Prevention and Management of Reproductive Tract Infections and Sexually Transmitted Diseases: A Review

Saifur Rahman
Mohsin U Ahmed
Barkat-e-Khuda
Shameem Ahmed
Thomas T Kane
The Centre

The Centre is a unique global resource dedicated to the highest attainable level of scientific research concerning the problems of health, population and development from a multi-disciplinary perspective. The Centre is an exceptional position to conduct research within the socio-geographical environment of Bangladesh, where the problems of poverty, mortality from readily preventable or treatable causes, and rapid population growth are well-documented and similar to those in many other developing countries of the world. The Centre currently has over 200 researchers and medical staff from 10 countries participating in research activities. The Centre's staff also provide care at its hospital facilities in Dhaka and Matlab to more than 100,000 patients a year and community-based maternal/child health and family planning services for a population of 100,000 in the rural Matlab area of Bangladesh. In addition, the Centre works closely with the Government of Bangladesh in both urban and rural extension projects, which aim at improving the planning and implementation of reproductive and child health services.

The Centre is an independent, non-profit international organization, funded by donor governments, multilateral organizations and international private agencies, all of which share a concern for the health problems of developing countries. The Centre has a rich tradition of research on topics relating to diarrhoea, nutrition, maternal and child health, family planning and population problems. Recently, the Centre has become involved in the broader social, economic and environmental dimensions of health and development, particularly with respect to women's reproductive health, sexually transmitted diseases, and community involvement in rural and urban health care.

The Centre is governed by a distinguished multinational Board of Trustees. The research activities of the Centre are undertaken by four scientific divisions: Clinical Sciences Division, Public Health Sciences Division, Laboratory Science Division, and Health and Population Extension Division. Administrative functions are undertaken by Finance, Administration and Personnel offices within the Director's Division.
Prevention and Management of Reproductive Tract Infections and Sexually Transmitted Diseases: A Review

Saifur Rahman
Mohsin U Ahmed
Barkat-e-Khuda
Shameem Ahmed
Thomas T Kane

International Centre for Diarrhoeal Disease Research, Bangladesh
Mohakhali, Dhaka 1212, Bangladesh
1999
ICDDR,B Special Publication No. 86
Acknowledgements

The Operations Research Project (ORP) is a project of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) that works in collaboration with the Ministry of Health and Family Welfare (MOHFW) of the Government of the People's Republic of Bangladesh, supported by the United States Agency for International Development (USAID).

This publication is funded by the United States Agency for International Development (USAID) under Cooperative Agreement No. 388-A-00-97-00032-00 with ICDDR,B: Centre for Health and Population Research. The Centre is supported by the following countries, donor agencies and others which share its concern for the health and population problems of developing countries:

- The aid agencies of governments of Australia, Bangladesh, Belgium, Canada, European Union, Japan, the Netherlands, Norway, Saudi Arabia, Sweden, Switzerland, the United Kingdom, and the United States of America;
- UN agencies: United Nations Development Programme (UNDP), UNICEF, and World Health Organization (WHO);
- International organizations: International Atomic Energy Agency (IAEA), International Centre for Research on Women (ICRW), International Development Research Centre (IDRC), Population Council, Swiss Red Cross, and the World Bank;
- Foundations: Aga Khan Foundation, Child Health Foundation, Ford Foundation, George Mason Foundation, and Rockefeller Foundation;
- Medical research organizations: International Life Sciences Institute (ILSI), National Institutes of Health (NIH), New England Medical Centre, Northfield Laboratories, Procter and Gamble, Rhône Poulenc Rorer, and Thrasher Research Fund;
- Universities: John Hopkins University, Karolinska Institute, Loughborough University, London School of Hygiene & Tropical Medicine; University of Alabama at Birmingham, University of Goteborg, University of Pennsylvania, and University of Virginia;
- Others: American Express Bank, Helen Keller International, Lederle Praxis, NRECA International Ltd., The Rand Corporation, Save the Children Fund-USA, Social Development Centre of the Philippines, UCB Osmotics Ltd., and Wander A.G.

The authors are grateful to Dr. Zakir Hossain, the former Line Director, Essential Services Package, Directorate of Health Services and Dr. Cherif Soliman, WHO & FHI Consultant, Dermatologist & STD Specialist for kindly reviewing this paper and giving their valuable comments. The authors express their gratitude to Major General (Rtd.) M.R. Choudhury, Chairman, Technical Committee, National AIDS Committee, Bangladesh for his valuable suggestions on the paper.

Last but not the least, special thanks go to Mr. Sakhawat Hossain, Mr. Enamul Kabir, and Mr. Abidur Rahman for providing secretarial support to prepare this paper.
Glossary

AIDS  Acquired Immune Deficiency Syndrome
AITAM  Access in Training and Management
ANC  Antenatal Care
AVSC  Access to Voluntary and Safe Contraception
BCC  Behaviour Change Communication
BIRPERHT  Bangladesh Institute of Research for Promotion of Essential Reproductive Health and Technologies
BRAC  Bangladesh Rural Advancement Committee
BWHC  Bangladesh Women Health Coalition
CSW  Commercial Sex Worker
DH  District Hospital
EOC  Emergency Obstetric Care
EPI  Expanded Programme of Immunization
ESP  Essential Services Package
FP  Family Planning
FWV  Family Welfare Visitor
GoB  Government of Bangladesh
H&FWC  Health and Family Welfare Centre
HIV  Human Immuno-deficiency Virus
HPSP  Health and Population Sector Programme
ICDDRB  International Centre for Diarrhoeal Disease Research, Bangladesh
ICPD  International Conference on Population and Development
IUD  Intrauterine Devices
IR  Intermediate Result
JTS  Jatiya Tarun Sangha
KABP  Knowledge Attitude Behavioural Practice
LSD  Laboratory Sciences Division
MA  Medical Assistant
MCH  Maternal and Child Health
MCH-FP  Maternal and Child Health-Family Planning
MCWC  Maternal and Child Welfare Centre
MO  Medical Officer
MOHFW  Ministry of Health and Family Welfare
MR  Menstruation Regulation
MSM  Male who have sex with male
MWRA  Married Women of Reproductive Age
NGO  Non-Government Organization
NIPHP  National Integrated Population and Health Programme
**Glossary (Contd.)**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPD</td>
<td>Outdoor Patients Department</td>
</tr>
<tr>
<td>ORP</td>
<td>Operations Research Project</td>
</tr>
<tr>
<td>PHC</td>
<td>Primary Health Care</td>
</tr>
<tr>
<td>PID</td>
<td>Pelvic Inflammatory Disease</td>
</tr>
<tr>
<td>QIP</td>
<td>Quality Improvement</td>
</tr>
<tr>
<td>RSDP</td>
<td>Rural Service Delivery Partnership</td>
</tr>
<tr>
<td>RTI</td>
<td>Reproductive Tract Infection</td>
</tr>
<tr>
<td>RPR</td>
<td>Rapid Plasma Regain</td>
</tr>
<tr>
<td>SC</td>
<td>Satellite Clinic</td>
</tr>
<tr>
<td>STD</td>
<td>Sexually Transmitted Disease</td>
</tr>
<tr>
<td>SMC</td>
<td>Social Marketing Company</td>
</tr>
<tr>
<td>SACMO</td>
<td>Sub-Assistant Community Medical Officer</td>
</tr>
<tr>
<td>SR</td>
<td>Sub-Result</td>
</tr>
<tr>
<td>THC</td>
<td>Thana Health Complex</td>
</tr>
<tr>
<td>TPHA</td>
<td><em>Treponema Pallidum</em> Hemagglutination Assay</td>
</tr>
<tr>
<td>UNAIDS</td>
<td>United Nations Programme on HIV/AIDS</td>
</tr>
<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
</tr>
<tr>
<td>VDRL</td>
<td>Venereal Disease Research Laboratory Tests</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>vi</td>
</tr>
<tr>
<td>Background</td>
<td>1</td>
</tr>
<tr>
<td>Reproductive Tract Infections and Sexually Transmitted Diseases</td>
<td>2</td>
</tr>
<tr>
<td>Interaction of RTI/STD and HIV/AIDS</td>
<td>3</td>
</tr>
<tr>
<td>Situation of RTI/STD and HIV/AIDS</td>
<td>3</td>
</tr>
<tr>
<td>Global situation</td>
<td>3</td>
</tr>
<tr>
<td>Situation in Bangladesh</td>
<td>4</td>
</tr>
<tr>
<td>Consequences of RTI/STD</td>
<td>7</td>
</tr>
<tr>
<td>Health</td>
<td>7</td>
</tr>
<tr>
<td>Social</td>
<td>7</td>
</tr>
<tr>
<td>Economic</td>
<td>8</td>
</tr>
<tr>
<td>Prevention of RTI/STD</td>
<td>9</td>
</tr>
<tr>
<td>Management of RTI/STD</td>
<td>10</td>
</tr>
<tr>
<td>Mass treatment</td>
<td>10</td>
</tr>
<tr>
<td>Screening and identification</td>
<td>10</td>
</tr>
<tr>
<td>Syndromic approach</td>
<td>10</td>
</tr>
<tr>
<td>Partner notification</td>
<td>11</td>
</tr>
<tr>
<td>Levels and Trends</td>
<td>12</td>
</tr>
<tr>
<td>Knowledge about RTI/STD/HIV/AIDS</td>
<td>12</td>
</tr>
<tr>
<td>Service-seeking behaviour</td>
<td>12</td>
</tr>
<tr>
<td>Sexual behaviour</td>
<td>13</td>
</tr>
<tr>
<td>RTI services at the primary healthcare level</td>
<td>14</td>
</tr>
<tr>
<td>Four Cs</td>
<td>16</td>
</tr>
<tr>
<td>Counselling/education</td>
<td>16</td>
</tr>
<tr>
<td>Condom-use promotion</td>
<td>16</td>
</tr>
<tr>
<td>Drug compliance</td>
<td>17</td>
</tr>
<tr>
<td>Contact referral/partner notification</td>
<td>18</td>
</tr>
</tbody>
</table>
Contents (contd.)

Antenatal screening for syphilis ................................................................. 18
Syndromic management of RTI/STD ......................................................... 20
RTI/STD and drugs .................................................................................. 20
Referral linkages ...................................................................................... 21
Infection prevention .................................................................................. 21
Behaviour change communication ............................................................ 22
Male and RTI/STD .................................................................................... 22

Review of ICDDR,B and Project Work on RTI/STD .................................. 23
  Centre work ......................................................................................... 23
  Project work ......................................................................................... 25

Review of GoB, NGO and Private Sector Activities ............................... 26
  GoB activities ....................................................................................... 26
  NGO activities ..................................................................................... 27
  Private sector activities ......................................................................... 29

Lessons Learned ...................................................................................... 29

The Future Needs ..................................................................................... 30

Conclusion .............................................................................................. 31

References ............................................................................................... 32

Tables

Table 1. Prevalence of RTI/STD in community-based survey .................. 5
Table 2. Prevalence of RTI/STD in clinic-based survey ......................... 6
Abstract

Prevention and management of reproductive tract infections (RTI) and sexually transmitted diseases (STD) are one of the key reproductive health issues for both males and females. In the South-East Asia region, RTI/STD pose a continuing and serious health problem. But the overall response to the prevention and control of the problem has been limited. In Bangladesh, the Health and Population Sector Programme (HPSP) and the National Integrated Population and Health Programme (NIPHP) prioritized RTI/STD prevention and management as a necessary component of the Essential Services Package (ESP). To design and test strategies to improve RTI/STD prevention and management is one of the sub-results of the main result – increased use of high-impact family health services of ICDDR,B’s Operations Research Project. The primary goal of this review is to prioritize those issues that are to be addressed in designing and testing strategies to improve prevention and management of RTI/STD in Bangladesh.

