

Operational Aspects of Syndromic Management of RTIs/STIs at a Primary Healthcare-level Clinic

**Saifur Rahman
Azharul Islam Khan
Rezina Razzaq
Iffat Shams**



**ICDDR,B: Centre for Health and Population Research
Mohakhali, Dhaka 1212, Bangladesh**

ICDDR,B Working Paper No. 151

Edited by: M. Shamsul Islam Khan

Design and Desktop Publishing: Jatindra Nath Sarker
Manash Kumar Barua

ISBN: 984-551-238-0

ICDDR,B Working Paper No. 151

©2001. ICDDR,B: Centre for Health and Population Research

Published by:

ICDDR,B: Centre for Health and Population Research

GPO Box 128, Dhaka 1000, Bangladesh

Telephone: (880-2) 8811751-60 (10 lines); Fax: 880-2-8811568

E-mail: msik@icddr.org; URL: <http://www.icddr.org>

Printed by: Sheba Printing Press, Dhaka

Acknowledgements

The Operations Research Project (ORP) (recently renamed as Family Health Research Project) of the ICDDR,B: Centre for Health and Population Research worked in collaboration with the Ministry of Health and Family Welfare, Government of the People's Republic of Bangladesh, and was supported by the United States Agency for International Development (USAID) under the Cooperative Agreement No. 388-A-00-97-00032-00 with the ICDDR,B.

The study was supported by the USAID. The Centre is supported by the following countries, donor agencies, and others who share its concern for the health and population problems of developing countries:

- Bilateral/government donors: Australia, Bangladesh, Belgium, Canada, European Union, Kingdom of Saudi Arabia, Japan, Netherlands, Sri Lanka, Sweden, Switzerland, United Kingdom, and United States of America;
- UN agencies and affiliates: UNAIDS, UNICEF, WHO, and World Bank;
- International organizations and medical research institutions: Asian Development Bank, Centers for Disease Control and Prevention-USA, Howard Hughes Medical Institute, International Vaccine Institute, Japan International Corporation of Welfare Services (JICWELS), National Institutes of Health-USA, and National Vaccine Programme Office-USA;
- Foundations and other important organizations: American Express Foundation, Bill and Melinda Gates Foundation, Child Health Foundation, Ford Foundation, Nestle Research Foundation, Novartis Nutrition AG, Rockefeller Foundation, Swiss Red Cross, and Thrasher Research Foundation;
- Private sectors: American Home Products (Wyeth), Aventis, Cytos Pharmaceuticals, Cairn Energy, Duncan Brothers, Glaxo-SmithKline, John Snow International, Occidental, Shell, and UNOCAL.

The authors are grateful to Prof. A.B. Bhuiyan, President-Elect, Obstetric and Gynaecological Society of Bangladesh, Dr. Yasmin H. Ahmed, Country Director, Marie Stopes Clinic Society, and Dr. Abu Jamil Faisal, Country Director, Engender Health, Quality Improvement Partnership, for kindly reviewing this paper and giving their valuable comments. The authors express their gratitude to Prof. Mujibul Haque, Head of STD Department, Dhaka Medical College Hospital and Dr. Julia Ahmed, Deputy Director, Bangladesh Women's Health Coalition for their valuable suggestions on the paper.

The authors specially acknowledge the cooperation and collaboration received from Dr. Ferdousi Rahman, Senior Technical Officer, Rural Service Delivery Partnership and Dr. Chowdhury M. Farid U. Faruki, Assistant Manager, Quality, Jatiya Tarun Sangha (JTS) while conducting the study. The authors also acknowledge the assistance received from the clinic staff of Paribarik Shasthaya Seba Clinic, JTS, Shibalaya, Manikganj, in collecting necessary information for the study.

Last but not the least, special thanks go to Dr. Khairun Nessa and Dr. Rasheda Khanam, Operations Researchers, ORP, ICDDR,B for assisting in collection and compilation of data.

Glossary

AIDS	Acquired Immune-deficiency Syndrome
BCC	Behaviour Change Communication
ESP	Essential Services Package
FWV	Family Welfare Visitor
GoB	Government of Bangladesh
HIV	Human Immunodeficiency Virus
HPSP	Health and Population Sector Programme
ICDDR,B	International Centre for Diarrhoeal Disease Research, Bangladesh
ICPD	International Conference on Population and Development
JTS	Jatiya Tarun Sangha
MCH-FP	Maternal and Child Health-Family Planning
NGO	Non-government Organization
NIPHP	National Integrated Population and Health Programme
ORP	Operations Research Project
PHC	Primary Healthcare
PID	Pelvic Inflammatory Disease
RSDP	Rural Service Delivery Partnership
RTI	Reproductive Tract Infection
STD	Sexually Transmitted Disease
USAID	United States Agency for International Development
WHO	World Health Organization

Contents

	Page
Executive Summary	1
Introduction	3
Objective	4
Materials and Methods	4
Operational definitions.....	5
Facilities for syndromic management.....	5
Acceptability of syndromic management by providers and RTI/STI clients.....	5
Results	6
Facilities for syndromic management of RTIs/STIs.....	6
Providers	6
Privacy for history-taking and physical examinations.....	7
Physical examinations	7
Drugs.....	7
Facilities and skills for infection-prevention concerning syndromic management.....	8
Skills for RTIs/STIs case-management service.....	9
History-taking.....	10
Physical examinations	10
Diagnosis and treatment.....	11
Education and counselling	15
Clinical follow-up.....	16
Viewpoints of providers on syndromic management of RTIs/STIs	16
Feelings of clients on syndromic management services	17
Discussion	18
References	24
Table Treatment of clients not as per recommendation	14
Figures	
Fig. 1 RTI/STD clients attending the clinic during Sept 1999 - Sept 2000 .	6
Fig. 2 RTI/STD clients as diagnosed and managed at the clinic during Sept 1999 - Sept 2000.....	13

Executive Summary

In Bangladesh, both Health and Population Sector Programme (HPSP) and National Integrated Population and Health Programme (NIPHP) have prioritized prevention and control of reproductive tract infections/sexually transmitted infections (RTIs/STIs) as one of the key components of reproductive healthcare in the essential services package (ESP). Early detection and treatment, preferably at the point of the client's first contact with the health system is essential for successful prevention and control of RTIs/STIs. Syndromic management of RTIs/STIs in low-resource settings is a practical tool of diagnosis and treatment for health workers. The NIPHP, in collaboration with the Ministry of Health and Family Welfare, Government of Bangladesh, developed a technical standard and service-delivery protocol for management of RTIs/STIs. This protocol is used by the providers at the primary-level health facilities.

This study assessed syndromic management of RTIs/STIs using the technical standard guidelines. The study, cross-sectional and descriptive in nature, was conducted at the Jatiya Tarun Sangha (JTS) Shasthya Sheba Clinic in Shibalaya, Bangladesh. JTS is a Rural Service Delivery Partner (RSDP) NGO.

Observations, interviews and review of clinic statistics were the tools used for the assessment. Observations included facilities for management of RTI/STI at the clinic and interactions of providers-clients (RTI/STI clients). In total, 33 observations were carried out. All on-duty providers and 27 RTI/STI clients were interviewed to gather their views on the management approach. The clinic statistics on RTI/STI services were reviewed.

