Reproductive Tract Infections In Women in the Third World

National and International Policy Implications

F 25.14 / R425

Report of a Meeting at the
Bellagio Study and Conference Center
Lake Como, Italy
April 29-May 3, 1991

Co-sponsored by the
International Women's Health Coalition
and The Rockefeller Foundation

IWHC

COORDINACION DE HUMANIDADES
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International Women's Health Coalition

The International Women's Health Coalition
is a private, non-profit organization dedicated to
improving women's reproductive health in the Third World.
By supporting innovative health care projects, policy-oriented
field research, and public education, we serve as an
advocate and catalyst for change in national and
international policies and programs.

This report was written by Adrienne Germain,
Vice President of the International Women's Health Coalition,
and is based on papers commissioned for and presentations made
at the conference *Reproductive Tract Infections in Women in the
Third World: National and International Policy Implications*.
Assistance from King Holmes, Director, Center for AIDS and STDs,
University of Washington, and Judith Wasserheit, Chief,
Sexually Transmitted Disease Branch, National Institute of Allergy
and Infectious Diseases, National Institutes of Health
is gratefully acknowledged.

Managing Editor: Jane Ordway
Copy Editor: Dore Hollander
Graphic Design: Curtis&Company
Production Assistants: Ken Berg, Carmen Diaz-Olivo, and Sia Nowrojee

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Preface

Extrapolating from hospital data, Robert Brunham and Joanne Embree estimate that sexually transmitted diseases (STDs) directly affected 10 percent of the 1.2 million live births in Kenya in 1987:

- Some 80,000 mothers developed postpartum pelvic infection.
- Of these women, 8-16,000 became infertile as a result of the infection.
- Approximately 22,000 infants died or suffered permanent disabling sequelae; 4,000 stillbirths occurred; 10,000 infants acquired perinatal HIV.
- About 90,000 infants developed eye infections, and 10,000 of these were at risk of blindness; 10,000 infants acquired chlamydial pneumonia.[1]

Many other women died from sepsis due to botched abortions or from other reproductive tract infections (RTIs).

The International Women's Health Coalition (IWHC), our colleagues, and the women whom we serve are increasingly concerned about such widespread and preventable illness, infertility, death, emotional distress, and other serious consequences of RTIs among women in Southern countries. In 1987, IWHC formulated a concept of RTIs that encompasses iatrogenic infections (those acquired during medical procedures), endogenous infections (those caused by overgrowth of organisms normally present in the genital tract), and STDs, including AIDS.

Our understanding of women's experiences and our reviews of the literature clearly suggest that RTIs jeopardize not only women, but also the achievement of international health and family planning objectives. We are therefore urging family planning and health programs to undertake initiatives to prevent and control these infections among the women they serve. Similarly, we are encouraging STD and AIDS experts and programs to give more attention to reaching women in the general population and to collaborate with health and family planning programs.

In 1988, we commissioned and published Judith Wasserheit's groundbreaking article "The Significance and Scope of Reproductive Tract Infections among Third World Women."[2] It provided the most comprehensive review of data available at that time and was intended for ob/gyns, women's health advocates, and other professionals concerned with reproductive health and rights. In 1990, we commissioned and published *The Culture of Silence: Reproductive Tract Infections Among Women in the Third World,* to make the data accessible to broader audiences.

We also have organized panels at the annual meetings of the American Public Health Association and the National Council for International Health to inform public health professionals. Colleagues from Bangladesh,

Egypt, India, Indonesia, and Kenya have joined us in these efforts. Others —in Nigeria, for example—are beginning research. At the same time, our long-standing colleagues the Bangladesh Women's Health Coalition and the Indonesian Planned Parenthood Association are working on experimental efforts to integrate STD control into their ongoing family planning services.

In 1990, IWHC decided that concern among our colleagues and their constituencies was sufficient to justify a meeting involving the major donor agencies, which have been uncertain about the significance of RTIs and the feasibility of prevention and control programs. In 1991, we co-sponsored, with The Rockefeller Foundation, the international conference reported on here. In 1992, Plenum Press will publish the papers commissioned for the conference. The book, *Reproductive Tract Infections: Global Impact and Priorities for Women's Reproductive Health*, should serve as a unique reference in the field because it examines RTIs in the context of ongoing programs for women's health, family planning, maternal health, child survival, and STD/AIDS control.

This report on the conference is intended for those whom we hope will work to break the "culture of silence" surrounding RTIs and to reduce the severe burdens RTIs impose on women. The recommendations are far-reaching and, at first, may seem daunting. Conference participants unanimously agreed, however, that many recommendations can be pursued immediately at reasonable cost. To encourage action, the report highlights activities that can be integrated into ongoing sectoral programs and the rationale for doing so.

