

SEXUALLY TRANSMITTED INFECTIONS AND GLOBALISATION: BURDEN AND STRATEGIES

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International scenario

Since ancient times epidemics travelled with caravans and ships from east to west and from west to east as well as medical practices (e.g. Islamic medicine influence in Salerno and Montpellier medical schools).

Modern times global exchange was strongly developed from 15th century when the Americas were incorporated to the already existent international commercial networks (1).

Today, epidemics travel with cars, buses, ships and airplanes, from east to west, and from west to east as well as medical practices (e.g. Centers for Disease Control and Prevention, CDC; European Centre for Disease Control and Prevention, ECDC; World Health Organization, WHO; Istituto Superiore di Sanità, ISS).

Globalisation can be defined as a secular trend of interactions among populations, resulting in increase of commercial, political, institutional and individual contacts worldwide. This trend includes health issues, from infections dissemination to international aid and agreements.

Recently there has been a debate about the use of the terms International and Global health.

The present trend is to use Global health, which, according to some opinions, considers “one” global population, which should be treated in a supra-national way and facilitate the global activities of United Nations (UN) and non-governmental organizations.

This may be related to academic supra-national research issues, national bilateral interests and implementation of international Non-governmental Organizations projects. Issues related to global governance are closely related and include attempts to re-discuss the UN role in health issues.

Traditionally, international health has involved the efforts of governments, institutions, and groups located primarily in the richest areas in the north of the globe (mainly North America and Europe) to improve the health of people living in poorer areas to the south of the globe (mainly in Africa, Asia and Latin America).

Experts are still debating the issue and, for the most people, global health and international health are the same.

Some contemporary conservative governments are mentioning the threats of what they call “Globalism.” This position, linked to national political agendas, is much related to the refuse to follow UN and European Union (EU) agreements, to increase commercial protectionism, to make immigration more difficult, to increase nationalists approaches and even considering to exit regional and international mechanisms. Meanwhile the world commerce and communication continue at full speed.

Sexually Transmitted Diseases global burden

Quantifying Sexually Transmitted Infections (STI) prevalence and incidence is important for planning interventions and advocating for resources. WHO has produced global and regional prevalence and incidence estimates of four curable STIs in 15 to 49 years old men and women approximately every 5 years since 1995 (1995, 1999, 2005, 2008, 2012 and 2016).

The four infections are: Chlamydia (*Chlamydia trachomatis*), Gonorrhoeae (*Neisseria gonorrhoeae*), Trichomoniasis (*Trichomonas vaginalis*) and Syphilis (*Treponema pallidum*).

The estimation methodology used in 2012 and 2016 includes:

- STEP 1. *Collecting and standardizing STI prevalence data*
 - Data collection: PubMed search by country, outreach to WHO regional advisors, other experts
 - Inclusion criteria: Representative of general population, no apparent bias in selection of study participants, used an internationally recognized diagnostic test, sample size of over 100, and for 2016 estimates – samples collected between 2009 and 2016
 - Data standardized: Data adjusted to reflect performance characteristics of diagnostic test used, geography (urban/ rural) and age (chlamydia only).
- STEP 2. *Generating regional estimates (10 regions)*
 - For all regions (except North America) prevalence estimates based on available data
 - If 3 or more data points: Bayesian meta-analytic approach
 - If less than 3 data points: ratios used (e.g., ratio of prevalence of chlamydia in men to women = 0.8)
 - North American estimates based on CDC published estimates for US
 - All regional prevalence estimates were increased by 10% to reflect higher risk populations.

A new software, “Spectrum STI”, is being used as an important estimation tool.

It is a statistical trend fitting model that uses existing prevalence data to estimate trends in prevalence, incidence rate and incident cases in men and women 15 to 49 years of age. Its scope includes syphilis, chlamydia and gonorrhoeae.

It is a tool country can use to look at trends over time to:

- Inform advocacy, program planning & evaluation, policy and strategy
- Identify data gaps and check data quality
- Support capacity building in surveillance.

It was developed by “Avenir health” (2) with financial support from WHO.

For all regions, except North America, incidence estimated from prevalence using the approximation: $\text{Incidence} = \text{Prevalence} / \text{Average duration of infection}$.

Regional values of average duration of infection for men and women based on literature and expert consultations.

These values are based on:

- Likelihood of being symptomatic or asymptomatic
- Probability of getting treated if symptomatic or asymptomatic and when
- Average duration of infection if treated or not treated
- For North America published national US incidence estimates used.