The results of the study showed that services for syndromic management of RTIs/STIs were provided as a component of ESP, which included maternal and child health (MCH), family-planning (FP), and expanded programme of immunization (EPI) services. The clinic had necessary privacy for consultation and instruments for examination of RTI/STI clients. It also had all the first-line oral antibiotics for RTIs/STIs which the clients could purchase. Both male and female providers trained on syndromic management, were available at the clinic. During the one-year study period, 341 clients received services for managing their RTIs/STIs from the clinic. These clients were diagnosed as having vaginitis (36%), cervicitis (33%), pelvic inflammatory disease (20%), cervicitis with vaginitis (20%), urethral discharge (3%), and genital ulcer (1%). The providers prescribed antibiotics to all the clients, and in 18% of the cases, the technical standard guidelines were not followed. Ninety-six percent of the clients were females who came with complaints of vaginal discharge and lower abdominal pain. The male client flow at the clinic was very poor, and the tracing of partner was successful only in a few cases. Antibiotics were prescribed to all the diagnosed cases and in 78% of the cases, the antibiotics were prescribed according to the technical standard guidelines. Of the 341 clients, only 2% purchased drugs from the clinic. Since 98% of the clients did not return for follow-ups, their compliance with treatment was difficult to apprehend.

The findings of observations showed that the providers followed the recommended steps of syndromic approach to manage the RTI/STI clients. During physical examinations, they carried out the required steps of infection-prevention procedures but with limitations. They did not face any difficulty in adopting the syndromic management, except in cases when the clients refused to undergo speculum examination and when diagnoses were based only on risk assessment. However, the providers expressed their need for a wall chart and laminated flowcharts for diagnosis and treatment, since these would help them follow the management procedures.

The RTI/STI clients expressed their satisfaction on the services and counselling received from the providers, and did not have any objection and/or difficulty in physical examinations. They also complied with the diagnosis of the providers. They intended to bring their partners for treatment when required. Despite their willingness, the female clients were unable to bring their partners for unexplained reasons.

The service-related statistics showed that the rate of cervicitis with the complaint of vaginal discharge among the women was high which contradicts the results of the recently-accomplished STI prevalence studies in Bangladesh. Findings of observations showed that, in most cases, diagnosis of the providers matched with that of the observers. Thus, one of the important reasons could be that the effectiveness of flowchart in diagnosis of cervicitis was not flawless.

The findings of the study suggest that syndromic management of RTIs/STIs at the PHC-level clinic in rural Bangladesh is possible. However, for an effective management approach, the issues, such as validity of flowcharts particularly in diagnosis of cervicitis, choice, procurement, and cost of drugs for treatment of RTIs/STIs; partner notification and treatment; follow-up of treatment; and infection prevention in relation to management of services for RTIs/STIs, need to be investigated in the context of Bangladesh. Operations research is essential to assess, improve, and implement available technologies in addressing these issues. Lessons learned in those aspects will be of importance not only to control RTIs/STIs, but also for introduction of effective and feasible RTI/STI management approach at the PHC level.

Introduction

Reproductive tract infections (RTIs) and sexually transmitted infections (STIs) are major public-health problems in developing countries. Several epidemiological and biological studies support the fact that both RTIs and STIs, especially those associated with genital ulceration, enhance the transmission of human immunodeficiency virus (HIV) [1]. In 1994, the International Conference on Population and Development (ICPD) in Cairo recommended that control of RTIs/STIs should be considered one of the essential components of reproductive health. In Bangladesh, both Health and Population Sector Programme (HPSP) and the National Integrated Population and Health Programme (NIPHP) have prioritized the issue as one of the key components of reproductive healthcare in the essential services package (ESP). These programmes address behaviour change communication (BCC), management of RTIs/STIs cases, including referral of partner and promotion of condom in the prevention and control of RTIs/STIs [2,3].

One of the key issues relating to the prevention of RTIs/STIs, including human immunodeficiency virus (HIV), acquired immune-deficiency syndrome (AIDS), is early detection and treatment of the diseases, preferably at the point of client's first contact with the health system. In developing countries, laboratory diagnosis of most conditions can be difficult, and is often unavailable in settings of primary healthcare (PHC) clinics. However, the syndromic approach to case management of STI provides health workers in low-resource settings a practical tool for diagnosis and treatment. This approach is based on identifying a group of symptoms and signs associated with a number of well-defined aetiologies. The World Health Organization (WHO) developed and has been promoting this approach since the early 1980s. Although the syndromic approach to managing clients with STIs is currently in use in many developing countries, evaluation of its feasibility is essential considering each country individually in the socio-economic context.

The NIPHP, in collaboration with the Ministry of Health and Family Welfare (MOHFW), Government of Bangladesh (GoB), reviewed the WHO flowcharts of syndromic management of RTIs/STIs adapted for use in Bangladesh, and developed a technical standard and service-delivery protocol. The protocol used by the providers at the PHC-level service-delivery sites. For efficient and successful implementation, a review of operational aspects of this approach was required considering the available facilities, skills and attitudes of providers, and of clients satisfaction and compliance with the management.

The NIPHP Operations Research Working Group and the GoB identified a number of key issues relating to strategies for the control of RTIs/STIs by reviewing literature and visiting clinics [4]. The issues for operations research (OR) interventions were agreed upon and prioritized with some specific areas to be addressed. Assessment of the operational aspects of the syndromic approach, following the NIPHP and MOHFW-developed RTI/STI management protocol, at the Rural Service Delivery Partnership (RSDP) service-delivery sites,

was one of those OR issues, and has been addressed as one of the components of OR “Strategies to improve prevention and management of RTIs/STIs” of the Operations Research Project (recently renamed as Family Health Research Project) of ICDDR,B: Centre for Health and Population Research. It was conducted in collaboration with the RSDP and the Quality Improvement Partnership (QIP) at the Jatiya Tarun Sangha's ((JTS) Paribarik Shasthya Sheba Clinic at Shibalaya, Manikganj district, Bangladesh. This paper is based on the findings of this OR activity.

Objective

This study assessed the operational aspects of the syndromic management of RTIs/STIs at a PHC-level static clinic. The assessment included: (a) looking into the facilities of the clinic for syndromic management of RTIs/STIs; (b) acceptability of this management approach by providers; and (c) compliance of clients with this approach.

Materials and Methods

This cross-sectional and descriptive study was carried out at the Jatiya Tarun Sangha (JTS)'s Paribarik Shasthya Sheba Clinic at Shibalaya, a subdistrict of Manikganj district, Bangladesh. The clinic catchment area has population of about 143,842. Aricha Ferry Ghat is located 1 km away from the Clinic. This Ferry Ghat is one of the major trucking routes of Bangladesh. Every day hundreds of long-route trucks gather at the ghat where floating sex workers are available. Families of many truck drivers reside in Shibalaya. Both truck drivers and sex workers are the sub-population practising high-risk behaviours for transmission of STIs and HIV [5]. The JTS is a RSDP NGO. In total, there are five GoB and NGO static health clinics including the Shasthya Sheba Clinic of JTS.

The clinic introduced the syndromic approach for the management of RTIs/STIs, and the clinic staff followed “Technical standard and service-delivery protocol for management of RTIs/STIs.” This protocol was a joint effort of the NIPHP partners, GoB, other NGOs, and the Family Planning STI/RTI and HIV/AIDS Taskforce, and was published in August 1999. The study, carried out during September 1999-September 2000, looked into and describes this syndromic approach of RTIs/STIs already in use at the clinic during the study period.