The conference dealt primarily with the medical and scientific aspects of RTIs. We are, however, equally concerned about the behavioral and socioeconomic dimensions. A deeper and expanded understanding of the meanings of sexuality to individuals' lives and to societies, of the nature of male-female relationships, and of the universalities, as well as the differences, in sexual behavior is essential. IWHC will continue to emphasize these issues and would welcome comments, suggestions, and collaboration.

Joan B. Dunlop
Adrienne Germain

[1] Robert C. Brunham and Joanne E. Embree, "Sexually Transmitted Diseases: Current and Future Dimensions of the Problem in the Third World," in Adrienne Germain, King Holmes, Peter Piot, and Judith Wasserheit, eds., *Reproductive Tract Infections: Global Impact and Priorities for Women's Reproductive Health* (New York: Plenum Press, forthcoming, 1992).

[2] *International Journal of Gynecology and Obstetrics*, 1989, Supplement 3:145-168.

Introduction

In the spring of 1991, the International Women's Health Coalition and The Rockefeller Foundation brought together international scientists, women's health advocates, and senior health staff of donor agencies to consider the impact of reproductive tract infections (RTIs) and their consequences among Third World women. (Appendix 1 contains a participants list.) Participants reviewed the data and recommendations marshaled in 13 scientific papers (listed in Appendix 2): nine state-of-the-art literature reviews; and four country-specific papers, from Brazil, India, Kenya, and Nigeria. These papers break new ground by systematically reviewing the significance of RTIs for women's health, family planning, child survival, and HIV control programs, and by assessing the efficacy and cost-effectiveness of a range of possible actions to prevent and control RTIs.

The papers and deliberations were concerned primarily with women in the general population (not commercial sex workers) and their vulnerability to infection of three types:

- Sexually transmitted diseases (STDs), including HIV infection;
- Endogenous infections—those due to overgrowth of organisms normally existing in the reproductive tract; and
- Iatrogenic infections—those resulting from procedures performed by health care and family planning service providers.

On the basis of their assessment of the scientific evidence and review of programmatic actions so far taken, participants identified the following needs:

- Prioritize prevention and control of RTIs on national and international public health agendas;
- Integrate information, screening, and services for STDs and endogenous infection into ongoing health and family planning programs already serving women in the general population;
- Increase investments in training and supervision to minimize procedure-related infections in these health and family planning programs; and
- Modify public policies on education, employment, and legal rights, among others, to foster women's ability to protect their sexual health, and to enable women and men to share caring, responsible, and respectful relationships, which will reduce or eliminate the risk of infection.

By and large, women have suffered the risk of infection from their partners and from health services in silence. Many reasons have been postulated: sex is

"For the first time, maybe, we are starting to address RTIs as an issue of policy and of public health in a realistic way by questioning why activities (such as safe abortion, safe contraception, or STD control among pregnant women) have not been implemented until now, although the technical methodologies are available."

Lieve Fransen
AIDS Task Force
European Economic Commission
Belgium

"Women [in Kenya]. . . usually have only one sex partner once they are married and also have fewer lifetime sexual partners, an average of two. However. . . they still get infected and most probably this is the result of the spouse's sexual behavior . . . which borders on male prostitution."

A. B. Ndugga Maggwa and Elizabeth N. Ngugi, University of Nairobi Kenya

Prevalence of RTIs in Southern Populations

RTI	High Risk (%)		Low Risk (%)	
	Median	Range	Median	Range
Chlamydia	14	2-25	15	2-45
Gonorrhea	24	7-66	6	0.3-40
Trichomoniasis	17	4-20	10	5-49
Syphilis	15	4-32	10	0.4-33
Chancroid	9	3-16	Not Applicable	

Women in the general population are considered to be at "low risk" because they do not have high rates of partner change and large numbers of partners. Although the median RTI prevalences are generally higher for high-risk populations (such as commercial sex workers and their clients, STD clinic patients, men in employment that separates them from the families) than for low-risk populations, the ranges below are roughly similar and are broad for both groups. This suggests that an overlapping spectrum of risk factors may be operative in the two groups. The striking exception is chlamydia, for which median prevalences are nearly identical. The high prevalence in low-risk populations is probably due, in part, to the high frequency of asymptomatic disease and to the relatively long duration of infectiousness, which makes it possible for this STD to persist in the absence of a core group of high-frequency transmitters.