Table 1 presents the WHO 2016 STI Estimates of incidence rates adults (15 to 49) by WHO Region.

Table 1. STI Estimates of incidence rates adults (15 to 49) by WHO Region, 2016

WHO Region	No. new cases of curable STI* (million)
Africa Region	86
Region of the Americas	75
South-East Asia Region	51
Eastern Mediterranean Region	34
European Region	23
Western Pacific Region	108
Total	376

*curable STI (chlamydia, gonorrhoeae, syphilis and trichomoniasis)

Table 2 includes STI global estimates by infection, in 2016.

Table 2. STI global estimates by infection

Sexually transmitted infection	No. (million)
Chlamydia	127
Gonorrhoeae	87
Syphilis	6
Trichomoniasis	156
Total	376

Source: chlamydia, gonorrhoea, trichomoniasis and syphilis: global prevalence and incidence estimates, 2016. Bulletin of the World Health Organization, 2019.

The 2018 WHO “Report on global sexually transmitted diseases surveillance” (3) concludes that: “The global burden of STIs remains high. In 2016, there were an estimated 376 million new infections (more than 1 million per day) of the four curable STIs – chlamydia, gonorrhoeae, syphilis and trichomoniasis. Prevalence rates vary by the WHO region. The burden of viral STIs is similarly high, with an estimated 417 million prevalent cases of herpes simplex virus infection and approximately 291 million women infected with Human PapillomaVirus (HPV) (1). In contrast, many countries have achieved successful control of chancroid and lymphogranuloma venereum infections, which have nearly disappeared”.

Global Control Strategy

STIs remain significant global health issues and effectively addressing STIs can have the following outcomes:

- combating antimicrobial resistance;
- eliminating adverse neonatal outcomes;
- reducing Human Immunodeficiency Virus (HIV) transmission;
- preventing cancer;
- decreasing burden of infertility;
- supporting health of young people.

The WHO “Global Health Sector Strategy on Sexually Transmitted Infections 2016-2021” (4) has the vision of zero new STI infections, zero STI-related deaths and zero discrimination in a world where everybody has free and easy access to prevention and treatment services for STIs and the goal of ending STIs epidemics as major public health concerns.

The five strategy elements, which will contribute to effectively combat STIs at global level, are describe in Table 3.

Table 3. The five strategy elements, which will contribute to effectively combat STI at global level

Strategy element	Description	Goal
Direction 1	Information for focused action	The who and the where
Direction 2	Interventions for impact	The what
Direction 3	Delivering for equity	The how
Direction 4	Financing for sustainability	The financing
Direction 5	Innovation for acceleration	The future

There are three areas of focus for action:

- Elimination of mother-to-child transmission of syphilis (EMTCT)
- Control of gonorrhoeae and antimicrobial resistance (AMR)
- Access to HPV vaccines

The clear impact targets for incidence and prevention defined for 2030 are:

- 90% reduction of syphilis incidence (2018 global baseline);
- 90% reduction in gonorrhoeae incidence (2018 global baseline);
- ≤50 cases of congenital syphilis per 100 000 live births in 80% of countries;
- 80% HPV vaccine coverage in adolescent 9-14 years of age in 80% of countries.

The STI 2020 Milestones includes:

- Countries with a STI surveillance system in place;
- Countries with at least 95% of pregnant women screened for syphilis and 90% tested for HIV, and 95% of positive pregnant women receiving effective treatment;
- Countries providing STI services or links to such services in all, primary, HIV, reproductive health, family planning, and pre- and post-natal care services;
- Countries delivering HPV vaccination through the National Immunization Programme;
- Countries reporting on antimicrobial resistance of gonorrhoeae.

Moreover 70% of key populations should have access to a full range of STI & HIV services, including condoms.

This new global strategy, which is integrated with the HIV and Hepatitis WHO strategies, and takes into account the importance of health systems development, is expected to have impact on STI incidence in the next decade. It is a comprehensive strategy addressing the main key actions.

Many challenges remain. Sexual behaviour is frequently unpredictable from individual point of view and, at individual and population level, many are the social, cultural and economical factors which are beyond the scope of public health actions. Personal, societal and governmental commitment – rare in the history of the “shameful” STI epidemics – needs to be increased in order to counterbalance the present situation, pointing out on the need to discuss sexuality in general.

References

- World Health Organization. *Report on global sexually transmitted infection surveillance, 2018*. Geneva: WHO; 2018.
- World Health Organization. *Global Health Sector Strategy on Sexually Transmitted Infections 2016-2021*. Geneva: WHO; 2016.