and adolescents, (2) advance policies and interventions that ensure maternal and child health systems become engaged in development of NCD prevention and management, and (3) assist nations in addressing a life-course approach to the prevention and management of NCDs among children and adolescents at all levels of the health care system.27

CONCLUSIONS

Childhood and adolescence are crucial times for the prevention of NCDs. A life-course approach to prevention, diagnosis, and management may result in significant gains in health outcomes, global productivity, and health care savings. Measuring progress in health outcome trends is a first step to being able to monitor the impact of NCD prevention. Advocacy by child health leaders for equitable inclusion of children and adolescents in NCD goals by countries is critically needed to ensure that countries’ NCD efforts include support for child and adolescent health.
REFERENCES


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