RTI are the infections of either the lower or upper reproductive tract, or both. The infections may or may not be sexually transmitted. There is a clear distinction between the two terms ‘reproductive tract infection’ and ‘sexually transmitted infection/disease.’ RTI include all infections of the reproductive tract, whether they are sexually transmitted or not. But pathogens of all sexually transmitted diseases do not cause infection in the reproductive tract. These include HIV and the hepatitis B virus.

There is a strong relationship between HIV and other STD. HIV and RTI/STD commonly interact to magnify the effects of the other. Early and effective RTI/STD care prevents the spread of HIV infection. Thus, designing effective interventions aimed at controlling RTI/STD can have a significant and positive impact on the impending AIDS epidemic.

RTI/STD have become a silent epidemic that devastates the lives of both women and men. Estimates of the global prevalence and the incidence of such infection are limited by the quantity and quality of data available. Geographically, the vast majority of RTI/STD cases are in the developing world. AIDS is also taking a major toll on human life as it is spreading relentlessly. Very few studies have, however, been conducted on RTI/STD prevalence in Bangladesh. The limited data available from these studies confirm the presence of these conditions in the country.

RTI and STD have multidimensional consequences. Women and newborns bear the bulk of the prevailing RTI/STD health consequences, which not only inflict physical discomfort, but also often cause other serious problems. RTI have a negative impact on family planning programmes. Social consequences resulting from RTI/STD, such as stigma and discrimination, fall predominantly on women. In terms of economic consequences, STD collectively rank among the five most important causes for productive life lost in developing countries, accounting for the loss of several million dollars each year.
RTI/STD prevention was one of the key issues addressed in the ICPD Programme of Action, endorsed at the International Conference on Population and Development held in Cairo in 1994. The integral components of RTI/STD prevention are management of RTI/STD, behaviour change communication and promotion of condom use. A number of medical and public health interventions could be undertaken to reduce the incidence of RTI/STD and to manage individual cases. These interventions include mass treatment, case identification through screening, screening and case finding, syndromic management, and partner notification. The syndromic approach to RTI/STD case management involves the detection of symptoms and signs associated with a number of aetiological agents. It relies on the use of clinical flow charts, which include a step-by-step standardized guide to medical decision-making.

Levels and trends of a number of issues related to the prevention and management strategies have been reviewed. The issues include knowledge about RTI/STD/HIV/AIDS, service-seeking behaviour with regard to RTI/STD, sexual behaviour, RTI/STD services at the PHC level, counselling, condom-use promotion, drug compliance, partner notification, antenatal screening for syphilis, syndromic management of RTI/STD, RTI/STD drugs, referral linkages for RTI/STD case management, infection prevention in RTI/STD service-delivery, BCC efforts, and male involvement in RTI/STD prevention and management.

The activities of ICDDR,B and the Project (MCH-FP Extension Project) have been reviewed. A number of working papers addressing the issues related to RTI/STD prevention and management was also reviewed. The review team visited RTI/STD intervention field sites, interviewed providers and RTI/STD clients, and observed provider-client interactions.

The RTI/STD prevention activities of the GoB, NGOs, and the private sector were also reviewed. During the review process, several published documents on RTI/STD activities of these sectors were reviewed. Finally, the review team visited some GoB and NGO RTI/STD service-delivery sites.

The overall review reveals that RTI/STD are prevalent in Bangladesh. Peoples' awareness about RTI/STD is, however, low and in many facilities, knowledge among providers about RTI/STD is not sufficient. All forms of risky sexual behaviour exist in the country, but appropriate and uniform BCC materials on RTI/STD are not available. In the management of RTI/STD at the PHC level, the syndromic approach and antenatal screening for syphilis seem to be feasible. The seeking of treatment to unqualified practitioners for RTI/STD is quite high. Males prefer pharmacies as a first-line provider for STD services. Male responsibilities in the decision-making processes required for prevention and management of RTI/STD have not received adequate attention.

Based on this comprehensive review, the future need for effective prevention and management strategies has to be directed to increase awareness about RTI/STD/HIV/AIDS through standardized BCC efforts. Clinical services for RTI/STD have to be expanded at the primary level healthcare facilities, based on a standardized syndromic approach. Periodic evaluation of these facilities is essential to maintain the
quality of care with regard to diagnosis, treatment and counselling. An effective partner management strategy is also essential in the prevention of RTI/STD. Development of counselling facilities at each and every healthcare facility through standardized counselling guidelines is one important need. Moreover, antenatal screening for syphilis at the PHC level needs to be assured through the provision of related training and test facilities. In the control of STD/HIV/AIDS, pharmacists need to be mobilized. There is also a need to involve males in RTI/STD/HIV/AIDS services to improve their health as well as that of their partners.

A comprehensive plan of action for the prevention and management of STD and HIV/AIDS has been made for the country. At the moment, the requirement is rapid implementation followed by a continuous process of evaluation and adaptation of strategies to accommodate future developments in RTI/STD/HIV/AIDS prevention and management. But strong coordination, collaboration and cooperation between the GoB, NGOs and private sector are essential. Operations research on the prioritized issues covered in this review could serve to accelerate the implementation and modification of strategies and the successful adaptation of new strategies. This could be made possible through evaluation of existing strategies in the prevention and management of RTI/STD.
Background

Prevention and management of reproductive tract infections (RTI) and sexually transmitted diseases (STD) are one of the key reproductive health issues for both males and females. In 1994, the International Conference on Population and Development (ICPD), held in Cairo, identified the issue as one of the essential components of reproductive health and goal to prevent and reduce the spread of STD, including HIV/AIDS and to provide treatment for STD and their complications, such as infertility, with special attention to women [1].

In the South-East Asia region, STD pose a continuing and serious health problem. The overall response to prevent and control the problem is limited. Some major reasons of this limited response are: lack of awareness of the diseases and their consequences, and lack of resources and political and cultural unwillingness to address STD. The realization of the fact that STD increase a person’s risk of becoming infected with incurable HIV infection has focused the attention on improved STD prevention and management as an important component of HIV prevention strategies. But little is still known in most countries about the extent of STD, behaviours (sexual and service-seeking), social factors and situations that increase vulnerability to be infected by STD and foster or inhibit prevention and management efforts of these diseases. As a consequence, in many places, widespread STD transmission continues with the succour of risky sexual behaviour, gender and power imbalance surrounding sexual relationships, shame and stigma, and weaknesses in healthcare systems, which prevent many from availing of necessary care.

In Bangladesh, the Health and Population Sector Programme (HPSP) and the National Integrated Population and Health Programme (NIPHP) prioritized RTI/STD prevention and management as a necessary component of the Essential Services Package (ESP). These programmes address behaviour change communication, management of RTI/STD cases (including partner treatment), and condom-use promotion in the prevention and control of RTI/STD.

The HPSP addresses the prevention and control of RTI/STD/AIDS as one of the components of reproductive healthcare, which reflects those interventions, targeted for women within the 15-49-year age group. Since it does not include the males of reproductive age and other special risk behaviour groups and also the important aspects of inter-sectoral approaches, prevention of STD/AIDS has also been incorporated into communicable diseases control programme. Considering the importance of a national programme as envisaged in the National Policy for HIV/AIDS and STD-related issues, a separate programme management structure under the Directorate General of Health Services has been suggested [2].

The NIPHP represents a new era of national-level health planning that focuses on the integrated delivery of health and family planning services with seven major components: urban service-delivery, rural service-delivery, quality improvement, urban immunization, operations research, social marketing, and contraceptive logistics.
management. The Operations Research Project (ORP) of the International Centre for Diarrhoeal Disease Research, Bangladesh being the sole source of operations research for the NIPHP will contribute toward the achievement of the following four main results: (a) increased use of high-impact family health services, (b) improved quality of services and information, (c) strengthened support systems and managerial capacities of local service providers, and (d) improved programme sustainability. Strategies to improve RTI/STD prevention and management designed and tested is one of the sub-results of the main result—increased use of high-impact family health services [3].

This review identifies: different national, regional and international strategies adopted to prevent and manage RTI/STD; gaps and lacking in those strategies; and future needs reflecting the lessons learned from the review. The review of strategies at the national level includes the activities of the Government of Bangladesh (GoB), non-government organizations (NGO), private sector, and the activities done by the ICDDR,B. The primary goal of this review is to prioritize those issues that are to be addressed in designing and testing of strategies to improve prevention and management of RTI/STD in Bangladesh.

Reproductive Tract Infections and Sexually Transmitted Diseases

Reproductive tract infection is defined as the infection of either the lower or upper reproductive tract, or both. The infection may or may not be sexually transmitted, and is caused by organisms introduced through exogenous or endogenous source [4]. There are three main categories of RTI: (a) sexually transmitted infections or diseases, (b) endogenous infections, and (c) iatrogenic infections [5]. STD are caused by organisms which are transmitted primarily through close sexual contact and sexual intercourse. At last count, these included at least 27 different diseases caused by different viruses, bacteria, and other micro-organisms [6]. Some of the common STD are gonorrhoea, chlamydia, syphilis, chancroid, trichomoniasis, genital herpes, and genital warts.

There is a clear distinction between the two terms 'reproductive tract infection' and 'sexually transmitted infection/disease.' RTI include all infections of the reproductive tract, whether they are sexually transmitted or not. Bacterial vaginosis or candidiasis, caused by a disturbance in the equilibrium of the vaginal flora, or pelvic inflammatory disease (PID), caused by iatrogenic infection, are considered reproductive tract infections, but are not sexually transmitted. On the other hand, the pathogens, which are commonly transmitted through sexual contact (HIV, hepatitis B, C, D, etc.), are not always, or even not at all, an infection of the reproductive tract [7]. Endogenous infections are caused by the overgrowth of organisms that are normally present in the genital tract [5]. These are often called minor or nuisance infections, when, in fact, they are responsible for a significant portion of female morbidity. These include bacterial vaginosis and valvovaginal candidiasis. Bacterial vaginosis is perhaps the single most common cause of RTI. Many RTI are asymptomatic, and, in many cases, they are quite symptomatic and uncomfortable. Men are also susceptible to candida infection.
Uncircumcised men, in particular, can develop yeast infections under the glans [8]. Iatrogenic infections are caused by unhygienic medical procedures, such as using improperly sterilized instruments. It is particularly common in transcervical medical procedures, such as insertion of intrauterine devices (IUDs), menstrual regulation, and assisted delivery.

**Interaction of RTI/STD and HIV/AIDS**

HIV and RTI/STD commonly interact to magnify the effects of the other: the presence of an RTI/STD can greatly increase a person's chance of getting or transmitting HIV sexually; the presence of HIV can increase the chance of getting and transmitting other RTI/STD; the presence of HIV can make some RTI/STD more serious and difficult to treat; and HIV diseases can progress more quickly, if certain RTI/STD are present [5]. Both ulcerative and non-ulcerative RTI/STD enhance HIV transmission [8].