The investigators reviewed the overall RTI/STI service facilities of the clinic. Skills and acceptability of the providers were assessed through four periodic observations and interviews. The observations made at every three-month interval included provider-client (RTIs/STIs client) interactions during service-delivery. Management of both male and female clients was observed, but the turn up of male clients with the complaints of STIs at the clinic was very low.

The clinic manager was requested to ask the community mobilizers to put extra efforts for mobilization of male clients, which resulted in observing the management of an additional six male clients. In total, 33 such observations were conducted.

Twenty-seven exit interviews with RTIs/STIs clients were carried out to gather their experiences and opinions regarding the service. All the on-duty providers practising syndromic management at the clinic were interviewed to assess their understanding, experiences, and views regarding the syndromic management of RTIs/STIs. The clinic statistics on RTI/STI services were reviewed to assess the RTI/STI client-flow and the patterns of diagnosis and treatment.

Observation checklists, interview questionnaires and service statistics-recording form were the instruments for data collection. The observation checklists included services of providers, provider-client interactions, supply of drugs, infection-prevention procedures, and clinic waste-disposal system in relation to RTI/STI services. Questionnaires were pre-structured for interviewing clients and providers. The service statistics form was used for collecting service statistics on RTI/STI client-flow, diagnosis, and treatment, including that of partner.

One male and two female operations researcher conducted observations and interviews. All of them were medical graduates and received special training on the syndromic management of RTIs/STIs from the Marie Stopes Clinic Society.

Operational definitions

Facilities for syndromic management

In the study, the operational capacity of the clinic for the syndromic management of RTIs/STIs included availability of facilities and skills to implement the syndromic approach for case management of RTIs/STIs. The facilities and skills were referred to: history-taking, physical examinations, including speculum examination, and counselling with privacy; drug disposing; appropriate record-keeping; infection prevention; and disposal of clinic wastes.

Acceptability of syndromic management by providers and RTI/STI clients

Acceptability of syndromic management included compliance of providers and clients with the syndromic approach for case management of RTIs/STIs. Compliance of providers meant: following of all the recommended steps of syndromic management without any problem. Compliance of clients was referred to their assent in providing history of illness, including sexual history, and undergoing the required physical examinations without any objection. Purchasing of drugs, using it as prescribed, and coming for follow-up visit were also considered as compliance of clients with diagnosis and treatment.

Results

The statistics on the RTI/STI management services of the clinic during September 1999-September 2000 showed that 341 clients in total received management services for RTIs/STIs, i.e. the average RTI/STI client-flow per month (Fig.1) was 28. Of them, 96% were females with complaints of vaginal discharge and lower abdominal pain. The male clients (4%) had the complaints of urethral discharge and genital ulcer. The clinic applied syndromic management to serve these clients, and the providers used “Technical Standard and Service Delivery Protocol for the management of RTIs/STIs” as the reference guidelines for RTI/STI syndromic management.

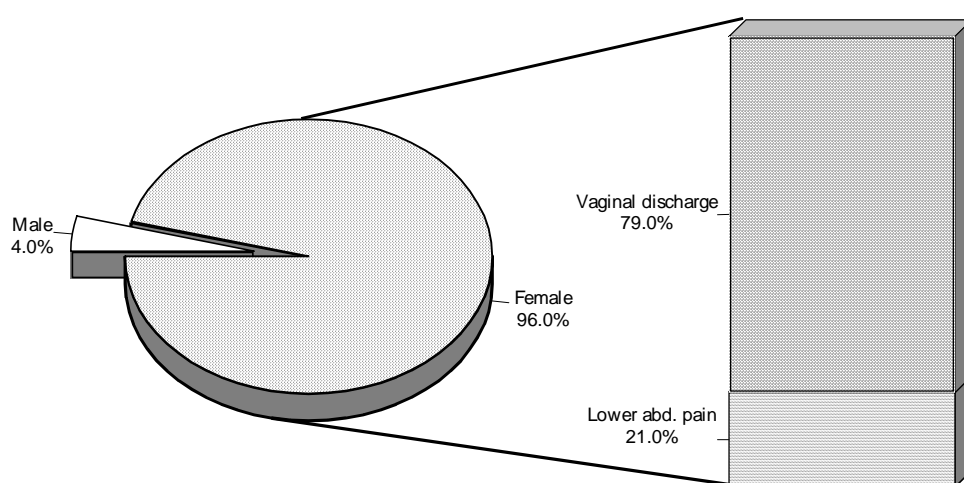


Fig.1. RTI/STD clients attending the clinic during September 1999–September 2000

Facilities for syndromic management of RTIs/STIs

Providers

At the study clinic, there were one male and three female healthcare providers. The male provider was an MBBS doctor, and the females were paramedics. The doctor was fixed to the clinic, but the paramedics were at services by rotation as they also provided services to the satellite clinics. While on duty, the providers were assisted by two clinic aides.

All the providers were trained under an 11-day reproductive health programme which included maternal health and RTIs/STIs. They were trained on the syndromic approach and instructed to use the NIPHP-developed “Technical standard and service-delivery protocol for the management of RTIs/STIs” as the reference guidelines. The training also included practical orientations on case management of RTIs/STIs.

Privacy for history-taking and physical examinations

Assurance of privacy is an important factor that has to be particularly considered in case of RTI/STI clients. In the present study, privacy is meant to manage a RTI/STI client in a room having relative auditory and visual seclusion, with physical examination facilities and an attached toilet.

The JTS clinic has two consultation rooms--one for the doctor and the other one for the paramedics. The paramedic's consultation room is attached to a separate examination room to examine female clients. The doctor's consultation room has examination facility for male clients. Both consultation rooms have auditory and visual privacy and have attached toilets.

Physical examinations

In the study, the facilities for physical examinations concerning syndromic management of RTIs/STIs included an examination table, and instruments and logistics for speculum examination. The instruments and logistics for speculum examination included spotlight, instrument tray, vaginal speculum, sponge-holding forceps, lifter with stand, kidney tray, gullipot, surgical gloves, and cotton gauze. The clinic had all the instruments and logistics for case management service of RTIs/STIs. Instruments for speculum examination were adequate and in good condition. However, for cervical swab, cotton ball was used instead of cotton gauze.

Drugs

One of the important factors for successful case management of RTIs/STIs includes availability of recommended drugs at the service-delivery facilities. The drugs that were supposed to be available at the clinic are:

- **Oral [6]**

First-line: Tab. Ciprofloxacin (500 mg), Cap. Doxycycline (100 mg), Tab. Erythromycin (500 mg), Tab Metronidazole (400 mg), and Syp. Erythromycin.
Second-line: Cap. Tetracycline (500 mg), Tab. Secnidazole (400 mg), Cap. Fluconazole (150 mg), and Syp. Co-trimoxazole.

- **Intravaginal [6]**

First line: Tab. Co-trimoxazole/Miconazole (150 mg).

- **Injection [6]**

First-line: Inj. Benzathine Penicillin G 24 lakh, Inj. Ceftriaxon (in case of pregnant woman and neonate).
Second-line: Inj. Kenamycin

At the study clinic, all the first-line oral drugs were available which the clients could purchase. The injectables and intravaginal drugs were, however, not available at the clinic. It was observed that Tab. Ciprofloxacin was not always available. The service statistics of the clinic showed that, during the study period, only 2% of the RTIs/STIs clients purchased medicines from the clinic.

