DCP3 | Disease Control Priorities

economic evaluation for health

Priorities for Adolescent Health

2018

Key Messages:

- The first 1,000 days of a child's life are well known to be important for long-term well-being and development, but the next 7,000 days have been comparatively neglected by global health agencies and donors.
- Health in the 10-19 age period is typically highly predictive of health later in life—it is a time in life when both positive and negative health behaviors are established, and when gendered differences in health burdens begin to emerge more distinctly.
- Almost all (97%) deaths among 10-19-year-olds in 2016 occurred in low- and middle-income countries. 61% were boys, 39% girls.
- *DCP3* identifies over 40 effective and feasible intersectoral actions or health sector interventions that are either designed to specifically target adolescents or broadly address risk factors and health conditions that impact 10-19-year-olds.

While the global health field has expended substantial time and resources on the "first 1,000 days" of life, the next 7,000 days, encompassing middle childhood and adolescence, has been comparatively neglected. Increased investment in both growth periods is critical. This brief focuses specifically on the adolescent years – ages 10-19. While adolescents have lower mortality rates relative to other age groups, they face a number of health risks that deeply affect their health trajectory for the rest of their life. Adolescent heath must be examined in the context of holistic human development.

A Strong Foundation

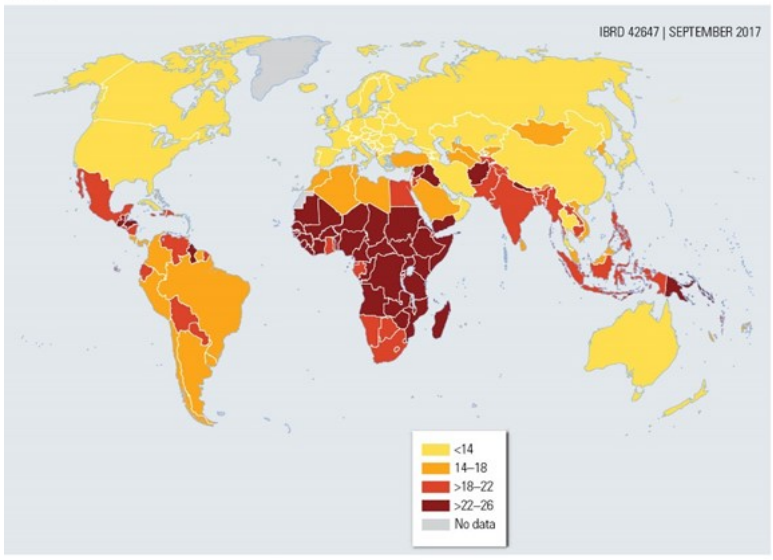
The highest proportion of adolescents live in low– and middle-income countries (LMICs), and as a result **97%** of mortality among adolescents occurs in LMICs, with **61%** of these deaths in boys. Adolescents face unique health burdens as they grow and experience life transitions. As they begin spending less time with parents and more time in school and with their peers, they form new relationships and identities. Their expanding social landscapes lead to environmental and social factors emerging as strong influencers of health and behavior. Sex-based divergence of health behaviors and symptoms associated with illness also begin to increase at this time. While effective health interventions exist, effort must be made to ensure service access and delivery for this age group.

*Adolescents make up **17%** of the population in high-income countries and **37%** in low-income countries*

Priorities for Adolescent Boys and Girls

Many positive health traits such as physical health, cardio fitness, muscular strength, and body composition peak in adolescence. These healthy traits can be maintained only by managing the multiple risk factors prominent in this age group, including: **tobacco use**, **substance and alcohol use**, **unsafe sexual behavior, unsafe roads and traffic vulnerabilities, poor mental health care**, as well as **lack of physical activity and unhealthy diet**.

Proportion of Population Age 10-19 (%)



Source: United Nations, *World Population Prospects: The 2015 Revision*, July 2015.

Adolescent health interventions can be in domains across multiple sectors. These domains include: **population-based and public health education**, **health centers**, **transport and legislation**, and **homes and communities**.

