INTRODUCTION

Today’s generation of young people is, relative to other age groups, the largest in history. With a population of 1.8 billion, 10–24-year-olds now comprise over a quarter of the global population. This large increase in the youth population arises from improved infant and child survival following dramatic improvements over the past 50 years in maternal antenatal care, acute childhood illness, and malnutrition. Nearly 90 per cent live in LMICs where they may comprise more than a third of the population.

Adolescents have been a major focus in recent global approaches to sexual and reproductive health. A life-course perspective also places adolescents centrally in other health agendas including the prevention of non-communicable diseases, mental disorders, and injuries (Innocenti Research Centre. 2007). A cluster of health risk behaviours and states that largely start in adolescence (tobacco, alcohol, obesity, physical inactivity) are potential drivers of future non-communicable diseases in adults (Beaglehole, R., et al., 2011). This adolescent contribution to disease burden in those over 60 years old includes high blood pressure, cholesterol, and glucose (29 per cent); tobacco use (10 per cent); physical inactivity (7 per cent); and overweight and obesity (7 per cent) (Gore, F. M., et al., 2011). A range of global factors has come into play in shaping the health of young people. Perhaps the most immediate effect is the widespread dissemination of values and lifestyles that are potentially damaging to health. Tobacco use, alcohol and other substance use, physical inactivity, and obesity have spread rapidly to many LMICs in the last two decades. Indeed rates of adolescent tobacco use have diminished in many high-income countries whereas elsewhere rates are escalating rapidly.

In comparison to younger children, adolescents have seen fewer health gains. In a study of 50 countries with longitudinal data, the mortality of children had declined by over 80 per cent in the last 50 years. In contrast, mortality among adolescents has improved only marginally and there has been a reversal of historical mortality patterns in which early childhood mortality exceeds adolescent deaths. Over that time causes of death in adolescents have changed with a fall in infectious deaths in most high- and middle-income countries and a rise in deaths due to injuries, that now account for around 40 per cent of all adolescent deaths globally. Causes of injury death include suicide, motor vehicle injury, and homicide, with a major difference in patterns and rates of death in different parts of the world. In contrast, in low-income countries in sub-Saharan Africa and southern Asia infectious diseases, including HIV, tuberculosis, malaria, and maternal causes remain major contributors to death in young people. Moreover, as recently stated by Capua et al., (2013), ‘Coverage rates for the adolescent vaccinations continue to lag behind those of the child-hood vaccinations, despite their importance’, even in high-income countries. Adolescents need both boosters and new vaccines such as the one against human papilloma virus (HPV).

Young people bear a substantial disease burden in all regions of the world, both in terms of years of life lost and years of life lost due to disability. Overall they account for over 15 per cent of the total disability-adjusted life year toll for all age groups and are the only age group where disease burden is higher in women than men. Africa has the highest regional rate of disease burden for those aged 10–24, 2.5 times greater than in high-income countries that have the lowest. The major
global causes of disease for those aged 10–24 are neuropsychiatric conditions for both sexes, injuries in males, and maternal conditions in females.

We now also recognize ways in which the health of adolescent girls affects the health of the next generation. The influences range from viral infections such as rubella and HIV, maternal malnutrition and micronutrient deficiency, obesity and gestational diabetes, and health risks associated with alcohol, tobacco, and illicit and psychotropic drugs use (Blutta, Z. et al., 2011).

**Prevention and Health Promotion**

Adolescent-onset behavioural problems implicated in non-communicable diseases include unsafe driving, mental health, violence, alcohol, tobacco and drug misuse, as well as unsafe sex and teenage pregnancy (Patton, G. C et al., 2009). These health risks are all largely preventable. Over the last 40 years the integration of life course research with prevention trials and community epidemiology has offered a new way forwards in adolescent health. This prevention science framework posits that to prevent the onset of a problem, one must change the factors that predict it (Coe, J. D. et al., 1993). Such factors are commonly termed risk and protective factors and include those from an individual’s family, school, and peer contexts as well as individual factors. Risk factors increase the likelihood of problems, and protective factors either directly decrease the likelihood of problems or moderate exposure to risk. There is a good deal of commonality in risk factors across problem behaviours, suggesting that prevention programmes that seek to reduce, for example, family management problems or academic failure are likely to prevent multiple problems despite the fact that the programmes themselves may be focused on single problems such as conduct problems or academic success.

Although there has been less research on protective factors, longitudinal, prospective studies have identified seven factors that promote positive social development and reduce behaviour problems, including individual factors: high intelligence; resilient temperament; social, emotional, and cognitive competence; and environmental factors: opportunities for prosocial involvement; recognition for positive involvement; bonding; and healthy beliefs and standards for behaviour (Catalano, R.F. et al., 2011).

The *Gatehouse Project* is a primary prevention programme which includes both institutional and individual-focused components to promote the emotional and behavioural well-being of young people in secondary schools. Using a school-based cluster randomized controlled trial, it has shown effectiveness on behaviours such as substance use by young people, with a 3–5 per cent risk difference between intervention and control students for any drinking, any and regular smoking, and friends’ alcohol and tobacco use across the three waves of follow-up (Bond, L. et al., 2004). *Nurse–Family Partnership* (NFP) is a programme in which trained, registered nurses provide low-income, single, first-time mothers with biweekly structured visits during pregnancy and for 2 years post birth. Nurses share information on how mothers can reduce their use of alcohol, tobacco, and other drugs during pregnancy; improve their prenatal health and diet; sensitively and responsibly care for their infants; achieve their own education and occupational goals; avoid unwanted future pregnancies; and access community services. The programme has been demonstrated in controlled trials to reduce the mother’s reliance on public welfare, the number of subsequent births were reduced by 43 per cent, verified reports of child abuse and neglect decreased, and mothers increased their workforce participation. Children at age 15 have been shown to have fewer arrests, and less alcohol use, and fewer lifetime sexual partners compared to those not receiving services (Olds, D. et al., 1998).

