Biomedical technologies for the prevention of sexually transmitted infections and HIV for adolescent girls and young women

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Policies and programmes to reach adolescent girls and young women (AGYW) are critical to meet the Sustainable Development Goals (SDGs) that guide international health and development efforts. The high burden of sexual and reproductive health challenges include sexual and physical violence experienced by one in three girls aged 15–19 years. Additional sexual and reproductive health barriers include unequal gender norms, lack of information, low agency (i.e., sense of empowerment) and discriminatory laws and policies. For AGYW living in high sexually transmitted infections (STI) incidence settings, there are compounded risks of HIV and pregnancy.\textsuperscript{1} UNAIDS estimates that 65% of all new HIV infections among young people aged 10–24 years are among AGYW, reflecting their biological and social vulnerabilities.\textsuperscript{2}

WHO convened an expert meeting (31 May to 1 June 2016, Vancouver) to identify approaches to catalyse STI/HIV prevention in AGYW in the context of comprehensive sexual and reproductive health and rights (SRHR). The goal was to identify factors within combination prevention and implementation of biomedical interventions to strengthen HIV prevention and SRHR. This expert meeting built upon two global WHO consultations on lessons learned from: (1) the first generation of scaled up ASRH programmes (4–6 April 2016, Geneva) and (2) SRH programming to catalyse HIV prevention for adolescent girls and young women (27–29 April 2016, Geneva).\textsuperscript{3}

Public health opportunities have emerged for STI/HIV prevention. Major biomedical interventions include efficacious STI vaccines against human papillomavirus (HPV) and hepatitis B virus (HBV), and oral pre-exposure prophylaxis (PrEP) for HIV prevention with antiretroviral drugs. Intervention research seeks to explore strategies for enhancing PrEP demand and adherence among AGYW. Multipurpose prevention technologies (MPTs) seek to develop and deliver co-packaged or co-formulated combinations of HIV/STI/pregnancy prevention products. At the global policy level, global consensus supports the United Nations Global Strategy for Women’s, Children’s and Adolescents’ Health (2016–2030); WHO’s Global Strategies for HIV/AIDS, Viral Hepatitis, and STIs (2016–2021); and WHO’s Global Plan of Action to address violence against women, girls and children.\textsuperscript{4–7}

The growing evidence base about what does not work in ASRH programming for AGYW must evolve new approaches that support human rights-based strategies to increase autonomy, agency and choice.\textsuperscript{8} A human rights framework will require a substantial shift in health programming from a disease perspective to a holistic one that focuses on community and social contexts. Given the demographic increase in numbers of adolescents worldwide, there is an urgency to think critically, be visionary and do things more effectively.

The role of biomedical technologies

HPV vaccines

HPV vaccine programmes have been entry points for more comprehensive sexual and reproductive health programmes for adolescent girls and, in some settings, boys. Concerns that the vaccine may encourage young people to have sex are unfounded; in fact, AGYW who have received HPV vaccines are significantly more likely to have protected sex and no more likely to have early sexual debut.\textsuperscript{9} Global 2006–2014 coverage estimates by region reveal only 1% of an estimated 118 million girls who received the HPV vaccine were from low or low-middle income countries (LMIC).\textsuperscript{10} Hence, strengthening LMIC programmes remains an enormous challenge for AGYW at high risk.

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of STI/HIV and is a promising start for enhanced delivery of comprehensive SRH services to youth.

Multi-purpose prevention technologies

Most MPTs in development are targeting prevention of HIV and unintended pregnancy, and some products show activity against herpes simplex virus (HSV). Single indication probiotic products are being evaluated for bacterial vaginosis, an important contributor to inflammation-mediated HIV risk.

Microbicide product introduction initiative (MPii)

Five USAID-funded MPii projects are designed to accelerate introduction and uptake of new HIV prevention methods for AGYW. In addition to the DREAMS (Determined, Resilient, Empowered, AIDS-free, Mentored and Safe) partnership of the US President’s Emergency Plan for AIDS Relief (PEPFAR), these projects can help guide introduction and testing of new products such as PrEP and long-acting injectable HIV prophylaxis (analogous to long-acting injectable contraception) or novel topical prophylaxis for AGYW.

STI vaccine roadmap

The global roadmap for STI vaccine development identifies priority action areas, including better epidemiological data on STI, modelling the potential impact of STI vaccines, advancing translational research, defining preferred product characteristics to meet priority public health goals, expediting clinical development and evaluation, and encouraging investment. STI vaccines are in basic research development (Trichomonas vaginalis), preclinical development (Treponema pallidum, Neisseria gonorrhoeae, Chlamydia trachomatis) and clinical trials (HSV). An STI vaccine consortium is being established to help coordinate roadmap activities.

Implications

The global public health agenda has not placed sufficient emphasis on the STI/HIV prevention needs of AGYW. An integrated, multi-sectoral and rights-based approach to improve access to SRH/STI/HIV services can empower vulnerable, at-risk, AGYW. Financing strategies will be important for the development of innovative biomedical technologies and the implementation of effective prevention strategies and strengthening health systems. Funders need to ensure that any programming for adolescents encourages integration and does not further create silos. In addition, AGYW themselves play a central role in driving processes and programmes as thought partners and change agents. Providing ongoing opportunities to engage youth in designing and implementing programmes and policies and building community engagement and capacity within health services are essential for uptake of services, particularly for AGYW in LMIC who are difficult to reach. The social and economic repercussions of SRH challenges include school dropout, exacerbating vulnerabilities. Greater emphasis and success in the adolescent SRHR agenda must become an urgent global imperative.

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