There is a strong relationship between HIV and other STD infections. Both have common mode of transmission. The most important mode of STD and HIV transmission is heterosexual, homosexual and bisexual intercourse. The presence of a STD is a maker of high-risk behaviour for HIV infection. Unprotected sexual intercourse with multiple partners predisposes one to infection with STD. The same behaviour has also been shown to be a risk factor for HIV transmission. STD are biological co-factors of HIV transmission. The presence of a genital ulcer, caused by syphilis, chancroid, or herpes, increases one's risk of HIV infection 10-20 folds, and the risk increases 3-4 folds where gonorrhoea or chlamydia is present [9]. Concurrent HIV infection increases the virulence of some STD pathogens. HIV may result in more persistent infections, more frequent infections, more frequent treatment failures, and atypical clinical presentations, and may predispose to complications.

Most HIV/AIDS infections are acquired through casual, unprotected sex, and 80-90 percent of HIV infections in the South-East Asia region are transmitted through heterosexual contact [10]. Early and effective RTI/STD care prevents further spread of these infections and helps prevent future transmission of HIV infection. Thus, designing effective interventions aimed at controlling STD can have a significant and positive impact on the AIDS epidemic.

**Situation of RTI/STD and HIV/AIDS**

**Global situation**

RTI/STD have become a silent epidemic that devastates the life of both woman and man. Each year, thousands of people die and suffer unnecessarily from the consequences of these infections. For several decades, STD have ranked among the top five diseases for which adults in developing countries seek healthcare service [11]. Estimates of the global prevalence and the incidence of these infections are limited by the quantity and quality...
of data available from the different regions of the world. The total number of new cases of the four curable STD in 1995 was estimated to be just over 330 million—2.2 million cases of syphilis (4%), 62.2 million cases of gonorrhoea (19%), 89.1 million cases of chlamydia (27%), and 167.2 million cases of trichomoniasis (50%). South and South-East Asia accounted for the largest number of new infections—5.6 percent (150 million), followed by Sub-Saharan Africa 19.7 percent (65 million) and Latin America and the Caribbean 10.9% (36 million). Geographically, the vast majority of these cases were in the developing world, reflecting the global population distribution—South and South-East Asia, which accounted for 57.2 percent of the global population in the 15-49-year age group in 1995, accounted for 48.7 percent of new infections. Sub-Saharan Africa accounted for another 21.1 percent, and Latin American, and the Caribbean 9.7 percent. The sex distribution of these cases was skewed toward females—5 percent of the cases were syphilis, 58 percent of the cases gonorrhoea, 60 percent of the cases chlamydia, and 92 percent of the cases trichomoniasis [12].

AIDS is taking a major toll of human lives and is spreading relentlessly. The latest UNAIDS/WHO report estimates that 33.4 million people are currently living with HIV/AIDS, of which 5.8 million have been newly infected during 1998. Every minute, approximately 11 men, women and children are getting infected with HIV. About 90 percent of all those infected with HIV live in the developing world, and most of them do not even know that they are infected. Since the beginning of the epidemic, in the late 1970s, the number of AIDS-related deaths has reached 13.9 million. Further estimates place over 23 million people are living with HIV worldwide, 40 percent of whom are women. The estimates point to the continuing rapid spread of HIV. Assuming that the present trends in many parts of the world will continue, it is estimated that more than 40 million people will be living with HIV in the year 2000. The situation in Asia is a cause for much concern. In many Asians countries, where the epidemic started later than in other regions, HIV is rapidly gaining new footholds. In India, recent research shows that HIV is now firmly embedded in the general population and is spreading into rural areas that were previously thought to be relatively spared. In the state of Tamil Nadu, a new survey reveals that almost half a million people are already infected with HIV and that the infection rate is three times higher in villages than in the cities [13].

Situation in Bangladesh

According to the WHO estimates, in 1992, there were fewer than 20,000 HIV-infected people in Bangladesh [14]. According to the Bangladesh AIDS Prevention and Control Project, as of December 1997, there were 94 HIV-infected cases in Bangladesh (personal communication with Prof. Nazrul Islam, Project Director, Bangladesh AIDS Prevention and Control Project, in May 1998). Since Bangladesh is situated in the middle of a hot spot, the Asian epicentre, a crossroads of South-Asian migration and mobility, and, thus, continues to face the AIDS threat. The prevalence is much higher in the country’s two closest neighbouring countries, India and Myanmar. According to an UNAIDS estimate made in 1997, 3-5 million people were living with HIV in India [13].
Due to difficulties in reporting and specimen collection, and lack of elaborate laboratory methods, studies on the prevalence of RTI in the developing world are rather limited. Thus, very few studies have been conducted on the prevalence of RTI in Bangladesh. However, the limited data available from these studies confirm the presence of these diseases in this country. Of these studies, findings of three community-based and four clinic-based studies, which examined the prevalence of RTI and STD, are presented in Table 1 and 2 respectively. All of these surveys had backup support from a pathological investigation facility. As there has been no nation wide survey, it is difficult to comment on the trend of the prevalence of RTI and STD. Findings of the studies suggest that that RTI and STD are prevalent in Bangladesh.

Table 1. Prevalence of RTI/STD in community-based survey

<table>
<thead>
<tr>
<th>Investigator</th>
<th>Methodology</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wasserheit JN et. al., ICDDR,B, 1989</td>
<td>2,929 MWRA surveyed at Matlab</td>
<td>• 640 (22%) reported symptoms of RTI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Of the 472 symptomatic women, 68% had laboratory evidence of infection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Of the 68% lab+ve RTI, 28% cases were STD and 40% cases were non-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>sexually transmitted RTI</td>
</tr>
<tr>
<td>Hussain MA et. al., Save the Children (USA), 1996</td>
<td>613 MWRA surveyed at Nasirnagar, Brahmanbaria</td>
<td>• 282 (47%) reported symptoms of RTI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Of the 613 MWRA, 56% had laboratory evidence of infection and the laboratory findings were as follows:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bacterial vaginosis 34.6%, C. trachomatis 12%, moniliasis 9%, non-specific RTI 9%, N. gonorrhoeae 1.1%</td>
</tr>
<tr>
<td>Hawkes S et. al., ICDDR,B,1997 (unpublished)</td>
<td>666 MWRA surveyed at Matlab</td>
<td>• 420 (67%) reported symptoms of RTI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Of the 666 MWRA, 22% had laboratory evidence of infection and the laboratory findings were as follows:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N. gonorrhoeae 0.5%, C. trachomatis 0.2%, syphilis 1%, T. vaginalis 0.5%,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>bacterial vaginosis 9%, candidiasis 11%</td>
</tr>
</tbody>
</table>
Table 2. Prevalence of RTI/STD in clinic-based survey

<table>
<thead>
<tr>
<th>Investigator</th>
<th>Methodology</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chowdhury SNM et al., BWHC, 1995</td>
<td>601 MWRA attended for various services at Mirpur Clinic of Dhaka city</td>
<td>- 564 (94%) reported symptoms of RTI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Of the 601 MWRA, 60% had laboratory evidence of RTI and STD, and the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Laboratory findings were:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bacterial vaginosis 44%,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>trichomoniasis 3.7%, candidiasis 4.7%, gonorrhoea 3.8%, Syphilis 0.5%</td>
</tr>
<tr>
<td>Population Council, 1997</td>
<td>1,467 male clients attended two male STD clinics in Dhaka for different services</td>
<td>- 11 percent were STD clients</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 28 percent were other sexual health, e.g. impotence, premature ejaculation, etc.</td>
</tr>
<tr>
<td>Note: Syndromic approach was used for STD</td>
<td></td>
<td>diagnosis. Laboratory testing was only used for syphilis.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bogaerts J et al., BWHC, 1997 (unpublished)</td>
<td>Cross-sectional study among a systematic sample of 1879 women attending the BWHC clinic at Mirpur, Dhaka</td>
<td>- 30 percent women had vaginal discharge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 30 percent had symptoms of cervicitis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Laboratory findings were:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N. gonorrhoeae 0.5%, T. vaginalis 1.9 %, T. pallidum 2.9%, C. trachomatis 1.9%, yeast 8%, bacterial vaginosis 20%.</td>
</tr>
<tr>
<td>Directorate of Family Planning and Population Council, 1998</td>
<td>176 MWRA attended for RTI services in 2 H&amp;FWCs of Tangail district.</td>
<td>- 83% abnormal vaginal discharge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 15% abnormal cervical discharge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 61% lower abdominal pain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 50% genital ulcer</td>
</tr>
</tbody>
</table>

The findings of a study carried out by the Dhaka Medical College and Hospital were indicative of wide STD prevalence in Bangladesh. According to the investigators, the number of STD in Bangladesh was estimated at 2.3 million in 1996 [14]. A study in a rural area of Bangladesh showed that the RTI/STD prevalence among the married women of reproductive age was about 56 percent and about 23 percent of these were STD [15].

RTI/STD are very high among the commercial sex workers (CSWs). A cross-sectional study carried out among 300 CSWs in a brothel of Bangladesh showed that 60 percent of them had syphilis [16]. It was found in two urban clinics in Dhaka that the RTI/STD prevalence among the clients was 23 percent. Of the three major groups of clients, i.e. sex workers, garment factory workers and general clients, vaginal discharge was the highest among the garment workers, cervicitis among the general clients, and
pelvic inflammatory disease (PID) among the sex workers [17]. The prevalence of hepatitis B carriers and positive syphilis was high in the Dhaka slum population [18]. The number of RTI/STD cases has been increasing as evident from the outpatients department (OPD) attendants at medical hospitals [19].

**Consequences of RTI/STD**

**Health**

Women and newborns bear the bulk of the prevailing RTI/STD health consequences, which not only inflict physical discomfort, but also often cause other serious problems. These include PID with resultant infertility, ectopic pregnancy, cervical cancer, foetal wastage, low birth weight, infant blindness, neonatal pneumonia, and mental retardation. If left untreated, it can increase the risk of maternal and neonatal mortality. *Treponema pallidum*, the cause of syphilis, can cross the placental barrier and infect the foetus. Infertility as a result of PID accounts for 50 to 80 percent of the infertility in Africa [20]. Carcinoma of the cervix is a major public health problem throughout the world. It is the second most common malignancy in women worldwide and the leading cancer in women of developing countries [21].

In developing countries, one of seven males with gonorrhoea has recently been reported to develop urethral stricture. Urethral stricture, which is a progressive condition that sooner or later calls for urological correction [20]. Ten to thirty percent of the untreated men who had gonorrhoea developed epididymitis, and 20-40 percent of the epididymitis cases become infertile [7].

RTI have negative impact on family planning programmes. This negative impact manifests as a decreased acceptance and continuation of contraceptive methods. The two main reasons for this phenomenon are: (i) directly, when the contraceptive user believes that the symptoms of the infection are contraceptive-related side-effects; and (ii) the occurrence of RTI complications which prevents healthy childbearing results in legitimate fear preventing the practice of limiting or spacing child births [5].

**Social**

Social consequences resulting from RTI/STD, such as stigma and discrimination, fall predominantly on women. Lack of awareness and cultural taboos increase a woman's risk of contracting RTI/STD due to unsafe behaviour and then inhibit them from discussing their problems and seeking appropriate treatment. In Bangladesh, despite apparently rigid socio-religious norms, men have many opportunities to be engaged in multiple sexual relationships. Extremely poor and destitute women often resort to commercial sex as a livelihood. Poverty-stricken or abandoned women are often victims of forced sex [22].
Women suffer more from RTI/STD than men; they also suffer more serious health and social consequences. Moreover, the lack of available female-controlled barrier methods and the power dynamic in sexual relationships frequently limit a woman's ability to negotiate the conditions under which intercourse occurs. Women are, thus, less able to prevent exposure to STD than men are. For anatomic reasons, transmissions of HIV or discharge syndromes following exposure appear to be more efficient from male to female than from female to male. When transmission does occur, a woman is most likely to become asymptomatically infected and, as a result, fails to seek care. If she does develop symptoms, she faces a serious dilemma, since it is socially unacceptable for her to seek care for a genital problem. STD of women may cause family disruption, abandonment, divorce, or social ostracism. Options for treatment of female RTI are also extremely limited.