**Strengthening Families Programme for Parents and Youth 10–14**

The programme targets family, peer, and individual risk and protective factors, including parent communication and child management skills; children’s social skills, stress management, and ability to refuse peer drug offers; and parent/child conflict resolution and bonding. Across multiple studies conducted in rural communities in the United States the programme has been shown to reduce substance use and delinquency up to 5 years post intervention for participants versus control group members (Spoth, R. L. et al., 2001).

**Conditional Cash Transfer (CCT) Programmes** provide payments that come with conditions. Examples include payment of school fees and supplemental cash to poor parents with the condition that they send their child to school. Trials in Malawi and Kenya found reduced self-reported sexual activity, pregnancy, and marriage in one or both countries, and girls and young women who received the CCTs were 15 per cent less likely to drop out of school compared to controls (Duflo, E. et al., 2006).

**Unplugged** is a 12-hour, teacher-led alcohol, tobacco, and other drug use prevention programme for early secondary school students. Lessons target peer influence and societal risks and aim to improve students’ goal-setting, decision-making, and drug refusal skills (Faggiano, F. et al., 2010).

Prevention approaches also include community policies and laws ranging from access to contraceptives for those under age 18 to graduated driving laws in which new drivers have restrictions on conditions under which they may drive, and raising the legal drinking age.
to 21. Two examples relate to health policy for mature minors and the use of taxation.

Policies that ensure minors’ right to obtain contraception without parental notification or consent and provide contraception at no cost to minors have been associated with an 8.5 per cent decreased adolescent birth rate. Youth who were provided with contraception combined with sexuality education in school-based clinics were more likely to delay initiation of sexual intercourse and have lower pregnancy rates compared to youth not exposed to the intervention (Zabin, L.S. et al., 1986).

Systematic reviews of multiple studies have shown that price and tax increases on alcoholic beverages have been associated with reduction in alcohol use by adolescents and young adults, including excessive drinking and alcohol-related health problems (Wagenaar, A.C., & Toomey, T.L. 2002).

Community monitoring systems are an essential element of effective prevention programmes. These assess behaviour problems, as well as risk and protective factors, and can help communities apply prevention strategies relevant for that setting (Mrazek, P.J. et al., 2004). Several local surveys exist that have been tested in multiple countries, including the Communities That Care (CTC) Youth Survey which measures risk, protection, and substance use, delinquency, violence, and depression, and the

Ako, several avenues have proven effective to address child and adolescent obesity, from primary to tertiary care. These include the involvement of the family, the schools, and the community in the care of overweight and obese adolescents, but also the development of strategies and policies which aim at improving the nutritional supply and environment of young people. Indeed, adolescence is a timely period to shape healthy eating and exercise habits that can contribute to physical and psychological benefits during the adolescent period and to reducing the likelihood of nutrition-related chronic diseases in adulthood.

Finally, the prevention of injuries is mainly improved through environmental and legislative measures such as enforced control of firearms, mandatory use of helmets or seat belts, or improvement of roads.

Despite the growing evidence that prevention can be effective, most preventive interventions have been developed in high-income countries. Even in high-income countries like the United States, prevention approaches that are not effective or have not been evaluated are more widely used than prevention programmes that have been tested and found to be effective. The underutilization of effective programmes in LMICs is even greater, where fewer prevention programmes have been tested. One current challenge is how the use of tested, efficacious prevention policies and programmes can be extended globally while recognizing that communities and nations are different from one another, and need to decide locally what policies and programmes they use, because risk and protection factors as well as the cultural and the political context vary by community.

First, the marketplace (government, public health agencies, schools, and parents) must recognize that adolescent health is a priority, behaviour problems are implicated in poor health outcomes in adolescence and adulthood, and there are effective policies and programmes that can prevent behaviour problems. A shift of 10 per cent of the total funds spent on adolescent health and education to effective prevention policies and programmes could make a big difference in adolescent and adult morbidity and mortality worldwide.

Second, more research is needed on the impact of translating these efficacious approaches to a range of communities and across nations. Translation of effective approaches must recognize differences in local conditions, but also recognize that the policy or programme has active ingredients that need to be preserved in order for the programme to work. Some interventions created in high-income countries can be translated to and be effective in LMICs. Third, using surveys to understand country and community epidemiology can help assess and address local needs with efficacious prevention programmes. By regularly assessing local risk and protective factors and behaviour problems in youth, communities and nations can understand and prioritize their need for specific prevention approaches.

There are no simple answers to these considerable challenges. Rather, responses will need to be made at multiple levels and in the different settings in which young people are growing up. They include the provision of youth-friendly healthcare, the development, implementation, and evaluation of strategies at school and community levels for promoting the health development of the young, the implementation of legislative and environmental policies that take into account local culture and history, and the engagement of public health professionals with fields well beyond health in the implementation of these strategies.

REFERENCES