Facilities and skills for infection-prevention concerning syndromic management

Practising infection-prevention steps are essential in the management of RTI/STI cases. The infection-prevention steps include high-level disinfection (HLD) practice, decontamination, cleaning, and autoclaving. The study considered specific procedures and requirements as essential in relation to infection prevention during syndromic management of RTIs/STIs. The procedures included steps followed during pelvic examination; decontamination, cleaning, and sterilization of used instruments after speculum examination; sterilization of cotton gauze and reusable gloves; and disposal of used gloves and swabs [7].

Essential steps of infection prevention during pelvic examination included washing of hands before beginning physical examination; draping of client appropriately for pelvic examination; fixing of lights and washing of hands before putting new disposable or sterile re-usable gloves; adoption of the non-touch technique for speculum and bimanual examinations; use of sterilized vaginal speculum and cotton gauze for speculum examination; and finally, putting the used speculum, gloves, and cotton gauze in a bucket for decontamination after speculum and pelvic examination.

The decontamination procedures included: placing of all the used instruments in chlorine solution for not less than 10 minutes immediately after completion of examinations; disposal of waste material in a leak-proof container; and wiping of examination table or other surfaces contaminated during examination by 0.5% chlorine solution. The necessary cleaning procedures included: placing of decontaminated instruments in a container with clean water and mild, non-abrasive detergent; washing of all instruments with brush or cloth until visibly clean; and finally, rinsing of all surfaces of instruments with clean water. Sterilization included: boiling of all instruments at a rolling boil for 20 minutes and autoclaving of cotton gauze and re-usable gloves for 20-30 minutes. Contaminated solid waste disposal included incineration and dumping.

At the clinic, all the equipment for disinfection were adequate and in good condition. However, autoclave machine and incinerator were not available. During the first observation, six provider-client interactions were observed, and the findings showed that, in all the cases, the providers did not wash their hands before physical and internal examinations, and also did not follow the non-touch technique during putting on gloves. At the end of the examination, they kept used instruments in a bucket without chlorine solution. The investigators shared the observation findings with the providers, and gave necessary feedbacks. However, client-provider interaction-observation findings of the next three observations showed that, in 16 of 27 cases, the providers washed hands twice

once before the general examination and then before speculum examination. In all the cases, the providers put on gloves following the non-touch technique.

During the interviews, the providers stated that they boiled all the used instruments for 20 minutes after washing those with detergent and clean tap water. As there was no autoclave machine, the providers followed the packaging technique for sterilization of cotton ball they used for swabbing the cervix during speculum examination. They informed that, in this technique, the prepared cotton balls were wrapped with cotton gauze, and the wrapped balls were then put in a kidney tray. Finally, the kidney tray with cotton balls were placed on water of the sterilizer in such a way that the kidney tray floated. Then, both instruments and cotton balls were sterilized together. However, the providers mentioned that, during such procedure, sometimes the kidney tray sank in the boiling water, and the cotton balls got wet. The providers could mention all the steps of infection prevention but could not explain the importance of those steps.

Skills for RTI/STI case-management services

Comprehensive case management of RTIs/STIs is not limited to reaching a correct diagnosis and providing therapy. It also aims at reducing and preventing future risky behaviours and ensuring that sexual partners are appropriately managed and treated. The steps for case management services of RTIs/STIs that were considered standard for the study were:

- History-taking
- Physical examinations
- Treatment
- Education and counseling
- Clinical follow-up [6]

History-taking

The study referred to four sets of information that should be taken into account during history-taking. Those were: (i) general details, (ii) present illness, (iii) medical history, and (iv) sexual history. The general details referred to name, age, address, occupation, partner's occupation, marital status, and number of children, pregnancy/lactation, and contraceptive use. The sexual history included current sexual status, new partner in the last three months, and risk assessment in the case of female clients with vaginal discharge. The risk assessment included occupation of a client as a sex-worker, partner/s' symptoms and/or partner recently treated for an STIs, and multiple and/or new sexual partner of the client.

All the observed male (n=6) and female clients (n=27) were asked about the general details. The female clients were married and had complaints of vaginal discharge and/or lower abdominal pain. The providers asked them to describe their problem/s in details. History of menstruation and pregnancy was

taken in all the cases, but history of abortion was taken in only five cases. Ten clients were asked about the current contraceptive use. Assessment of risk was done in 25 cases. In assessing the risks, all these women were asked about their husbands' current or past symptoms of STIs. Previous history of partners' STIs treatment was asked to 21 women. None of the clients were inquired about their occupation and whether they own new or multiple sex partners.

Five of the six male clients were married. Of the male clients, five had a complaint of urethral discharge, and the other one genital ulcer. They were asked about the general details of their symptoms. In all the cases, the clients' previous history of STIs treatment was assessed, and they were asked about having new or multiple partner/s. Only one of them was asked about the partner's current and past symptoms of any vaginal discharge, or lower abdominal pain.

Findings of the interview showed that the providers were aware of the steps of taking history. They informed that there was no provision of recording the occupation of a client in the ESP card. The female providers mentioned that they did not ask about the current contraceptive use, because the information was available in the ESP card in the case of clients who visited the clinic before. They took history of current use of contraceptives only in the case of new clients.

Physical examinations

The study referred to only local examinations in the case of male, and local and speculum examinations in the case of female STI clients. The local examinations included inspection of inguinal region, external genitalia, including glans penis and urethral meatus, and palpation of inguinal region and scrotum in the case of male clients. In the case of female clients, the local examination included inspection of inguinal region, vulva, anus, and perineum; inspection and palpation of abdomen; and also speculum and bimanual examination [8]. Since speculum examination has an important role in syndromic management, the study emphasized on certain factors relating to this examination. The factors included: explaining the necessity of examination of clients and taking their consents for the examination; following all the procedures of infection prevention during the examination; not to perform any external swabbing during the examination; and using cotton gauze instead of cotton ball.

The providers examined all the clients. During the examination of lower abdomen, they did not look at facial expression of the clients for detection of any abdominal tenderness in six of the observed cases. In 22 cases, they did not inspect and palpate the inguinal region. In 5 cases, the providers did not wash hands before conducting the speculum examination. In all the cases, they performed external genitalia swab with cotton ball soaked in savlon solution. Cotton ball was used for examining cervix for discharge and friability. In all the cases, the providers conducted bi-manual examination.

In the case of male clients (n=6), the providers inspected and palpated external genitals. Inguinal region of three of the six clients was examined. Milking

of urethra was done in three of four cases with complaint of urethral discharge. Complete scrotal examination was done only in one case.

Findings of the interview showed that both male and female providers could mention the examination steps but were not aware of the importance of following certain steps as part of routine examinations and adopting certain procedures properly. To them, it was not customary to examine the inguinal region of every RTI/STI client. Regarding the observation of facial expression for tenderness during abdominal examination, the female providers stated that, other than facial expression, the tenderness could be understood by sound that the client made out of pain during palpation. In addition, they informed that they were trained to do external swabbing and instructed to use cotton ball for cervical swab.

Diagnosis and treatment

For diagnosis and treatment, the study referred to the management flowcharts of seven syndromes of the technical standard [6]. Each of these flowcharts started with a RTI/STI symptom. The management of RTIs/STIs had to be according to the clients' complaints that matched with the symptoms of those flowcharts. In the case of clients with more than one such complaint, the study considered diagnosis following the flowcharts separately for each complaint, except in the case of client with vaginal discharge with lower abdominal pain. In such a case, only the flowchart for lower abdominal pain was considered for diagnosis and treatment. For the symptom of vaginal discharge, the study considered flowchart with speculum examination for the diagnosis and treatment as the study clinic had facilities for speculum examination.