Economic

The economic consequences of RTI have not been extensively studied before. Assessments so far made are relatively straightforward. The direct costs of diagnosis and treating uncomplicated RTI are substantially lower than those with complications. In terms of economic consequences, STD collectively rank among the five most important causes of loss of productive life lost in developing countries, accounting for the wastage of several million dollars each year [12]. Economically, the cost of treating a woman with syphilis, chlamydial infection, chancroid, or gonorrhoea may exceed the per capita national healthcare budget of many low-income countries. A World Bank report notes that the sum of the days of productivity lost due to HIV, syphilis, and chlamydial infection almost equals the number of days lost due to malaria and measles [7].

The annual AIDS-related healthcare cost in Bangladesh by the year 2010 (assuming that 60 percent of AIDS cases would receive hospital care) is estimated to be US$ 10.5 million [23]. Moreover, economic consequences should not be measured in terms of morbidity and mortality only, but indirect costs to survivors should also be taken into consideration. Indirect costs resulting from the loss of manpower due to HIV-related morbidity and mortality are difficult to estimate. The family member who is most likely to become infected and die first will be the breadwinner of the family. The survivors, in turn, will likely lack the skills and resources necessary to care for the family. Moreover, society is likely to discriminate against the family, resulting in loss of social support.
Prevention of RTI/STD

RTI have become a silent epidemic to devastate the life of both woman and man. It has become a major public health problem in developing countries. Moreover, the increased level of HIV infection has highlighted the importance of all RTI/STD. All countries of the South and South-East Asia region continue to face the threat of AIDS, and cross-border transmission is an important element of HIV transmission in the region [24]. But societal taboos, reticence, stigma, and ambivalence in many countries in the region make it extremely difficult to address the problem, since, in essence, it is not merely a health problem but a development problem of severe human and economic significance [25].

Key issues related to RTI/STD management are: prevention of new infections; treatment of individuals with symptoms of infection; notification and treatment of sexual partners; and motivation toward health-seeking behaviour among individuals who know they are infected, but hesitate to seek treatment. Prerequisites to address these issues include early detection and treatment, fostering greater community awareness and behaviour change communication regarding personal hygiene, safer sex practices, and health-seeking behaviour.

Behavioural and biomedical approaches are interdependent. Biomedical interventions tend to be ineffective without behavioural components to support them, and behavioural approaches must address all the factors responsible for sustaining the transmission of infection. Moreover, all these approaches need to be implemented at both individual and population levels [26].

The International Conference on Population and Development (ICPD), held in Cairo in 1994, endorsed the following actions on fundamental reproductive health recommendations in relation to the prevention of the spread of STD and HIV in the ICPD Programme of Action:

- All reproductive health programmes should increase their efforts to detect, prevent, and treat sexually transmitted diseases and other reproductive tract infections, especially at the primary healthcare level.
- All healthcare providers, including all family planning providers, should be given specialized training in the prevention, detection of, and counselling on STD, including HIV/AIDS, especially infections in women and youth.
- Information, education and counselling on responsible sexual behaviour and effective prevention of STD and HIV infections should become an integral component of all reproductive and sexual health services.
- All reproductive healthcare services should promote, supply and distribute high-quality condoms to reduce the spread of HIV/AIDS and STD [1].
Management of RTI/STD

To improve the RTI/STD case management, the focus has so far been on improved diagnosis and treatment. High-diagnostic sensitivity and treatment efficacy is necessary, but not sufficient to obtain a high cure rate. To achieve the high cure rates, drug compliance, partner notification, and treatment referral linkages are essential. Patient education in RTI and STD is an important, but missing component of RTI/STD care around the world. Because it can resolve the patient's current infection, and can prevent a recurrence of the infection and its spreading at the community level [27].

A number of medical and public health interventions could be undertaken to reduce the incidence of RTI/STD and to manage individual cases. These interventions include mass treatment, case identification through screening, screening and case finding, syndromic management, and partner notification [28].

Mass treatment

Mass treatment of RTI/STD is an attractive possibility, because there are a large number of unidentified cases with asymptomatic and untreated infections. But the principal disadvantage is the high cost of effective drugs and treating a large number of people.

Screening and case identification

Asymptomatic infections can be detected generally only with costly laboratory testing. As a result, wide-scale screening for RTI/STD in developing countries is currently not feasible. Much of the present research effort is directed toward the development of inexpensive, accurate tests for RTI/STD, because there are a number of settings where screening on a limited scale should be considered (antenatal care, maternal and child healthcare, and family planning services). Screening in these settings would provide a cost-effective opportunity to treat and prevent infection among adolescents, women, and their unborn children and sexual partners.

Syndromic approach

Primary healthcare facilities in developing countries face several constraints in optimal management of patients with RTI and STD. These constraints are: (i) lack of access to the laboratory technology necessary for aetiologic diagnosis of RTI/STD; and (ii) shortage of well-trained staff, high workload, and availability of limited staff time per patient. The syndromic approach to RTI/STD case management involves the detection of syndromes - symptoms and signs associated with a number of aetiological agents. It relies on the use of clinical flow charts, which are a step-by-step standardized guide to medical decision-making. Once a syndrome has been identified, treatment can be provided for the majority of organisms responsible for that particular syndrome.
The syndromic approach is well suited to resource-poor settings and enables healthcare workers to make a quick diagnosis without special skills or performing sophisticated laboratory tests [28]. Moreover, the speed with which the approach can be carried out can increase compliance and overall cure rates avoiding the need to wait for the test results.

The drawback of the syndromic approach is that it involves a degree of over-treatment [29]. Besides, the syndromic approach cannot reach all the women with STD, because men are usually symptomatic of STD, but 50 percent of STD in women are asymptomatic [30].

**Partner notification**

One important public health intervention, essential to interrupt the STD transmission chain, is partner notification. This intervention locates partners who have been identified as having STD, informs them of their potential risk, and offers medical and counselling services. Partner notification also offers an opportunity to provide focused STD/HIV education to individuals who are at the highest risk of infection. Re-infection can be prevented and ongoing transmission can be curtailed by offering treatment and counselling these individuals. The programme must be voluntary, and the infected individual must choose to be involved in the process. Moreover, ensuring confidentiality is crucial to securing the cooperation of the patient. In addition, partner notification should always be offered in conjunction with other STD intervention services, such as counselling, testing, and medical and social services [31].

Two major partner notification approaches are: (a) patient referral, and (b) provider referral. In the World Health Organization (WHO)-recommended patient referral approach, the index patient notifies the partner(s) of his/her/their possible infection without the direct involvement of the service provider. In most countries, patient referral is highly feasible, because it requires fewer personnel, and thus, is inexpensive, and it does not require identification of sex partners. In this approach, every case receives a partner notification card with a diagnostic code. In the provider referral approach, the service provider notifies the patient's partner(s). Information provided by the patient is used confidentially for tracing and notifying the partners directly. This method requires professional staff trained in communication skills, also requires more time and resources, and is sometimes viewed by patients as a threat to their confidentiality.
Levels and Trends

Knowledge about RTI/STD/HIV/AIDS

RTI have only recently begun to receive attention in public health. Knowledge among both communities and providers about RTI/STD/HIV/AIDS, how they are transmitted, their long-term effects, appropriate treatment measures, sites where these treatments are available, and preventive measures are all highly important. Several studies provide evidence that the level of knowledge on HIV/AIDS is low among the general public.

Awareness of RTI/STD, including HIV/AIDS, was found to be low among rural women, with only about a quarter of married women of reproductive age (MWRA) having heard of any STD, including HIV/AIDS. Knowledge of the mode of transmission and means of prevention was even lower among rural women. Awareness of STD was moderately high among clinic providers, although their knowledge about the specifics of transmission and means of prevention was poor [32]. The level of AIDS awareness is extremely low among rural women and relatively low among men. Result of one study showed that 7 percent of the female and 16 percent of the male population were found to have heard of AIDS, but 80 percent of these AIDS-aware women and 70 percent of the AIDS-aware men did not know how one gets AIDS and how to prevent it [33].

The growing recognition of prevention of incurable viral STD, particularly HIV infection, has tremendously increased the importance of health education in changing behaviour toward safer sexual practices. According to the Bangladesh Demography and Health Survey (1996-97), the vast majority of Bangladeshi adults have evidently never heard of AIDS. In fact, only 19 percent of the ever-married women and 33 percent of the currently married men had heard of it [34].

Currently, there is a growing initiative to improve the knowledge about HIV/AIDS among the community and providers in both government and non-government organizations.

Service-seeking behaviour

Health-seeking behaviour is both a function of attitude toward disease and sex and the accessibility and quality of healthcare facilities that deal with STD. Delay in seeking treatment for STD in the developing world results in complications. People, particularly women, are often not aware that they have a STD, because they have no symptoms; others know that they are infected, but avoid seeking care because of the stigma associated with STD. Many of those who do seek treatment self-medicate and others seek the services of traditional healers. Some have no confidence in the formal health sector, either because they have had a bad experience at the local clinic or have heard that they can expect long waits, ineffective treatment, drug shortages, and rude or
judgmental health workers [35]. Results of a community-based study showed that 41 percent of the women who had an RTI/STD did not seek treatment, but 39 percent of them visited a kabiraj' [36].

Long travel distances and user fees also act as deterrents to using clinical services. The introduction of user fees in 1989 in Kenya and in 1992 in Zimbabwe resulted in a dramatic decline in the use of the clinics [37]. Lack of privacy and confidentiality at the service-delivery sites can also cause reluctance among users. Patients in many communities reported that the purpose of their visit was not kept confidential [20]. Judgmental and unsympathetic attitudes of providers also have a profound impact on service-seeking behaviour. In Ethiopia, one informant in a study of STD stated, “providers should not scold” [20]. As in Africa, community members in Bangladesh prefer those health care-providers who exhibit sympathy and caring.

In Bangladesh, RTI/STD services are provided by both government and non-government organizations at various levels. There are also untrained allopathic and non-allopathic practitioners. Studies regarding service-seeking behaviours in Bangladesh are limited. According to available information, RTI clients and their husbands go to village practitioners first and then, when not properly treated, go to a satellite clinic (SC), a health and family welfare centre (H&FWC), or a pharmacy. Many women with RTI have their own home remedies. Men with STD usually seek treatment from untrained allopathic practitioners. Half of the clients seeking RTI services at the SCs and H&FWCs reported that they had first visited an unqualified village practitioner for their problem [38]. Other study findings imply that urban communities look to pharmacies as a source of medicine, advice and information for different types of health problems. Most considered the pharmacy to be most convenient. Pharmacies also play a role in reproductive health services, providing referrals for clinical family planning methods, advice on pregnancy, and treatment and referral for STD-related symptoms. Most drug sellers, however, have neither training in basic pharmacy or in maternal and child health and family planning-related topics [39].