Population-Based and Public Health Education

Nutrition & Weight

Nutritional deficiencies have distinct geographic, gender, and age disparities. Nearly **6.8 million** years lost to disability (YLDs) occurred among adolescents due to nutritional disorders globally in 2016, the highest contributor being dietary iron deficiency. Of those YLDs, over **6.1 million (90%)** occurred in low– and lower-middle income countries; and over **4.2 million (62%)** are among girls. In some countries, particularly in Sub-Saharan Africa, up to 40% of adolescents face nutritional deficiencies. Overweight and obesity has increased markedly in nearly every country in the world since 1990 including among adolescents. Higher body mass index (BMI) in adolescence is strongly related to increased NCD risks, specifically hypertension, diabetes, ischemic heart disease, and other chronic conditions.

Nutrition and Physical Activity Interventions in *DCP3*

- Salt: impose regulations to reduce salt in manufactured food products
- Salt and sugar: provide consumer education against excess use, including product labeling
- Sugar sweetened beverages: tax to discourage use
- Transfats: ban and replace with polyunsaturated fats
- Mass media messages concerning healthy eating or physical activity

Physical Activity

Physical activity habits are generally established in adolescence and have a strong impact on health later in life. One WHO study of adolescent activity found that nearly 75% of adolescents do not meet the recommended levels of physical activity, and this is more true for girls than for boys. The more economically advanced a country becomes, the more sedentary the lifestyles of its inhabitants. Effective physical activity interventions are available, but more research is needed on how to effectively target these interventions to adolescents, as well as to examine the potential gender disparities of those interventions and their outcomes.

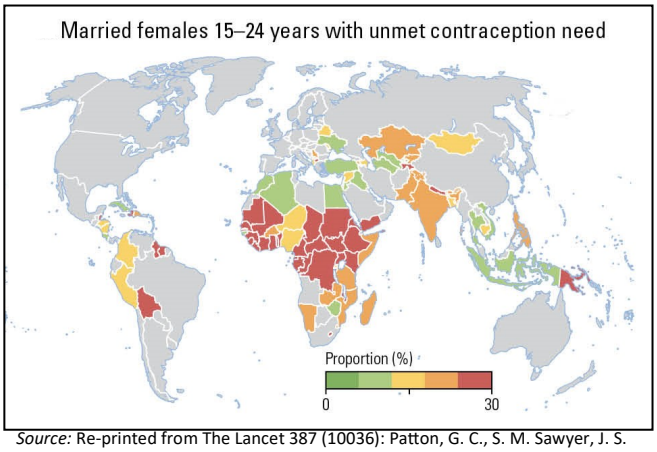
Alcohol, Tobacco, and Substance Use

Tobacco, alcohol, and substance use pose significant risk for developing chronic diseases, and often begin in adolescence. It is clear that adolescence is a critical point for intervention, and innovative strategies are needed. Tobacco use overall has been on the decline since 1990, but is increasing in the Middle East, Eastern Europe, and sub-Saharan Africa. While boys are more likely to use tobacco than girls, there is evidence that rates of female tobacco use is on the rise in some geographical areas. Current **estimates put adolescent tobacco use above 15%** globally. Similar to nicotine addiction, in all geographic groupings, rates of binge drinking are higher in boys than in girls. Because little progress has been made on effective strategies to reduce binge drinking, the WHO predicts that binge drinking in LMICs will overtake high-income countries (HICs) in the next two decades. Rates of illicit drug use among adolescents are lower in LMICs than in HICs, but those that do use drugs access treatment less and experience greater mortality than their HIC counterparts. Substance use is also associated with increased rates of other risk factors, such as alcohol abuse and exposure to violence, creating a cycle of ill health. These behaviors have deep roots in social and cultural attitudes of a society, and therefore must be approached with a comprehension of the local context.

Alcohol, Tobacco, and Substance Use Interventions in *DCP3*

- Substance use: impose large excise taxes on tobacco, alcohol, and other addictive substances
- Substance use: impose and enforce strict regulation of advertising, promotion, packaging and availability of tobacco and alcohol
- Smoking control: ban smoking in public places
- Mass media messages concerning use of tobacco and alcohol
- Tobacco cessation counseling
- Screening and brief intervention for alcohol use disorders

Health Centers



Source: Re-printed from The Lancet 387 (10036): Patton, G. C., S. M. Sawyer, J. S. Santelli, D. A. Ross, R. Alifi, and others, "Our Future: A Lancet Commission on