All the female clients observed were managed according to the technical standard. Of the 27 observed cases, 6 were diagnosed as cervicitis, 13 as vaginitis, 5 as pelvic inflammatory disease (PID), and 3 as both cervicitis and vaginitis. All but two of these diagnoses matched with those of the observers. According to them in one of the cases of vaginitis, the client had only candidiasis, but the provider diagnosed it as candidiasis in addition to bacterial vaginosis. The other case had only vaginitis, but the provider diagnosed it as vaginitis in addition to cervicitis. Two of the vaginitis cases were diagnosed following the management flowchart of vaginal discharge without speculum examination, because they refused to undergo speculum examination.

Among the 6 male clients, the provider diagnosed 5 cases as urethral discharge and the other one as genital ulcer. All but one of these diagnoses matched with that of the observer. The observer reported that, in one of the cases with the complaint of urethral discharge, the provider made diagnosis without any physical examination. This was the case where milk urethra was required as there was no frank discharge from urethra.

During the interview, it was observed that the paramedics were aware of the steps of diagnosis, but were confused about making diagnosis in the case of clients who refused to undergo speculum examination. They could express the

signs and symptoms of all the syndromes. They could also mention the characteristics of discharge in the case of vaginitis and cervicitis. But they added red and swollen cervix as one of the diagnostic features of cervicitis, in addition to purulent pus discharge and friability of cervix. They informed that in the cases where they found red swollen cervix they made the diagnosis as cervicitis despite the presence or absence of pus discharge and friability.

About 343 RTIs/STIs clients came to the clinic for services during the study period. The clinic records showed that these clients were diagnosed and managed as having vaginitis, cervicitis, PID, urethral discharge, and genital ulcer (Fig. 2). Of the vaginitis cases, 16% were diagnosed as causes of bacterial vaginosis/trichomoniasis, and 20% were diagnosed as cases of candidiasis. The providers at the clinic managed all except two female clients with lower abdominal pain. The clients were referred to the subdistrict health complex.

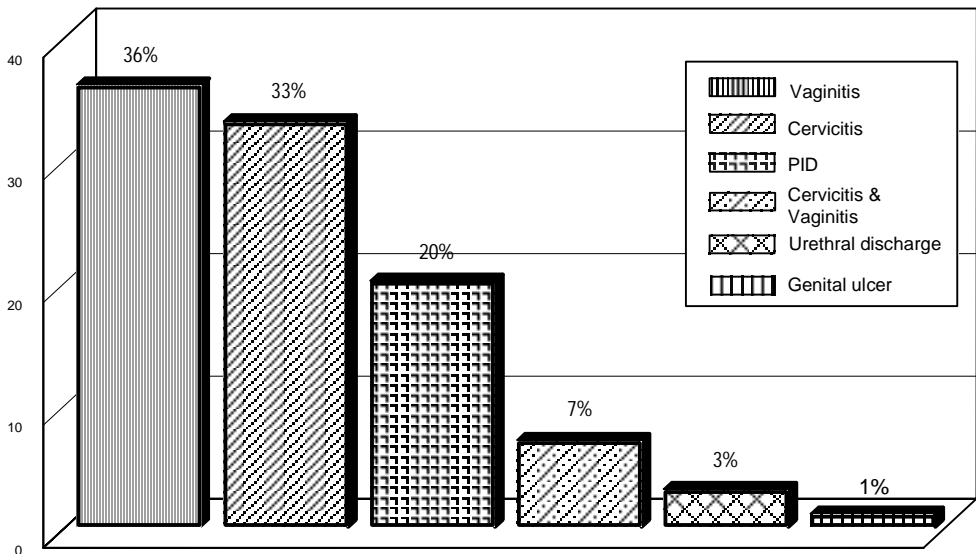


Fig.2. RTI/STD clients as diagnosed and managed at the clinic during September 1999-September 2000

Diagnosis was not always recorded at the clinic registration according to the recommendation of the technical standard. Nevertheless, the recording was, however, done as per recommendation in 69% of the cases. In the rest, the providers recorded vaginitis as either vaginal discharge syndrome (VDS) or RTI and cervicitis as cervical discharge (CD).

In all the observed cases, treatment was given according to the technical standard except for one, where Cap. tetracycline was prescribed to a lactating woman. The service statistics of the clinic showed that the providers prescribed antibiotics to all diagnosed RTIs/STIs clients, and in the cases of cervicitis, they also prescribed drugs for the partner in the same prescription. Of them, 18% were not prescribed according to the technical standard guidelines. In these cases, doses and/or courses (67%) and drugs (23%) were not given as per recommendation (Table).

Table. Treatment of clients not as per recommendation

Diagnosis	Recommended drugs, dose and course	Prescribed drugs, dose and course	Cases
Vaginitis (trichomoniasis)	Tab. metronidazole (400 mg) 12 hourly for 7 days	Tab. metronidazole (400 mg) 8 hourly for 7 days	03
Vaginitis (candidiasis)	Tab. cotrimazole /miconazole (150 mg) vaginally as a single dose or Cap. fluconazole (150 mg) orally as a single dose	Cap fluconazole (150 mg) vaginally	02
		Cap. fluconazole (150 mg) orally stat and after 1 week	01
		Tab. metronidazole also given	01
Cervicitis	Tab. ciprofloxacin (500 mg) orally as single dose or Inj. ceftriaxone (250 mg), intramuscular as a single dose plus Cap. doxycycline (100 mg) orally 12 hourly for 7 days	Tab. ciprofloxacin (500 mg) orally as a single dose plus Cap. doxycycline (100 mg) 12 hourly for 14 days	16
		Tab. ciprofloxacin (500 mg) orally as single dose plus Cap. doxycycline (100 mg) 12 hourly for 14 days plus fluconazole (150 mg) orally as a single dose	03
		Inj. hostacycline, IM 3 injections at one week interval	03
		Tab. ciprofloxacin (500 mg) orally as a single dose plus Cap. doxycycline (100 mg) 12 hourly for 14 days plus fluconazole (150 mg) orally as a single dose plus metronidazole (400 mg) 12 hourly for 7 days	01

Contd...

Table (contd.)

Diagnosis	Recommended drugs, dose and course	Prescribed drugs, dose and course	Cases (n=60)
PID	Tab. ciprofloxacin (500 mg) orally as single dose plus Cap. doxycycline (100 mg) 12 hourly for 14 days plus Tab. metronidazole (400 mg) 12 hourly for 10-14 days	With the recommended dose and course of Tab. ciprofloxacin and Tab. metronidazole, Cap. doxycycline (100 mg) 12 hourly for 7 days	15
		Only Tab. ciprofloxacin (500 mg) orally as a single dose and Cap. doxycycline (100 mg) 12 hourly for 14 days	12
		With the recommended dose and course of Tab. ciprofloxacin and Cap. doxycycline, Cap fluconazole (150 mg) as a single dose	03
		With the recommended dose and course of Tab. ciprofloxacin and Cap. doxycycline, Tab. metronidazole (400 mg) 12 hourly for 7 days	01
		With the recommended dose and course of Tab. ciprofloxacin and Cap. doxycycline, Tab. metronidazole as a single dose	01
		Only Cap. doxycycline (100 mg) 12 hourly for 14 days	01

Education and counselling

The study included the following four issues for educating and counselling the clients with RTIs/STIs:

1. Compliance with treatment
2. Counselling for prevention
3. Condoms with demonstration of correct use
4. Contact tracing and treatment [6]

During observations, it was found that all the clients were explained and reassured about their problems by the providers. Doses and courses of treatment were clearly spelled out, and feedback was taken. Counselling was given on avoiding sexual contact or on using condom when sexual contact cannot be avoided during treatment.