Sexual behaviour

Sexual behaviours have multiple dimensions that influence risk of STD and their sequelae. These dimensions include age at sexual debut; number of sex partners accumulated over one's lifetime; number of sex partners over a specific recent time period; how one recruits sex partners; demographic and behavioural characteristics of partners; frequency and timing of intercourse; sexual practices (e.g. oral, vaginal, anal intercourse or masturbation); and sexual/health practices and related aspects (e.g. use of vaginal douches, use of contraceptive methods, male circumcision, and co-infection with other STD) [40].

1 Kabiraj is a type of traditional healer in Bangladesh who uses herbal medicines.
In India, any sexual relation outside wedlock is frowned upon and discouraged, yet a high proportion of patients presenting in the STD clinics have their first sex experience while still in their teens; 80-90 percent of all STD patients are aged less than 30 years. In one study of rural women with gynaecological diseases, 46.7 percent of the unmarried girls reported pre-marital sex [41]. A 1992 survey of sexual behaviour patterns in Nepal showed that 23.2 percent of the men and 14.9 percent of the women reported extra-marital sex [42].

Although many traditional cultural settings in Asia accommodate male homosexual practices, most of those make reference to the stigma attached to homosexual behaviour in modern societies. In the largely Christian society of the Philippines, 82 percent of the respondents in a national survey of 1,200 men and women considered sexual relations between two adults of the same sex “always wrong” [43].

In Bangladesh, rigid attitudes, religiosity, and overt behavioural norms would seem to indicate that pre-marital and extra-marital sex is very rare. A literature review of behavioural factors related to the spread of STD and HIV/AIDS in Bangladesh, however, show that both qualitative and quantitative investigations of sexual behaviour present fairly large percentages of permissiveness and practice of pre-marital and extra-marital sex [44]. According to a qualitative study carried out by the Save the Children (USA), homosexuality exists in is prevalent. Although the people relate multiple-partner practices to some diseases, homosexuality is not considered to be a risky sexual behaviour. On the contrary, the people consider it safer, because it does not involve the risk of pregnancy. No hostile attitude was, virtually, expressed toward homosexuality in the community [22].

A qualitative study on sexuality and sexual behaviour among male STD clients in the Dhaka City showed that clients had sexual relationships with multiple partners. Encounters, primarily with commercial sex workers, but also with friends of both sexes, were described as situational and opportunistic, occurring both before and after marriage with high contact frequency. There was evidence of vaginal, anal, oral and group sex accompanied by pornofilms. In these settings condoms were rarely used [45]. Another qualitative study showed that MSM activity exist in the form of friendship and fantasy sex, situational and opportunistic sex, forced sex, group sex and alternate sex. Commercial male sex workers are also used for MSM activity [46].

**RTI services at the primary healthcare level**

RTI/STD services can be delivered through both vertical and horizontal systems. In a vertical system, clinical services for the management of patients are provided through specialized STD clinics, while in a horizontal programme such services are integrated into the general healthcare facilities, so that patients can be managed at the first level of the healthcare system. Although the vertical system has the advantage of delivering quality care, such clinics, largely located in urban areas, are mostly inaccessible to the
majority of population. The stigma of visiting a STD clinic further precludes optimal use of these clinics. A horizontal STD care facility which has been integrated into the PHC system has the advantage of being accessible, and of being non-stigmatizing, thereby increasing the acceptability of the service. The low level of technical expertise of the staff, the lack of laboratory back up, and the scarcity of appropriate drugs are the major disadvantages of using the PHC services for STD care. Whatever the official system for STD control may be, the private sector carries a major share for STD management [41].

Almost all countries have some infrastructure in place to deliver MCH-FP services. Some have services for testing and treatment of STD, but these are typically weak and poorly coordinated with other services. Hence, for organizing effective RTI/STD health services, health programmes do not require to be started from the scratch. It rather requires strengthening of coordination, linking or diversifying the existing services, and addition of new ones. Integrating services is a central issue in reproductive healthcare, and a move toward service integration can have several advantages. Integration can address the neglected health problems of individuals who are already in contact with health providers, e.g. detection and treatment of syphilis in pregnant women, treatment of RTI symptoms; and MCH-FP providers offering information and counselling can raise clients' awareness about STD prevention [47].

Integration of the services required in the reproductive health agenda into the existing programmes is one of the principal challenges for the Bangladesh National Family Planning and Maternal and Child Health Programme. Progress has been made in the areas of emergency obstetric care (EOC) at the thana and district levels, and antenatal care (ANC) at the community level. But management of RTI from service points which provide family MCH-FP services is an area of continued negligence. However, initiatives have begun in the use of syndromic management for RTI/STD and to develop systematic training for potential providers or treatment for RTI/STD clients.

Currently, FWVs are primarily responsible for the management of RTI at the primary healthcare level. Higher-level treatment of RTI is available at the THC, a 31-bed hospital, which acts as the first referral hospital of the unions under its jurisdiction. In the urban primary healthcare programme, services are provided from government outdoor dispensaries (GoD). The providers at these dispensaries are Medical Officers (MOs) and FWVs. The efforts of NGOs in delivering RTI/STD services at the primary healthcare level are encouraging. The Bangladesh Rural Advancement Committee (BRAC), Concerned Women for Family Planning (CWFP), Marie Stopes Clinic, and the Bangladesh Women’s Health Coalition (BWHC) have already taken necessary initiatives in this regard. While visiting the PHC services of the GoB and NGOs, it was evident that the services of non-government facilities are better, but have some limitations in the areas of drug compliance, counselling, and partner notification. Above all, RTI/STD services at the PHC level have been recommended by HPSS and HPSP, and NIPHP as one of the high-priority areas to be included as a component in the ESP.
Four Cs

Critical messages for RTI/STD case management are often taught as the "four Cs": counselling/education, condom promotion, compliance with antibiotic treatment, and contact referral/partner notification for the treatment of sexual partners [48].

Counselling/education

"Counselling" is generally accepted by mental health professionals to mean in-depth, long-term and ongoing interactions between a trained counselling professional and a patient, covering topics that can be very broad in scope and emotional in nature [27]. The areas of counselling best suited for STD prevention may include: counselling of patients/partners with STD/HIV/AIDS, blood recipients, blood donors, healthcare professionals at risk and intravenous drug users; counselling the broader range of sexually active community members at risk, such as teenagers, users of recreational drugs, truck drivers, frequent travellers, and CSWs; counselling during pre-and post-HIV testing, while suffering from STD/AIDS-related symptoms and times of personal crisis.

While visiting the various government (GoB) healthcare facilities, it appeared that there were no specific facilities for counselling. The MOs and the FWVs provide some health education to the RTI clients, which includes topics on personal hygiene, proper dosage of drugs, safe sex, condom use, and the importance of partner management. According to a study conducted by the Population Council, personal hygiene was the topic most commonly mentioned by the doctors and the FWVs. The doctors, however, more frequently mentioned condom use, safe sex and partner management than the FWVs did [49].

While visiting the NGO RTI service-delivery centres, it was observed that counselling was practised either by the trained counsellors or the providers. Some NGOs had a separate room exclusively for counselling, but others did not have such a facility. Most NGO facilities had limitations regarding visible and audible privacy. At present, there are no recognized guidelines for counselling. Development of a comprehensive counselling service system is now being given a high priority by all the sectors.

Condom-use promotion

Condom promotion as part of STD patient counselling has been demonstrated to be an effective means of reducing high-risk behaviours and incidence of STD in both individuals and couples. Therefore, condom promotion is being increasingly recognized as a critical component of effective STD case management. Condom promotion includes: (i) advice about using condoms as a method, (ii) a demonstration of its correct use, and (iii) provision of condoms [48].

Several international clinical studies suggest that the protective effect of condoms against many STD is important. The variation in the data, however, implies that other factors may be responsible for the effectiveness of condoms. Condom failure can be due
to non-use, incorrect use, breakage, or leakage. Breakage and leakage can be due to poor manufacture, improper storage, or incorrect use. Most of this failure in both developed and developing countries, however, is usually due to non-use and incorrect use rather than the poor quality of condoms [48].

The literature review of behavioural factors related to the spread of STD and HIV/AIDS in Bangladesh shows that condoms are generally well-known, nationwide, as a contraceptive. Nevertheless, its use as contraception is low [44]. According to the 1996-1997 Bangladesh Demographic and Health Survey, 3.9 percent of the married women and 5.7 percent of the married men consider condom as a contraceptive method [34].

It is evident from the literature review, however, that condoms are still not widely known or used for preventing STD. A number of NGOs are currently active in this field, although most of their condom-promotion activities are directed at special groups, such as CSWs and truck drivers. The Social Marketing Company (SMC) has been playing an important role in these promotional activities.

**Drug compliance**

Successful STD management includes the following important factors: (i) providers' knowledge, (ii) clients' motivation, (iii) availability of recommended drugs, (iv) clients' adherence to treatment; and (v) treatment and follow-up of partners. The scenarios reflecting these factors are: recommended drugs are available only in the private sector, where they are unaffordable to the vast majority of patients with STD; the national essential drugs list do not include the recommended drugs; drug-sellers or pharmacists prescribe inappropriate drugs; providers are neither well-trained nor motivated; clients are not motivated to seek treatment from the RTI/STD service-delivery sites; clients do not carefully follow prescriptions or advice, and make follow-up visits; notification of partners of a client is often not possible; and providers cannot follow-up the treatment of notified partner(s).

During the visit of some GoB ESP service-delivery sites, it appeared that there was a lack of the recommended drugs on supply. Not were the providers at these sites trained on the syndromic approach. Thus, the providers prescribed only those drugs which were available in the private pharmacies. Clients were unwilling to buy these drugs due to their financial constraints. In some NGO service-delivery sites visited, drug supplies were adequate, and the providers were well-trained on the syndromic approach. The providers complained that follow-up visits of clients were non-existent even at the clinics. The providers also reported that, in most cases, partner notification and follow-up treatment were difficult. Initiatives in the prescription and supply of the recommended drugs in the NGO sites were apparent.
Contact referral/partner notification

Discussing STD with a partner is difficult, because it raises questions about fidelity and trust. But such a communication is essential, because sexual partners of STD patients are at high risk of being infected themselves. Since many of them do not have symptoms, they do not seek medical care on their own. Since there are only few available means of reaching individuals with symptomless STD, partner notification and treatment is an important element of any STD management strategy. In two studies sponsored by the AIDS Control and Prevention Project, partner referral was shown to increase by 25-35% the number of individuals with a high likelihood of having a STD who actually received treatment [50]. These studies were conducted in Haiti and Rwanda in 1993. The researchers recommended to treat partners at the same facility as the index patients and to remove barriers to treatment of partners, such as clinic fees. They concluded that more STD patients could be encouraged to refer their partners for treatment through a community-based educational campaign stressing the asymptomatic nature of many STD and the fact that many STD are curable. They also suggested that training, to improve the communication skills of community health workers who referred partners, would increase the referral rates. The Rwanda study showed that women were more likely than men to accept partner referral coupons and successfully refer partners. The result of the study suggested that improving the counselling and education provided to index patients could increase the number of partners successfully referred to for treatment. The study further showed that all the partners referred to by the index patients were spouses or regular partners. Thus, patient (client) referral was not effective in identifying casual contacts who usually spread STD.

