

Multi-Purpose Technology (MPTs)-Expanding the Horizons of Health Care

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As the world prepares to meet the challenges of an ambitious set of Sustainable Development Goals, WHO is developing three global health sector strategies to cover: HIV/AIDS - viral hepatitis - sexually transmitted infections (STIs). The strategies will cover 2016-2021 and will be finalized for consideration by the 69th World Health Assembly in 2016.

Globally Women frequently confront two concurrent reproductive health challenges: the need for both contraception and protection from sexually transmitted infections. Women and couples face multiple and overlapping sexual and reproductive health risks (SRH) world wide. It is estimated that 500 million cases of treatable sexually transmitted infections (STIs) occur annually. More than 30 bacterial, viral and parasitic pathogens are transmissible sexually. While sexually transmitted infections are mostly transmitted through sexual intercourse, transmission can occur also from mother to child during pregnancy and childbirth, and through blood products or tissue transfer, as well as occasionally through other nonsexual means. When untreated STI could have a significant health impact and may affect the quality of life to a greater extent.¹

It is also reported that about 35.0 million people were living with HIV worldwide in 2013. Of these, 3.2 million were children under 15 years of age and about 17.6 million were women and girls. The toll of HIV and AIDS continues to be harsh, especially in sub-saharan Africa. Worldwide in 2013, the region accounted for the vast majority of people living with AIDS, new HIV infections and AIDS-related deaths.²

Contraception and unmet need for pregnancy is another major issue that have a global impact on reproductive health. Contraception has very big benefits for the health and survival of mothers and children. About 40,000 women die each year globally due to unsafe abortion mainly in poor countries. These deaths are preventable. The scientific data also suggest that contraception utilization is high in North America and in Europe and the unmet need for pregnancy rate is low in developed countries. In contrast the contraceptive use was as low as 5% and the unmet need for pregnancy rate was very high. These data may be attributed to factors like poverty, lack of awareness, low levels of education and incomes, socio-economical factors. These issues could lead to high maternal mortality and historical high level of neonatal and child mortality.^{3,4}

The buzz word in current pharmaceutical and biotechnological is on Transformative technologies. The top 20 employers from Pharmaceutical and biotechnological sectors in 2015 have made a strategic migration away from time consuming and expensive pathways of drug discovery toward novel approaches that promise unprecedented speed and precision. The top firms had begun to prioritize on transformative technologies that could revolutionize the therapeutic management of major health issues that affect globally. Multipurpose Prevention Technologies (MPTs) is one among the transformative technology that is currently articulated by WHO aimed to prevent or treat or reduce the multiple and overlapping sexual and reproductive health risks faced by women and couples around the globe.^{5,6}

MPTs are new tools capable of simultaneous addressing sexual and reproductive health risks (SRH) including prevention and treatment of sexually transmitted infections including HIV, unmet pregnancy and in contraception. These products could be indicated for a wide range of disorders. They represent a powerful means of achieving high public health impact in at-risk populations around the world. Data suggests that little product development has occurred in MPTs since the concept has emerged. The impetus to develop MPTs is gaining momentum and long acting drug delivery systems with MPTs on board is on the pipeline. The currently considered various MPT approaches includes injectable co-formulated or co-administered, vaginal and/or rectally-inserted gels, or gels, intra-vaginal rings (IVRs), or barrier devices used with a gel or film or vaginal diaphragms. In this instance CONRAD has been playing a leading role in developing MPTs to prevent unplanned pregnancies and protect against HIV/AIDS or other STIs. It has also initiated a screening program to identify compounds with activity against sperms and STI organisms. An example of current MPTs success could be cited as the development of tenofovir/ levonorgestrel ring designed to prevent STIs and unmet pregnancy. A great opportunity lies in MPTs to be unravelled further.⁷⁻⁹

Significant reproductive health benefits to women around the globe should provide a motivation to overcome the various challenges involved in development of MPTs that could reach the needy population. The major issues in MPTs development like significant technical aspects, funding, and regulatory hurdles must be tackled to develop such systems.

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