In all the observed cases of cervicitis, the providers counselled the clients to bring their partners for treatment. However, the service statistics of the clinic showed that, of 136 clients with cervicitis, partners of only five visited the clinic for treatment.

It was observed that the providers discussed only sexual mode of transmission in providing information on prevention of STIs/AIDS. Information on HIV/AIDS was given to 13 of 21 female and 3 of 6 male clients. The correct use of condom was described to 16 female clients but to none of the male clients. Flip-charts on RTIs/STIs and HIV/AIDS were available on the table of paramedics but were not used during counselling. There was no demonstration model of condom.

Clinical follow-up

The study considered follow-up visit in case of clients whose signs/symptoms persisted, otherwise it would not be necessary to bother him/her for a follow-up visit [6]. Observation findings showed that the providers advised each and every client for follow-up visits. However, during interview, the providers informed that the clients hardly came for follow-ups. The service statistics of the clinic showed that 7% of 341 of clients came for follow-ups.

Viewpoints of providers on syndromic management of RTIs/STIs

The providers could describe syndromic management clearly, and also could justify the advantages and disadvantages of this approach in the management of RTIs/STIs. They stated that they followed the technical standard and service-delivery protocol as the guidelines of syndromic approach for management of RTIs/STIs.

In response to the question “Did you face/feel any difficulty in taking sexual history, conducting clinical examination, providing treatment including partner’s treatment and comprehending the client’s compliance with the treatment?”, the female providers stated that they faced difficulties in asking questions to assess the risks of clients and their partners. They informed that they did not feel comfortable in making queries regarding own risk behaviours of clients, and the clients felt uneasy whenever their own risk behaviours were assessed. In many cases, the clients refused to disclose information on their own sexual history. Even in cases where the clients were responsive regarding their sexual history, the information provided by them was not relevant to the findings of clinical examination. The male provider informed that he did not feel any difficulty in assessing the risks of his clients and their partners.

In conducting clinical examination, the providers did not have trouble, except in cases where the clients refused to undergo speculum examination. According to them, in those cases, they remained confused about diagnosis.

In prescribing drugs, the providers always followed the recommendations of the technical standard but expressed concern about the clients' compliance with treatment since most clients did not purchase drugs from the clinic. They felt that the clients did not purchase drugs due to high price. They also expressed concern regarding the treatment of clients' partners, as the clients' partners hardly ever attended the clinic.

Since each management flowchart starts with the single complaint, in managing clients with more than one complaint like complaints of vaginal discharge with lower abdominal pain and also vaginal discharge with genital ulcer, the providers expressed their confusion. They suggested that the flowcharts should include instructions on how to manage such cases.

According to the providers, they often became confused while diagnosing and treating clients, and needed immediate reference of the management flowcharts. In such situations, it was embarrassing to check the book of technical standard of RTI/STI management before the clients. They recommended that a wall chart and laminated leaflets of the diagnostic flowcharts and treatment would be helpful to tackle those situations.

Although the doctor was trained on syndromic management, during interview, he expressed his convenience in managing RTI/STI clients applying his own clinical experiences. However, he added that, after the training, he was trying to adopt the syndromic approach.

The providers expressed their satisfaction regarding the availability of facilities at the clinic for syndromic management of RTIs/STIs. But they put emphasis on the availability of autoclaving facility for sterilization of cotton gauzes.

Feelings of clients on syndromic management services

Twenty-one female and six male RTI/STI clients were interviewed. All of them expressed their satisfaction regarding the management and counselling services of the clinic. They stated that the providers listened to their problems, and explained to them clearly about their problems with possible solutions.

None of the clients expressed any objection and/or difficulty regarding physical examinations. All the clients received prescription, and none of them showed any difference of opinion with the providers' diagnosis. They could mention the schedule of prescribed drugs. Only eight of them purchased medicines from the clinic on the same day, and the rest could not purchase, as they did not have enough money with them to buy. Of them, 5 clients wanted to buy medicines from outside the pharmacy, and 14 showed interest to buy them from the clinic later. All the clients could mention about the consequence of non-compliance with the treatment. Twenty-one stated that, in case of non-compliance, there would be risk of chronic reproductive tract infection and

infertility, and 15 mentioned about the risk of HIV infection. All of them showed desire to complete treatment.

All the clients could express the importance of partner management, and also intended to bring their partners for treatment. However, the female clients showed different reasons for being unable to bring their partners. Seven of them mentioned that the clinic time did not match with their partners' availability. Five informed that their partners were usually away from home; and 4 of them stated that their partners would not agree to come to the clinic, instead they would prefer private practitioners. The male clients mentioned that they did not have any problem to bring their partners.

The clients informed that they were counselled on the prevention of STIs/AIDS. They could mention that condom use during sexual intercourse, avoiding sex with multiple partners, transfusion of screened blood, and treatment of STDs were the preventive measures of STIs/AIDS.

The female clients were happy, because they were able to get treatment in a place nearby their house. In addition, they were very much at ease, as they had a very good rapport with the providers who were moreover females, and thus, they could talk about all their problems without any hesitation. They were even happier, because they received spot treatment without any added expense and hassle of laboratory examination. The male clients did not show any special interest regarding the treatment facilities available at the clinic.

Discussion

In the NIPHP and HPSP, the management of RTIs/STIs has been given a high priority. Early detection and treatment can immediately benefit clients with RTIs/STIs. In addition, the population benefits from decreased incidence and prevalence due to reduction in the duration of infectious stage of clients with RTIs/STIs when reported early. The syndromic approach is a tool by which the case management services for RTIs/STIs can be easily provided from health centres with resource-poor settings at the first contact. In absence of aetiological tests for diagnosis of RTIs/STIs and also in absence of specialized clinicians who can base their management only with clinical approach, the syndromic approach is an effective and appropriate management strategy. In Bangladesh, although many organizations provide management services for RTIs/STIs adopting different guidelines that serve their purposes, there are no standardized guidelines or service-delivery protocol for use by all. The NIPHP, in collaboration with the NIPHP partners, GoB, and others, developed the technical standard and service-delivery protocol for management of RTIs/STIs [6]. The study clinic, a NGO primary healthcare-level clinic, adopted the syndromic approach for management services for RTI/STI to follow the technical standard and service-delivery protocol.

The management services for RTIs/STIs as vertical programmes have been implemented in many countries. These programmes are variably effective. In most of these countries, they have contributed little to strengthening the basic, primary health infrastructure. The management services for RTIs/STIs must be delivered through the primary healthcare system, building whenever possible on the existing resources, health providers, and programmes [9]. In the study clinic, the management services for RTI/STI were provided as a component of the ESP programme which included MCH, family planning (FP), and expanded programme for immunization (EPI) services. The healthcare providers of the clinic provided management services for RTIs/STIs, in addition to other health services, using the existing facilities of the clinic. The study-findings showed that the existing facilities required privacy, instruments, and logistics in relation to consultation and examination of RTIs/STIs clients.