In Bangladesh, mostly NGOs practise a partner notification approach in the management of STD. Most of them use a client referral approach. At the Marie Stopes Clinic, partner notification cards with diagnostic codes are used. Providers there reported that they were able to notify and treat partners in 20 percent of all STD cases. In Matlab, both client and provider referral approaches are practised. One study showed that a common practice among the doctors was to prescribe and provide medication for both the partners. In the study, the doctors, FWVs, and the Medical Assistants (MAs) were interviewed. More than one-third of the FWVs mentioned that they had provided prescriptions or drugs to both client and partner. Half the MAs mentioned that they did not practise to provide any treatment to the partner [49].

Antenatal screening for syphilis

Syphilis is a systemic, chronic infectious disease transmitted through sexual intercourse, from mother to infant during pregnancy, and through transfusion of infected blood. The causative organism is *Treponema pallidum*. Maternal syphilis has devastating effects on the foetus, and untreated maternal syphilis may lead to spontaneous abortion, still-birth,
premature birth, or congenital syphilis. Vertical transmission of syphilis is common and is a major cause of foetal loss, perinatal and infant death, and severe, long-term illness [51].

In developing countries, 3-19 percent of the pregnant women suffer from syphilis [51]. A pregnant woman with untreated syphilis has a 33-percent chance of giving birth to a live infant with syphilis [52]. Rates of congenital syphilis as high as 3,200 per 100,000 live-births have been identified in Addis Ababa, Ethiopia and 850 per 100,000 live-births in Lusaka, Zambia [51]. In Bangladesh, only limited data on syphilis are available. One study of the prevalence of RTI, carried out in rural Bangladesh by Sarah Hawkes, showed that about one percent of all pregnant women had syphilis [53]. Sabin's study on the prevalence of STI among Dhaka slum dwellers revealed that more than 11 percent of the men and 5 percent of the women had syphilis [54].

The primary lesion of syphilis is painless, and often passes silently. It remains dormant for a certain period of time, and then signs and symptoms of the secondary stage appear. The most commonly used serological tests used for screening are the Rapid Plasma Reagin (RPR) test and the venereal disease research laboratory (VDRL) test. Both these tests are non-specific. Treponema pallidum hemagglutination assay (TPHA), a specific test, is widely used for confirming the results of other tests. For routine screening of pregnant women, qualitative RPR test without confirmation with TPHA is acceptable and sufficient [51]. RPR test is relatively simple, and results can usually be obtained within five minutes [52].

The syndromic approach has, however, several limitations. One such limitation is that it concerns only symptomatic cases. As mentioned before, syphilis can pass its stage silently in a woman. Men most often report with primary infections, while women present with secondary syphilis, indicating that women are less likely to be treated. A study, carried out in Chandigarh, India, reports that primary syphilis was seen in only 6.9 percent, secondary syphilis in 75.8 percent, and latent syphilis in 13.8 percent of the female patients [41]. Thus, treatment of syphilis in case of pregnant women requires screening. Screening and treating pregnant women for syphilis are known to be a highly cost-effective and feasible intervention for congenital syphilis, as illustrated by a project in Lusaka, Zambia [51]. A study in Bangladesh showed that if less than six percent of the population are infected with syphilis, screening with RPR, followed by TPHA, could be more cost-effective than performing RPR test alone [55]. At the higher prevalence rates, RPR alone should be used for screening for syphilis in a population. Results of the study also showed that the benefit-cost ratio of syphilis screening (with treatment) is 4.5. Even in countries with sero-reactivity rates lower than one per 1,000, syphilis screening in pregnant women was reported to be cost-effective [51].
Syndromic management of RTI/STD

Several STD syndromes can be managed easily and rapidly using clinical flowcharts. WHO recommends that the national STD control programme incorporate diagnostic and therapeutic flowcharts into their STD management guidelines. It has developed flowcharts which have been tested in six countries of Africa and Latin America. The sensitivity, specificity and positive predictive values of these tools have been found to be satisfactory. WHO has also assessed the cost-effectiveness of three approaches to STD case management, which were syndromic, clinical and a etiological. Of these, the syndromic approach was found to be most cost-effective [56].

The advantages of syndromic management include immediate care, treatment at the first visit, cost saving for not using expensive laboratory tests, and an increased client satisfaction. Treatment at the first visit allows patients to be followed-up before treatment is initiated, and results in the reduction of further transmission of and complications from untreated infections and elimination of the need for a return visit for laboratory result. The use of flowcharts in STD management standardizes diagnosis, treatment, referral and reporting, facilitating improved surveillance and programme management [57].

The main disadvantage of syndromic management is the cost of over-diagnosis and over-treatment when multiple antimicrobials are given to a patient with no or only one infection. More antimicrobials use may also increase pressure for selecting resistant pathogens in the community [57].

At present, many NGOs use syndromic management. Most of them use the original WHO-recommended flowcharts, which have not yet undergone the process of standardization, evaluation, or validation in the context of Bangladesh. During visits to various NGOs practising a syndromic approach, it was observed that all the important management responsibilities were not being followed properly. Although history-taking, physical examination, and counselling were done with care, limitations were found in drug compliance, follow-up visit of clients, partner notification, and referral services.

A task force chaired by the Access to Voluntary and Safe Contraception (AVSC) has been reviewing the protocol for the syndromic management of RTI and STD to be applicable in Bangladesh.

RTI/STD and drugs

Availability of effective drugs is one of the pre-requisites for successful management of STD. The patterns of STD are rapidly changing. Fifty years ago, the introduction of penicillin was naively thought to signal the end of STD. But this drug is virtually ineffective in the treatment of viral STD, such as STD caused by Wart virus, Herpes, HIV. In addition, infections, which previously responded to penicillins, such as gonorrhoea, are now resistant to multiple antibiotics. The Asia-Pacific region is now the home of antibiotic-resistant gonorrhoea [58].
Treatment of gonorrhoea and chancroid have become more complicated and expensive due to the development of antimicrobial resistance. In most African countries, approximately half or more of all gonococcal isolates are producing penicillinase, making treatment with inexpensive penicillin useless. Resistance to another inexpensive antibiotic, tetracycline, has been spreading rapidly among gonococcal strains [20].

Fifty years after the introduction of penicillin, syphilis is unacceptably common in many parts of the world. Syphilis is one of the few bacterial infections that continues to be highly sensitive to penicillin which is inexpensive and widely available. Syphilis is endemic in aboriginal populations of Australia, despite that it has a well-developed health system; aboriginal children continue to be born with congenital syphilis [58].

Results of a cross sectional study, conducted among high-risk female population in Bangladesh, showed that no single drug could be effective against all the \textit{N. gonorrhoea} species [59]. Another study concerning antibacterial susceptibilities of \textit{N. gonorrhoea} isolates from CSWs showed 66\% of the isolates to be resistant to penicillin, 60.6\% resistant to tetracycline, and 11.2\% resistant to ciprofloxacin [60].

**Referral linkages**

Referral and linkages with regard to RTI/STD are weak in Bangladesh. The government health facilities include FWCs, THCs, district hospitals (DHs), maternal and child welfare centres (MCWCs), medical college hospitals, and specialized hospitals. Referral and linkages regarding various health problems exist in these tiers. In the NGO sector, a few clinics have specific referral or linkages. They often refer cases to the GoB service facilities, but there are no organized/designated linkages between these NGOs and the government facilities.

A study, conducted by the Bangladesh Institute of Research for Promotion of Essential Reproductive Health and Technologies (BIRPERHT), showed that in 75 percent of the DHs, 20 percent of MCWCs, 49 percent of the THCs and four percent of the H&FWCs, the distance to the referral centre was at least 20 miles [61]. It was also evident from discussion with some providers that they were unclear about where and whom to refer.

**Infection prevention**

Prevention of infection is an important indicator for the quality of care in any MCH-FP service-delivery system. Poor infection-prevention techniques cause iatrogenic RTI in the clients during the service delivery process. A study, conducted by the Population Council, showed that infection prevention practiced by the NGO clinics at the primary healthcare level was comparatively better than those of the government infrastructure. They observed the fixed service-delivery points (SDPs), including GoB and NGO. The study team observers collected information on the availability of infection-prevention equipment and supplies and practice of various steps essential to infection prevention, including decontamination, cleaning, high-level disinfection practice (HLD), and autoclaving. In the GoB clinics, the supplies for infection prevention were relatively poor [49].
Behaviour change communication

Most STD communication efforts have been based on the clinical treatment model. While a number of media-based programmes have been implemented worldwide, their messages have had a limited effect. Many messages have been fear-based and have failed to provide relevant incentives for target audiences to change their behaviour. Some messages have stigmatized certain groups and given false confidence to others, who erroneously believe that they are not at risk of contracting STD [62]. Messages for the prevention of STD need to include promotion of safer sex practices. Early detection and treatment efforts can be strengthened by creating awareness of the types and prevalence of STD, helping individuals to recognize signs and symptoms, and encouraging them to seek medical care quickly.

In Bangladesh, the GoB, NGOs and the private sector have taken initiatives to develop effective messages with regard to STD. Most communications, however, deal only with HIV/AIDS. Modes of communication for disseminating messages have included various mass media forms (television, radio, films, videotapes, drama, music, billboards, etc); pamphlets, posters, flip charts, displays, T-shirts, stickers, newspapers and magazines, etc.; institutional and interpersonal networks, including factories, youth clubs, women’s groups, professional associations, etc.; health service-delivery systems, including patient education programme in clinics, condom distribution centres, etc.; and peer education.

A number of these messages are target-population-based, and many are special-occasion-based. Messages in the form of articles are disseminated through newspapers which often breech confidentiality and human rights. Only a very limited number of publications contain messages regarding the types, prevalence and preventive measures for STD. Very little initiative has been taken for dissemination through television, radio, and films. Many efforts that have been made in this media provide dreadful and sometimes erroneous conceptions.

A large number of pamphlets, posters, stickers, and flip charts have been produced. NGOs have limited their work in this area targeting CSWs, truckers, garment workers, etc. The National STD/AIDS Network observed, however, that many communication messages used in the media have not been standardized. Thus, a technical working group has been formed to direct the new wave of behaviour change communication (BCC) under the leadership of United Nations Programme on HIV/AIDS (UNAIDS), USAID, Bangladesh Centre for Communication Programme (BCCP) and UNDP. RTI/STD prevention is one of the important issues of the BCC working group.

Male and RTI/STD

Reproductive health programmes have so far been focused on women in providing information and services for RTI/STD. Following the ICPD held in Cairo, and the fourth World Conference on Women held in Beijing, globally, there is an increasing need for
men to share more responsibility in preventing STD, RTI, HIV, and AIDS [63]. Men too have increased risks due to their patterns of sexual behaviour. Considering STD/AIDS, the role men play as partners has different connotations and can vary widely between different subcultures and social strata. They can have multiple sexual partners before marriage, within marriage, or outside marriage, and can get STD, including HIV/AIDS. Thus, strategies to improve the prevention and management of STD should also take into account men’s concerns, roles, and responsibilities [63].

Men are included in some national demographic and health surveys (DHS), particularly because of their role in family planning and also because of the emergence of STD/HIV/AIDS which has become a major social concern. It is often the male whose sexual behaviour puts his partner’s health at risk. Use, among males, of health services available at the PHC level for STD is poor [38]. Condom—the most widely available male method for the prevention of STD, including HIV infection—remains largely under-used [64]. The roles and responsibilities of men in the decision-making process of prevention and management of RTI/STD have not received an adequate attention. Besides, males are a more difficult group to target for health services.