Sexual and Reproductive Health and Rights

Sexual attraction increases during puberty, and with it the risks of: early pregnancies, STIs, HIV/AIDS, and sexual violence. For girls, pregnancy before age 20 contributes to adverse outcomes such as incomplete education, compromised future employment opportunities, and health risks. Attitudes towards adolescent sexual activity vary greatly by country and have a powerful impact on the sexual health outcomes of this age group. While cost-effective interventions exist, successfully implementing them in local political and cultural contexts can present challenges. Adolescent boys risk STIs and HIV/AIDS acquisition from risky sexual behavior; girls face these in addition to risk of pregnancy, which

Sexual Health Interventions in *DCP3*

- Mass media encouraging use of condoms, voluntary medical male circumcision, and STI testing
- School-based HPV and tetanus vaccinations for girls
- HIV testing, counseling, and provision of ART
- Syndromic management of common sexual and reproductive tract infections
- Provision of condoms and hormonal contraceptives, including emergency contraceptives and termination of pregnancy
- Pregnancy and post-partum care

exacerbates health risks for both mother and child. While progress has been made on maternal health in recent years, there is still a large unmet need for contraception and sexual health services in LMICs in particular. This is especially acute in the adolescent population due to existing cultural attitudes and stigma around adolescent sexual behaviors. Overwhelmingly, deaths related to sexual behavior are attributed to HIV/AIDS, but there is also a significant morbidity burden of conditions like other STIs, sexual violence, and maternal conditions.

Adolescent pregnancy and maternal health

Pregnancy in adolescence brings increased risks of health complications, along with risk of intergenerational impacts of ill health. Adolescent pregnancy increases risks of undernutrition for the mother, as well as their babies. Delaying first pregnancies, spacing subsequent births, and increasing young women's access to education and autonomy are all critical to preventing adolescent pregnancy. Nearly 9% of deaths in lower-middle, and 15% in low-income countries among girls age 15-19 are caused by maternal conditions. Maternal tobacco use exacerbates all of these risks and is a well-established risk-factor for poor fetal growth and later-life illness in children.

Transportation and Legislation

Road Traffic Injuries

Adolescents in LMICs face a uniquely high risk of road traffic injury (RTI). Because of their age, they are more likely to be pedestrians, cyclists, or motorcyclists, which are considered "vulnerable" road users. As drivers, they face increased risk of an accident due to inexperience. For boys this risk increases as a result of higher participation in "risky" behaviors such as speeding or driving while impaired. With only 50% of the world's vehicles in LMICs, a full 90% of all RTI mortality occurs in LMICs those countries. In 2016 over **55,000 adolescents** were killed in road traffic incidents in low– and lower-middle income countries, and **77% of those deaths were adolescent boys**. Injury and deaths as a result of RTIs are significantly higher in LMICs, generally due to a lack of effective infrastructure, legislation, and systems for post-crash care.

Road Traffic Safety Interventions in *DCP3*

- Alcohol control: setting and enforcement of blood alcohol concentration limits
- Traffic safety: increased visibility, areas for pedestrians separate from fast motorized traffic
- Traffic safety: include traffic calming mechanisms into road construction
- Traffic safety: set and enforce speed limits on roads
- Vehicle safety: enact legislation and enforce personal transport safety measures, including seatbelts in vehicles and helmets for motorcycle users

Home and Community

Mental Health Interventions in *DCP3*

- Suicide prevention: decriminalization of suicide
- Life skills training in schools to build social & emotional competencies
- Psychological treatment for mood, anxiety, ADHD and disruptive behavior disorders in adolescents
- Management of depression and anxiety disorders with psychological and generic antidepressant therapy
- Management of epilepsy, including acute stabilization and long-term management with generic anti-epileptics

Mental Health

Onset of many mental health conditions begins in adolescence, and regardless of whether these conditions persist into adulthood, they can have lifelong health consequences. There are distinct gender differences amongst these conditions in 10-19-year-olds. **Girls are almost twice as likely** to suffer symptoms of depression and anxiety and have higher rates of intentional self-harm and eating disorders. Boys also suffer from anxiety and depression, but suffer significantly higher rates of autism, and slightly higher rates of schizophrenia and other behavioral disorders than girls. The relative burden of mental health conditions is on the rise globally, and thus innovative strategies must be implemented to meet this growing need.