The syndromic approach is pragmatic in that it does not require laboratory facilities. However, in many countries, including Bangladesh, RTIs are managed using clinical or aetiological diagnosis employing sub-optimal or incomplete diagnostics [10]. In the case of qualified medical practitioners, they are not used to the syndromic approach because they are trained on aetiological diagnosis. Hence, competency-based training for healthcare providers is usually required when providing RTI clinical care through first-level healthcare facilities adopting a syndromic-based approach. Such training should be targeted to medical officers, nurses (paramedics), medical assistants, etc [11].

The syndromic management flowcharts are useful training tools to reach a diagnosis, and prescribe the recommended drugs. The healthcare providers of the study clinic included an MBBS doctor and paramedics. They were trained on syndromic management of RTIs/STIs. The study-findings showed that the doctor was more inclined to clinical diagnosis and treatment, while the paramedics always followed the recommended steps of syndromic management. The providers did not mention any specific problem in adopting the syndromic management flowcharts, but the clinic statistics showed that often the line of treatment was not as per the flowcharts. However, the paramedics expressed the need of job aids in relation to diagnosis and treatment which they can instantly go through even in the presence of a client.

Syndromic management of urethral discharge and genital ulcer is effective and valid in different settings [12]. But confusion still exists regarding the syndromic management of vaginal discharge. Syndromic diagnosis of cervicitis is essentially based on risk assessment and physical examinations, including speculum examination. Application of simple risk assessment and simple examinations are feasible and acceptable in general clinic settings [13]. Risk assessment has many limitations, and also conceptualization of the findings during speculum examination, particularly in the case of cervicitis, significantly influences diagnosis and treatment. The WHO has recommended STI syndrome-management algorithms for women with vaginal discharge that incorporate sociodemographic and behavioural factors to evaluate further. Several studies were conducted to evaluate the performance of the WHO vaginal discharge

algorithm. Results of many of those studies showed low specificity and low positive predictive value of these algorithms for detection of cervical infections [13]. As mentioned earlier that the providers in this study followed the NIPHP Task Force-developed technical standard and service-delivery protocol for management of RTIs/STIs. The vaginal discharge management flowcharts of this protocol were based on the WHO-developed syndromic-management algorithms with some modifications in the context of Bangladesh. In Bangladesh, the prevalence of STIs is still low in the general community. The service statistics of the clinic, showed that the rate of cervicitis among the women vaginal discharge was 35%. In syndromic diagnosis, cervicitis stands for infection of cervix with *Neisseria gonorrhoeae* and/or *Chlamydia trachomatis*. This high rate of such infections contradicts the findings of available prevalence studies conducted in Bangladesh. Findings of the study of Sarah Hawkes et al. showed that the prevalence of cervicitis among the rural Bangladeshi women was about 1% (*N. gonorrhoeae* 0.2% and *C. trachomatis* 0.9%) [14]. Also, according to the most recently-published study, the rate of cervicitis among women attending an urban community-based clinic is about 2% (*N. gonorrhoeae* 0.5% and *trachomatis* 1.9%) [15].

Although the study clinic is a rural community-based clinic, by location it is close to a Ferry Ghat where hundreds of long-route trucks gather every day, and families of many of these truck drivers reside in that community. In addition, floating sex workers are available at the Ghat. Results of the latest national HIV surveillance showed that the rate of STIs was high among floating sex workers and truckers [16].

The study-findings showed that the paramedics followed the steps of the syndromic management flowcharts, and in most observed cases, diagnoses of the paramedics were matched with those of the observers. The observed cases of cervicitis had either pus discharge from the cervix or friable cervix. However, findings of the interview showed that the paramedics faced problems in making decisions in relation to diagnosis based on risk assessment. In addition, they conceptualized red and swollen cervix as a diagnostic feature of cervicitis which was wrong and not recommended by the flowcharts. Hence, the possible reasons of high rate of cervicitis could be the location of the clinic, diagnosis based only on assessment of risk without any specific signs that were diagnostic for cervicitis, and conceptualizing additional signs as diagnosis of cervicitis. Another important reason could be that the effectiveness of the flowchart in diagnosis of cervicitis was not flawless.

Several syndromes can be managed easily and rapidly using clinical flowcharts for diagnosis and treatment. A clinical flowchart pictures a path of diagnostic reasoning. As also mentioned earlier that, in the study, the providers used the flowcharts developed by the NIPHP Task Force. They had however, confusion in following the flowcharts meant for vaginal discharge and lower abdominal pain syndromes. According to them, these flowcharts are not self-explanatory in decision-making for the management of syndromes, such as vaginal discharge, in association with lower abdominal pain and also ulcer on the

vaginal wall found during speculum examination. These issues need to be explored further with subsequent formulation and testing of solutions.

The ultimate goal of a national drug policy is to ensure the rational use of drugs. This means that the appropriate drugs are prescribed, available at the right time, available to those who need them, and are dispensed correctly. It also means that they are taken in doses as directed at the right intervals and for the necessary length of time [16]. The service statistics of the study clinic showed that, in 22% of the cases, the providers did not prescribe drugs according to the technical standard guidelines they followed.

All the first-line oral drugs recommended by the guidelines were available at the study clinic, except Inj. ceftriaxone and intravaginal Tab. cotrimazole/miconazole. Both these drugs are expensive and difficult to keep at the clinic. Drugs were available at the clinic at a retail price. However, the service statistics showed that almost none (99.3%) of the RTI/STI clients purchased drugs from the clinic. Findings of the exit interview showed that the clients realized the importance of completing the treatment and expressed desire to purchase drugs. As 98% of the clients did not come for follow-ups, client's compliance with treatment was difficult to know.

At a 1993 meeting organized by the World Health Organization, the agreed criteria of drugs for the management of STIs were: high efficacy, lowest cost, acceptable toxicity, microbial resistance that is either unlikely to develop or will be delayed, single dosage, oral administration, and not contraindicated to pregnant or lactating women [16]. The NIPHP technical standard guidelines recommended the drugs that were included in the WHO syndromic management guidelines. Tab. ciprofloxacin is the drug of choice for the treatment of urethral and vaginal discharge. However, according to a recent study of LSD, ICDDR,B, ciprofloxacin is becoming increasingly resistant to *N. gonorrhoeae*. Results of a study on monitoring of drugs resistant to STI microorganisms among sex workers showed that, in 1997, resistance to ciprofloxacin among the isolates was about 9% which was about 37% at the end of 1998, 49% at the end of 1999, 76% at the end of 2000 and at the end of 2001 the resistance was about 87% [17]. Hence, the issues in relation to efficacy, availability, affordability, and accessibility of STI treatment need to be further discussed and explored through the concerned task force.

One important public-health intervention to interrupt the chain of STI transmission is partner notification, in which the partners of those identified as having STIs are located, informed of their potential risk of infection, and offered medical and counselling services. The strategy adopted for partner notification at the study clinic was patient referral. The service statistics of the clinic showed that the notification was very poor although the healthcare providers of the clinic counselled the STI clients to bring their partners. The female clients showed different reasons of inability to bring their partners for treatment. Considering social, cultural and medical environments, exploration on strategies to notify partners of STI clients is essential for successful and effective STI case management.

The difference between treating STIs and managing them effectively is the difference between providing drugs alone or providing drugs and instructions about why they are necessary, how and when to take them, and what to do if there is no improvement [18]. At the study clinic, the providers counselled the RTI/STI clients in addition to providing treatment, and the counselling was given in the form of clinic-based patient education which included treatment instructions and information on prevention of STIs/AIDS. The providers were weak in disseminating prevention information. This can be overcome through refresher training.