Recent available global and national prevalence data indicate that men have not been the focus of research. There is very limited information available on men’s knowledge, attitudes and practices with regard to STD. Although awareness about HIV/AIDS is higher among men than women, it is still quite low [11]. To date, most male involvement initiatives have focused on male safer sex practices to prevent STD; establishment of male-only sexual health clinics, or holding separate clinic hour for males; studies of prevalence of STD among males; and limited research on service-seeking behaviour of men [65]. Results of a GoB clinic-based RTI/STD study showed that only three percent of those visiting the clinics for RTI/STD problems were male [38].

Review of ICDDR,B and Project Work on RTI/STD

Several studies on various aspects of RTI, STD, and HIV/AIDS have been conducted at the ICDDR,B and within the project. Following are the most relevant ones:

Centre work

- In 1989, a population-based study was conducted with 2,929 MWRA in the Matlab Field station of the ICDDR,B [66]. Twenty-two percent of these women had symptoms consistent with RTI. Sixty-eight percent of the symptomatic women had laboratory evidence of RTI, including STD. It was found that the use of unclean rags to absorb menstrual blood was significantly associated with an increased risk of RTI. IUD users and tubectomized women were each approximately four times as likely as non-users to report abnormal discharge or lower abdominal pain.

- Another population-based study of the prevalence of RTI/STD in men and women was undertaken in Matlab during 1995-1996 [53]. More than 3,000 people were
included in five different population segments of the survey which looked into reported symptomatology, clinical presentation, treatment-seeking histories, and laboratory diagnoses in both population- and clinic-based samples. Syphilis was present in about one percent of the 900 pregnant women. Ophthalmia neonatorum was present in 0.7 percent of the 730 neonates. Of the 900 population-based and symptomatic women, 25 percent reported that their husbands were symptomatic. In a sample of 795 men, more than 13 percent reported psychosexual problems. Of the 573 sexually active men, 57 percent reported having engaged in pre-marital sex. It was found that the training on syndromic management helped increase the rate of RTI/STD diagnosis (cervical infection and PID). In the study area, a large number of people chose to go, first, to a non-allopathic practitioner for RTI/STD treatment.

- A clinic-based study on the prevalence of RTI among women attending the BWHC clinic in Mirpur, Dhaka has been carried out in collaboration with the Laboratory Sciences Division of the ICDDR,B. The targeted study population is about 2,000 MWRA who seek ANC, EPI, FP, MR, and general healthcare services. Preliminary findings show that STD are positive in about 2 percent of the cases. There is also the evidence of mis-diagnosis and over-diagnosis by the paramedics, using the syndromic management flowchart.

- ICDDR,B in Matlab project has recently merged RTI/STD services with its MCH-FP programme. But all the four subcentres have been contributing to RTI and STD services provision through the syndromic approach. The field workers (Community Health Workers) refer clients to the subcentres from villages. Most components of the syndromic approach (history-taking, physical examination, counselling, availability of proper drugs) have been implemented in all the subcentres. Male clinics, conducted by a medical assistant, are held once every week at all the subcentres. The programme has, however, certain limitations. BCC materials are not available for conducting health education or counselling sessions. Client flow in the male clinics is low, and the clinics were mostly used by males with psychosexual problems. Furthermore, at present, the main centre does not have diagnostic laboratory facilities for RTI or STD. Thus, referral to the main centre is not appropriate.

- The Public Health Sciences Division conducted three qualitative studies. Two were on male sexual behaviour [46, 67], and the other was on risk of contracting HIV for female adolescents in Dhaka City [68]. The studies on the males suggested that homosexual practice among the study population existed. According to the study on female adolescents, both those who engaged and those who did not engage in sexual activities were at risk of contracting HIV. Sexually active girls were practising unprotected sex with multiple partners and girls who were not currently sexually active were ignorant of the mode of transmission and prevention of HIV.
Project work

- The MCH-FP Extension Project (Rural) conducted a clinic-based study at two unions of Abhoynagar thana of Jessore district in 1995 [38]. Findings of the study showed that knowledge of the clients about RTI was low. Half of the clients were completely unaware of the causes, means of transmission, and prevention of RTI. More than 27 percent of the clients who sought services for RTI were IUD users. One half of the 100 clients and their husbands had previously sought services from non-qualified village practitioners. Paramedics of the H&FWC/SC have limited knowledge and training on the prevention and management of RTI/STD. Although facilities for pelvic examination are available in all the H&FWCs, no clients were physically examined, either externally or internally. Three-fourths of the clients were treated with substandard doses of metronidazole. Doxycycline for the management of RTI/STD was only sporadically supplied. The providers gave no advice to the clients with regard to the treatment of husbands and safer sex.

- A cross-sectional study on the prevalence of STD among Dhaka slum dwellers was conducted during July-October 1996. Five hundred forty male and 993 female respondents were enrolled in the study [55]. Serological evidence of current syphilis infection was found in 11.5 percent of the men and 5.4 percent of the women. The prevalence rate of gonorrhoea and chlamydia was below one percent in both the cases.

- One study was conducted among the urban population to examine the use patterns of pharmacies for family planning, RTI and sick child treatment, and to examine knowledge and habits of pharmacists and drug sellers, aiming at assessing the feasibility of pharmacy provision of family planning, reproductive tract infections, and sick child treatment services. The study was conducted in Dhaka Administrative Zone 3, which is characterized by several very large slum areas. One hundred forty-four pharmacy consumers were identified and asked about their care-seeking practices from pharmacies. Eighty-three allopathic drug outlets and drug sellers were surveyed during November-December 1994. About 90 percent of the drug sellers reported that customers seeking advice or treatment for STD-related symptoms regularly visit their facilities; the usual treatment/advice practice reported by these drug sellers is to refer such clients to the hospital (56.2%); sell antibiotics to them (26%); or sell creams and ointments (12.3%) to them for their symptoms. None recommended the use of condom during future sexual encounter [39].

- A joint research program of the Extension Project (Rural) of the ICDDR,B and the Health Transition Centre, Australian National University was conducted in Chittagong city, and in a string of smaller towns and rural areas stretching over 150 kilometres north-south through that city either side of the Arakan highway to assess the risk of HIV/AIDS infection in rural Bangladesh [69]. The target was 1000 male respondents, half married, and half single. The study showed that about half of the
males experienced premarital sexual relations. Twenty-one percent of all unmarried men and 24 percent of all married men had experienced commercial sex. Sexual relations with CSWs is higher before marriage.

• The former MCH-FP Extension Project (Urban) conducted an intervention in three government dispensaries and three NGO clinics of the Dhaka city to test a basic package of essential services. RTI/STD service was one of the components of the package. Protocols were introduced as part of the intervention. After training of the providers on the use of protocol, diagnosis and treatment improved. A monitoring checklist for RTI/STD management was also developed [70].

• In 1997, the Operations Research Project, in collaboration with the GoB, developed a flip chart [71] on ESP, along with a manual which covers general RTI, STD and HIV information. The flip chart is used in the tiers of ESP intervention up to the H&FWC level. In 1997, a protocol on the ESP and its manual were developed by the Project. The protocol was intended for use by the service providers at the PHC level. The protocol, also available in Bangla for the paramedics, contains flowcharts of RTI/STD management [72].

Review of GoB, NGO and Private Sector Activities

GoB activities

National policy on HIV/AIDS and STD-related issues:

• A “Task Force” drafted the national policy document on HIV/AIDS and STD in early 1995, under the auspices of the Bangladesh STD Prevention and Control Project. The draft was finalized through a ‘Multi-Sectoral Consensus’ Workshop held in October 1996, and also finally scrutinized by a select committee formed by the MOHFW in the same year. In May 1997, the MOHFW approved the document [73].

• According to the STD policies, the GoB should establish a programme to help prevent and treat STD. Such an effort should be integrated or closely coordinated with the National STD/AIDS Control Programme. Moreover, a separate directorate for STD/AIDS should be established, and STD care services should be extended up to the thana level with all logistic support. Such a programme should have collaborative and coordinating support of family planning workers. The STD programme will promote accessible, effective and acceptable case management using simple algorithms based on syndromic management and integration of STD care in MCH and FP services. The programme will also promote STD healthcare-seeking and safer sexual behaviours.

• A national strategic plan has been approved. A National AIDS Committee has been functioning to advise and recommend policies and strategies for the prevention and control of HIV/AIDS. Major areas that need to be considered for implementing specific programmes include: advocacy and epidemiological surveillance; behavioural change support and BCC; promotion of condom use; STD management;
safe and appropriate use of blood transfusion; and HIV/AIDS counselling, care and legislation. Director, PHC and DC as Line Director will implement these activities, and a programme manager will provide the focused management required for the special situation related to the prevention and control of HIV/AIDS [74].

- The National AIDS Committee conducted a knowledge, attitude and behavioural practice (KABP) survey in 1990. Results of the survey showed that only 38 percent of the total sample had heard about AIDS, and even those who had heard about it had very little knowledge about the disease. The survey also identified widespread misconception about the transmission of HIV infection, poor knowledge about the susceptibility to infection, prevalence of the erroneous idea that AIDS could be cured, and other misconceptions about the methods of prevention.

- The Directorate of Family Planning, in collaboration with the Population Council, conducted an intervention in two unions of Kalihati thana of Tangail district [75]. The intervention was aimed to develop a model of comprehensive RTI/STD service-delivery at the union H&FWCs. The intervention helped improve the clients’ knowledge and service-seeking behaviour. After the intervention, all the providers were able to follow the infection-prevention steps. Speculum examination was universal, except in pregnancy cases. Most providers could follow the syndromic management chart. Certain limitations, however, did exist. Drugs were not provided from the H&FWCs. Also, partner management was not attempted, and RTI/STD services were provided only on special days.

- The current family planning programme provides support for RTI screening and management for IUD clients. The supply of doxycycline is fixed per IUD insertion, but not for other RTI clients, although supply of doxycycline is not regular.

- The Ministry of Health and Family Welfare (MOHFW), under its HPSP, has adopted a client-centred reproductive health approach. By offering a broad range of services and focusing on client need, rather than demographic targets, this approach increases the use of available services and helps make those services more cost-effective. It does this by providing clients with a “one-stop shopping” option for reproductive and other basic services. Using the interventions identified by the 1993 World Development Report, the elements of the ESP have been summarized and grouped into five areas, such as reproductive healthcare, child healthcare, communicable disease control, limited curative care, and behavioural change communication. Of these, two distinctly address interventions related to RTI/STD/AIDS. Prevention and control of RTI/STD/AIDS is one of the six components of reproductive healthcare, the main focus of which will be on behavioural communication and condom promotion. Management of RTI/STD has also been addressed in the communicable disease control programme of the HPSP [2].

NGO activities

Most NGOs of the country are concerned about the prevention and management of RTI/STD. In 1993, several NGOs set up an STD/AIDS network to coordinate STD/AIDS...
prevention-related activities. It is broadly recognized that NGOs, given their potential for flexibility and interactive relations with community members, have much to offer toward prevention and behaviour change activities. With regard to STD/HIV/AIDS, close collaboration between the GoB and NGOs is currently being addressed in developing the fifth health and population plan. In fact, NGOs are being invited to support the MOHFW in the delivery of the ESP, interventions for community behaviour change, training and providing standard guidelines for the project. NGOs have been carrying out the majority of HIV/AIDS prevention activities nationwide.

Most NGO programmes integrate RTI/STD services with MCH-FP. Some work with special groups. NGOs that have been working in this area for several years have earned a sense of maturity. Other organizations have only recently ventured into the area of RTI/STD.