Violence

Violence is a leading cause of death of adolescents and young adults in LMICs, and increases an individual's lifelong vulnerability to emotional, behavioral, and physical health problems. Estimates find that **83%** of all violence-related deaths (which includes conflict and suicide), and **91%** of deaths from interpersonal violence specifically, occur in LMICs. The majority of this burden is faced by those ages 15-24. In 2016 over **33,000** boys and young men, and nearly

***Suicide** has overtaken maternal conditions to become the **leading cause of death** in adolescent girls age 15-19*

7,000 girls and young women died as a result of interpersonal violence. The gendered divisions of these deaths is clear - adolescent boys and young men face death due to violence at about 5 times the rate of girls and young women. For women, approximately 1 in 3 deaths due to violence was perpetrated by an intimate partner. There is a lack of data on prevention interventions to decrease violent behavior patterns among adolescents, but it is recognized that the roots of violence stem from social and environmental factors. Experiences of violence and trauma also contribute to risk factors later in life—increased risk of mental illness, injuries, future violence, infectious diseases, and reproductive complications.

Violence Prevention in *DCP3*

- Education campaigns for the prevention of gender-based violence
- Post-gender-based violence care, including counseling, provision of emergency contraception, and rape-response referral (medical and judicial)
- Basic health center trauma care
- Basic first-level hospital surgical care

Unique Opportunities for Reaching Adolescents

Many solutions to the health risks outlined above lie outside of the health sector. Intersectoral actions with demonstrated positive health benefits include: policies and systems that encourage education and employment, delay marriage and childbearing, provide universal health coverage (UHC), and enhance autonomy and decision-making capacities. More needs to be done in this area to prioritize gender-specific considerations when designing and executing research and disseminating results. *DCP3* identifies effective interventions that can be delivered in adolescent-friendly ways at the population level, in communities, in health centers, and in first-level hospitals, but schools are an additional successful platform for reaching this age group.

Cross-cutting Interventions in *DCP3*

- Gender equity: school-based programs to address gender norms and attitudes
- Adolescent-friendly health services
- School-based education on sexual health, nutrition, and health lifestyle

Schools The positive synergistic relationship between health and education is well established. Students in good health typically have stronger positive educational outcomes, and long-term gains in health cannot happen without a further educated population. Most individuals will not have an opportunity to return to school later in life, so adolescence is a critical moment of opportunity. Volume 8 of *DCP3* makes a strong case for schools as a natural service delivery platform for addressing health challenges of early adolescence (ages 10-14), because many children of this age are still interacting with the education system in LMICs. There are typically many more schools than health systems in a given area, and this is especially true in rural areas of LMICs. Further, the global push for gender parity in education has dramatically increased girls' access to schools.

Recommendations for Policymakers

- **Scale-up evidence-based policy approaches that reduce adolescents' exposure to the most significant risks to their health**. These include taxes and bans on alcohol and tobacco products and requirements for transportation safety in cars, motorcycle, and roads.
- **Increase availability of and access to adolescent-friendly health services**. Across countries and cultures adolescents desire healthcare that emphasizes respect, autonomy, and confidentiality, and for developmental reasons are particularly vulnerable to feelings of embarrassment and judgement. Guidance from the WHO and others provides insight into "adolescent friendly" provision of health services that attempt to overcome these challenges.
- **Recognize the central role of education and schools in supporting adolescent health**. High quality education can reduce undesired health outcomes such as early pregnancy and is essential to the healthy development of adolescents. Schools can also serve as locations for delivery of targeted health services and programs to encourage the early establishment of healthy behaviors and lifestyle choices. Investing in health and education separately leads to missed opportunities for synergies in supporting human capital development.

Major gaps in data and research

A significant challenge in addressing the health of adolescents is the gaping lack of age-specific data, but especially in LMICs. The majority of research concerning adolescents has been conducted in high-income countries, and much of the data is not disaggregated by sex. A review for *DCP3*'s Volume 8 revealed that 95% of research on individuals less than 21 years old in LMICs is on children under 5. Closing this gap in data and research should be a top priority for policymakers and funders.

For more information, or for source materials, please visit ***www.dcp-3.org/gender***