Prevention of cross-infection is important for the quality of care in any MCH-FP service-delivery system. Poor infection-prevention technique causes iatrogenic RTI among clients during the service-delivery process. The providers at the study clinic followed the required infection-prevention procedures but had limitations. There were no autoclave machine and incinerator at the study clinic. The providers also had limitations in understanding the importance of each required step of infection prevention. They needed to be informed about the importance of those steps. Although autoclaving is necessary for sterilization of cotton gauze and gloves, a vaccine sterilizer can serve the purpose in the absence of an autoclave machine at the PHC-level clinic, as the vaccine sterilizer is usually available at most PHC-level clinics in Bangladesh. However, the effectiveness of the device of autoclaving cotton gauze and gloves by using a vaccine sterilizer needs to be investigated.

Although the clinic had both male and female providers, the male client-flow at the clinic was poor. Findings of the interview showed that the clinic time did not match the availability of male clients which might be the causes of poor male client-flow. This should be further explored and necessary strategies need to be formulated to increase the male client-flow at the clinic.

Acceptability of the providers in providing RTI/STI management services adopting the syndromic approach and also compliance of clients with diagnosis and treatment are essential to make a RTI/STI management approach feasible [19]. The study-findings showed that the paramedics tried to follow each and every step of the RTI/STI management services included in the guidelines, and did not show any difficulty in adopting the approach, except in cases where the clients refused to undergo speculum examination. They showed their concerns regarding treatment compliance as the clients did not purchase drugs from the clinic and bring partners for treatment.

The study-findings also showed that the clients did not express any negative concerns regarding diagnosis and treatment, except purchasing drugs from the clinic and bringing partners for treatment. They stated that they were not aware of the additional expense of purchasing drugs. However, they expressed their satisfaction with the services they received, and mentioned that they could communicate their problems to the providers without any hesitation and received spot treatment without any added expense and hassle of laboratory examination.

The findings of the study suggest that syndromic management of RTIs/STIs at the PHC-level clinic is possible. However, for an effective management approach, some issues, such as validity of flowcharts in diagnosis of vaginitis and cervicitis; choice, procurement, and cost of drugs for treatment of RTI/STI; partner notification; a follow-up of treatment; and infection prevention in relation to RTI/STI management services, need to be investigated in the context of Bangladesh. Operations research is essential to assess, improve, and implement available technologies in addressing these issues. Lessons learned in these aspects will be of importance not only to control RTIs/STIs, but also for the introduction of effective and feasible RTI/STI management approach at the PHC level. This study explored and identified some important operational aspects of syndromic management that could be taken care of and have given special consideration to ensure RTIs/STIs management services with quality at the lowest static health centres in rural area of Bangladesh.

Reference

1. Wasserheit JN. Epidemiologic synergy: interrelationships between HIV and other STI. *Sex Trans Dis* 1992;19:61-77.
2. International Centre for Diarrhoeal Disease Research, Bangladesh. Operations Research Project: an overview. Dhaka: Operations Research Project, Health and Population Research Division, International Centre for Diarrhoeal Disease Research, Bangladesh, 1998:111-2.
3. Bangladesh. Ministry of Health and Family Welfare. Health and Population Sector Programme 1998-2003 (HPSP): Programme Implementation Plan. Part I. Dhaka: Ministry of Health and Family Welfare, 1998:20-26.
4. Rahman S, Ahmed MU, Barkat-e-Khuda, Kane TT. Prevention and management of RTIs and STIs: a review. Dhaka: International Centre for Diarrhoeal Disease Research, Bangladesh, 1999:30-31. (ICDDR,B special publication, 86).
5. Bangladesh. Directorate General of Health Services. AIDS and STD control programme: report on the second national expanded HIV surveillance, 1999-2000. Dhaka: AIDS and STD Control Programme , Directorate General of Health Services, Ministry of Health and Family Welfare, Government of Bangladesh, 2000:3-18.
6. Family Planning, STD/RTI and HIV/AIDS Task Force. Technical standard and service delivery protocol for management of RTI and STD. Dhaka: AVSC International, Bangladesh Country Office, 1998:45-82. Johns Hopkins Program for International Education in Reproductive Health (JHPIEGO). Pocket guide for family planning service providers. Brown's Warf. Maryland: 1998.
7. Arya OP. History taking, examination of patient, collection of specimens and common presenting symptoms. *In: Arya OP, Hart CA, editors. Sexually transmitted infections and AIDS in the tropics.* Liverpool: CAB International, 1998:39-49.
8. Ronald A, Aral OA. Assessment and prioritization of actions to prevent and control reproductive tract infections in the third world. *In: Germain A, Holmes KK, Piot P, Wasserheit JN, editors. Reproductive tract infections.* New York: Plenum Press, 1992:199-233.
9. Dollabetta G, Field ML, Laga M. STDs: global burden and challenges for control. *In: Dollabetta G, Laga P, Lamptey P, editors. Control of sexually transmitted disease.* Virginia: AIDSCAP, 1995:1-22.
10. Dam CJ, Brathwaite A, Crabbe F. Guidelines for the management of STD control programs. *In: Dollabetta G, Laga P, Lamptey P, editors. Control of sexually transmitted disease.* Virginia: AIDSCAP, 1995:23-42

11. Vuylsteke B, Mehheus A. STD syndrome management. *In: Dollabetta G, Laga P, Lamptey P, editors. Control of sexually transmitted disease. Virginia: AIDSCAP, 1995:149-68.*
12. Dallabetta GA, Garbase AC, Holmes KK. Problems, solutions, and challenges in syndromic management of sexually transmitted diseases. *Sex Trans Infect* 1998;74 (Suppl 1):1-11.
13. Hawkes S, Morison L, Foster S, Gausia K, Chakraborty J, Weeling R, Mabey D. Reproductive tract infections in women in low-income, low-prevalence situations: assessment of syndromic management in Matlab, Bangladesh. *Lancet* 1999;354:1776-81.
14. Bogaerts J, Ahmed J, Akhter N, Begum N, Rahman M, Nahar S *et al.* Sexually transmitted infections among married women in Dhaka, Bangladesh: unexpected high prevalence of herpes simplex type 2 infection. *Sex Trans Infect* 1998;77:114-9.
15. Pisani A, Mallick PS, Rahman S, Baatsen P, Azim T. HIV in Bangladesh: where is it going? National AIDS/STD Programme, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of Bangladesh, 2001:3-7.
16. Brasseur O, Ronald A, Piot P. STD drugs. *In: Dollabetta G, Laga P, Lamptey P, editors. Control of sexually transmitted disease. Virginia: AIDSCAP, 1995:133-48.*
17. Rahman M, Sultan Z, Monira S, Nessa K, Nahar S, Bogaerts J, Albert J. Antimicrobial susceptibility of *Neisseria gonorrhoeae* isolated from female sex workers in Bangladesh (1997-1999): Rapid shift of susceptibility to fluoroquinolones. *J Clin Microbiol* 2002;40(6) [In press].
18. Ghee A, Field M, Coats T. Behavior change in the clinic setting. *In: Dollabetta G, Laga P, Lamptey P, editors. Control of sexually transmitted disease. Virginia: AIDSCAP, 1995:133-48.*
19. Vuylsteke B, Mehheus A. STD syndrome management. *In: Dollabetta G, Laga P, Lamptey P, editors. Control of sexually transmitted disease. Virginia: AIDSCAP, 1995:149-68.*