Besides reviewing various literature, the reviewers visited a number of NGOs involved in STD/HIV/AIDS-related activities. They interviewed managers and providers, observed clinic activities, and talked with clients. Some key findings are given below:

- Many NGO programmes have undertaken RTI/STD awareness-raising initiatives. Health education sessions are conducted in both static and satellite clinic settings. Several NGOs also perform education targeting special groups, such as students, truckers, and garment workers. The Population Council has prepared a popular flip chart. Some of the programmes, especially in urban settings, arrange video shows and distribute booklets on the prevention of RTI/STD and HIV/AIDS.

Health education carried out in a busy clinic setting is often not successful in captivating the attention of clients. Moreover, educators feel that it is inappropriate to show the pictures of genitalia in presence of children. The pictures of the flip chart are too small to show in a group more than three clients. Thus, educators prefer posters to the flip chart for conducting larger health education sessions.

- The family planning, RTI/STD and HIV/AIDS task force of NIPHP has prepared technical standard and service-delivery protocol for the syndromic management of RTI/STD.

- Some more mature programmes have been using syndromic management for RTI/STD. Providers who have been trained in syndromic management bear non-judgmental attitude toward clients, attempt to maintain privacy and confidentiality, and maintain an adequate infection-prevention procedure. These programmes also offer facilities like examination and counselling. Demonstration of condom use is common at these facilities for almost all RTI/STD clients.

- A few NGOs conduct training courses on syndromic management. The average duration of such training is six to ten days for both paramedics and physicians. Facilities for practical demonstrations in RTI/STD, however, are very limited. At present, the Marie-Stopes Clinic Society, Concerned Women for Family Planning (CWFP), and Bangladesh Women's Health Coalition (BWHC) can offer practical training. The venereal disease outpatient department of any government hospital is also a good place to interview male STD patients.
Private sector activities

In the private sector, Social Marketing Company (SMC) has been playing an active role in the prevention and control of RTI/STD. Shurokkhya is the STD/HIV prevention programme of the SMC in Bangladesh. It is a multicentric programme that focuses on men and women at a high risk of acquiring HIV/AIDS and STD. The components of the programme are research; education, motivation and counselling; and condom promotion. The primary target groups of the programme are brothel-based female sex workers, floating female sex workers and identifiable high-risk male groups. The secondary target groups are community leaders and pharmacists. The programme has already trained 530 health providers, including pharmacists and non-credited doctors in Narayanganj, Jamalpur, Mymensingh, Benapole, and Tejgoan in collaboration with the AVSC/Access in Training and Management (AITAM) during November 1996-August 1997. The training focuses on condom use for the prevention of STD and HIV, syndromic management, and how and when to refer patients to a doctor [76].

At present, SMC supplies 65 percent of the country’s condom requirements, and has also begun to disseminate messages linking the condom with the prevention of STD/HIV/AIDS [74].

Lessons Learned

- Information on the nation-wide prevalence of RTI/STD in Bangladesh is lacking. Prevalence studies that have been done suggest although non-sexual RTI are most common, the prevalence of STD is not particularly low.
- STD and HIV have no country boundaries.
- Awareness among community members regarding the prevention of RTI/STD is low; knowledge about the prevention of RTI/STD is even lower.
- In many facilities, knowledge among providers about RTI/STD is not appropriate.
- All forms of risky sexual behaviour exist in Bangladesh.
- Use of condoms for both contraception and STD prevention is low.
- The use of unqualified practitioners for RTI/STD treatment is common. Males prefer the pharmacy as a first-line provider, particularly with regard to STD.
- Appropriate and uniform BCC materials on RTI/STD are not available.
- The syndromic approach is not practised at GoB facilities. It is practised at some NGO facilities, but the implementation of the approach is not standardized in terms of diagnosis, counselling, privacy and confidentiality, drugs, partner management and referral.
- NGOs practise partner notification with difficulty. Most NGOs practise patient referral partner notification.
- The existing referral and linkage system is weak.
- Use of the GoB and NGO RTI/STD services at the PHC level by the male is low.
• Pharmacists and drug store personnel play an important role in STD control.
• Male responsibilities in the decision-making process of prevention and management of RTI/STD have not received adequate attention.
• Although antenatal screening for syphilis is cost-effective, it is not widely available at the PHC level.
• Antimicrobial resistance causes treatment of STD complicated and expensive.

The Future Needs

Based on this comprehensive review, specific requirements for the effective prevention and management of RTI/STD in Bangladesh are summarized below:

- Further study on the prevalence of RTI/STD to justify future programme planning and implementation regarding the prevention and management of RTI/STD according to the magnitude and seriousness of the problem.
- An increased community awareness about RTI/STD through standardized BCC activities at all levels of service-delivery to help educate the people about the prevention of these infections.
- Emphasis on BCC strategies for the primary and secondary prevention of STD and AIDS through promotion of safer sexual behaviour, including the promotion of condoms and promotion of health-seeking behaviours.
- Expansion of clinical services for managing RTI/STD clients by involving the first level healthcare facilities, including MCH, FP and antenatal clinics, in STD service provision based on the syndromic approach to case management.
- Improved quality of care with regard to diagnosis, treatment and counselling in both GoB and NGO facilities. Periodic evaluation of these facilities is essential. Regular supply of appropriate drugs should be ensured. An effective follow-up system would help ensure drug compliance and treatment effectiveness.
- Development of a system to monitor antimicrobial-resistant strains of STD to procure more effective drugs and to update providers periodically about current recommendations.
- Standardization in the implementation of the syndromic approach (based on current information) in the context of Bangladesh.
- Operations research on the syndromic approach for RTI/STD management at the PHC level.
- Development of effective partner management strategies.
- Development of counselling facilities at each and every PHC level through development of standardized counselling guidelines, training on counselling following the guidelines, and strengthening counselling services by refresher courses and establishing a network of counsellors who can share their experiences.
• Operations research on antenatal screening for syphilis at the PHC level.
• Mobilization of pharmacists/drug sellers in the control of RTI/STD.
• RTI/STD prevention and management programmes aimed at special populations, e.g. commercial sex workers, garments workers, truck drivers, adolescents and men.
• RTI/STD/HIV/AIDS services require male involvement for their own better health as well as for better health of their partners. Men need to be well informed about the availability of STD prevention and treatment services for both males and females at the PHC level.
• Development of strong referral linkages among the GoB, NGOs, and the private sector.
• Strong coordination, collaboration and commitment among the GoB, NGOs, and the private sector are essential for the successful prevention and management of RTI/STD.
• Further exploration on the RTI/STD prevention and management services delivered by the private sector.
• Coordination and collaboration with the health authorities in other countries.

Conclusion

RTI and STD are priority health problems in Bangladesh. This realization has direct and strategic relevance to the prevention of HIV/AIDS in the country. It is important to recognize that RTI/STD prevention and management is a major strategy in the prevention of HIV infection. There is a general consensus among the professional community that the RTI/STD problem exists in Bangladesh, but the true magnitude of the problem cannot be ascertained based on the existing data. However, in response to the epidemic of HIV/AIDS in the close neighbouring countries, Bangladesh needs to strengthen and improve its RTI/STD prevention and management strategies. Emphasis should be given to the promotion of the syndromic approach to manage RTI/STD. Emphasis should also be given on raising public awareness, improving access to RTI/STD services, and active promotion of condom use and safer sexual behaviours.

A comprehensive plan of action for the prevention and management of STD and HIV/AIDS has been prepared for the country. What is required is its rapid implementation followed by a continuous process of evaluation and adaptation of the strategies to accommodate future developments in the area of RTI/STD/HIV/AIDS prevention and management. Strong coordination, collaboration and cooperation among GoB, NGOs and the private sector are, however, essential. It is the opinion of the authors that operations research on the issues covered in this review could serve to accelerate the implementation and modification of the strategies and the successful adaptation of new strategies. This could be made possible through the evaluation of the existing strategies to prevent and manage RTI/STD nation-wide.
References


MCH-FP Extension Work at the Centre

An important lesson learned from the Matlab MCH-FP project is that a high CPR is attainable in a poor socioeconomic setting. In 1982, the MCH-FP Extension Project (Rural) with funding from USAID began to examine in rural areas how elements of the Matlab programme could be transferred to Bangladesh's national family planning programme. In its first year, the Extension Project set out to replicate workplans, and record-keeping and supervision systems, within the resource constraints of the government programme.

During 1986-89, the Centre helped the national programme to plan and implement recruitment and training, and ensure the integrity of the hiring process for an effective expansion of the work force of governmental Family Welfare Assistants. Other successful programme strategies scaled up or in the process of being scaled up to the national programme include doorstep delivery of injectable contraceptives, management action to improve quality of care, management information systems, and strategies to deal with problems encountered in collaborative work with local area family planning officials. In 1994, this project started family planning initiatives in Chittagong, the lowest performing division in the country.

The Centre and USAID, in consultation with the government through the Project's National Steering Committees, concluded an agreement for new rural and urban Extension Projects for the period 1993-97. Salient features include: improving management, quality of care and sustainability of the MCH-FP programmes, and providing technical assistance to GoB and NGO partners. In 1994, the Centre began an MCH-FP Extension Project (Urban) in Dhaka (based on its decade long experience in urban health) to provide a coordinated, cost-effective and replicable system of delivering MCH-FP services for Dhaka urban population. This important event marked an expansion of the Centre's capacity to test interventions in both urban and rural settings. The urban and rural extension projects have both generated a wealth of research data and published papers in international scientific journals.

In August 1997 the Centre established the Operations Research Project (ORP) by merging the two former MCH-FP Extension Projects. The ORP research agenda is focussed on increasing the availability and use of the high impact services included in the national Essential Services Package (ESP). In this context, ORP has begun to work with partners in government and NGOs on interventions seeking to increase coverage in low performing areas and among underserved groups, improve quality, strengthen support systems, enhance financial sustainability and involve the commercial sector.

ORP has also established appropriate linkages with service delivery partners to ensure that research findings are promptly used to assist policy formulation and improve programme performance.
The Division

The Health and Population Extension Division (HPED) has the primary mandate to conduct operations research, to disseminate research findings to program managers and policy makers and to provide technical assistance to GoB and NGOs in the process of scaling-up research findings to strengthen the national health and family planning programmes.

The Division has a long history of solid accomplishments in applied research which focuses on the application of simple, effective, appropriate and accessible health and family planning technologies to improve the health and well-being of underserved and population-in-need. There are various projects in the Division which specialize in operations research in health, family planning, environmental health and epidemic control measures. These cut across several Divisions and disciplines in the Centre. The Operation Research Project (ORP) is the result of merging the former MCH-FP Extension Project (Rural) and MCH-FP Extension Project (Urban). These projects built up a considerable body of research and constituted the established operations research element for child and reproductive health in the Centre. Together with the Environmental Health and Epidemic Control Programmes, the ORP provides the Division with a strong group of diverse expertise and disciplines to significantly consolidate and expand its operations research activities. There are several distinctive characteristics of these endeavors in relation to health services and policy research. For one, the public health research activities of these Projects are focused on improving programme performance which has policy implications at the national level and lessons for the international audience also. Secondly, these Projects incorporate the full cycle of conducting applied programmatic and policy relevant research in actual GoB and NGO service delivery infrastructure, dissemination of research findings to the highest levels of policy makers as well as recipients of the services at the community level; application of research findings to improve program performance through systematic provision of technical assistance; and scaling-up of applicable findings from pilot phase to the national program at Thana, Ward, District and Zonal levels both in the urban and rural settings.