Source: Judith Wasserheit and King Holmes, "Reproductive Tract Infections: Challenges for International Health Policy, Programs, and Research" in Adrienne Germain, King Holmes, Peter Piot, and Judith Wasserheit, eds., *Reproductive Tract Infections: Global Impact and Priorities for Women's Reproductive Health* (New York: Plenum Press, forthcoming, 1992).

generally a taboo subject, and its negative consequences even more so; women are not in a position to challenge socially sanctioned male promiscuity either in their own homes or in society; women learn that the dangers of sex—the rigors of childbirth, the burden of unwanted pregnancy, the risks of contraceptives—are simply their lot in life.

Given the social situation of women, prevailing patterns of sexual behavior, and the power relations between women and men, as well as severe competition for limited health resources, conference participants

recognized that political action, especially the mobilization of women, is needed. Participants also concluded that, while enough is known to warrant immediate action, additional data and analysis, especially on the scope and consequences of RTIs and on the cost-effectiveness of actions, will be useful in building political will and in designing effective and humane programs to prevent and control RTIs.

How Are Women Vulnerable?

All of these infections are preventable, and all, except those caused by viruses, are curable. But in many communities in the Third World, women in the general population have a surprisingly high prevalence of infection for a group generally considered at "low risk."[1] Because effective disease control programs have yet to be launched, chlamydia rates among women in Southern countries are 2-3 times those in industrialized nations; gonorrhea rates, 10-15 times; and syphilis rates, 10-100 times.[2]

Women in the general population are frequently vulnerable to these infections not so much because of their own sexual behavior, but because of the behavior of their partners: male promiscuity—multiple partners and use of commercial sex workers—is often the norm. Girls and women generally do not have the power to determine whether, when, and with whom they have sex. Women may be subject to reproductive tract trauma due to sexual violence or male sexual preferences, and they rarely can require safer sex practices, especially condom use. Biologically, women are also more vulnerable than men because transmission of several STDs is more efficient from men to women, the consequences for women are more serious than for men, and women who have infections often have no symptoms and therefore do not seek treatment.

Further, in much of the developing world, women have little, if any, accurate information on the causes, consequences, and treatment of STDs and endogenous infections. The view in many societies is that infection is shameful, and in many cases, it is dangerous to the marriage, even if the man brought it into the relationship.

Infected women have little or no access to services because attendance at STD clinics carries a stigma and STD clinics, per se, are rare. Primary health and family planning programs have avoided providing information or services for RTIs because of widespread misunderstanding that infections are "natural" or minor, that STD services carry a stigma, or that these services are too complicated or too expensive. In any case, a very small percentage of women in Southern countries—especially in Asia, the Middle East and Africa—ever have access to a basic gynecological exam.

"Repeated episodes of vaginal discharge with foul odor or that irritate the external genitalia, make the sexual life of the couple unpleasant, and severely interfere with normal sexual functions. Women are often rejected by their sexual partners or hear derogatory complaints, even [if] the disease that caused the symptoms was brought home by the male."

Aníbal Faúndes
The Population Council and University of Campinas
Brazil

"In fact, in some societies, these infections may be status and image enhancing for men, while they are stigmatizing for women."

Sevgi O. Aral
Centers for Disease Control
USA

Women often feel most comfortable with traditional remedies, including some that may introduce or exacerbate infection. When women do seek public or private reproductive health services, they can be at high risk of infection if procedures are improperly performed. Often, these services are improperly performed because of lack of resources, poor training, or lack of supervision.

What Are the Consequences of RTIs for Women and for Health Systems?

The mortality and morbidity due to RTIs are very high relative to those associated with other health problems in developing countries.[3] RTI consequences include postabortal and puerperal sepsis, ectopic pregnancy, fetal and perinatal death, cervical cancer, infertility in women, chronic physical pain, emotional distress, social rejection, and infection of infants. The impact of RTIs on the transmission of HIV and the morbidity and mortality of HIV adds substantially to the total health impact of RTIs.

Not only do these diseases place women in serious jeopardy, but their consequences place significant and unnecessary strain on already overburdened health systems. They thwart achievement of the goals of maternal and child health (MCH) and family planning

The Significance of RTIs Compared with That of Other Diseases

Using the concept of age-adjusted "healthy life years lost (HLYL) per capita per year" to compare the health impact of various diseases, Over and Piot conservatively estimate that STDs (including HIV, syphilis, chancroid, chlamydia, and gonorrhea) are responsible for approximately 15 percent of the disease burden in urban areas with high STD prevalence (i.e., greater than 5 percent prevalence of gonorrhea among sexually active adults or greater than 10 percent of seroprevalence of syphilis among pregnant women). This model suggests that in high-prevalence communities, STDs rank third after measles and malaria among common Third World diseases in their socioeconomic impact. When productive HLYL are calculated, STDs appear second only to measles in their health burden.

Source: Mead Over and Peter Piot, "HIV Infection and Other Sexually Transmitted Diseases," in D.T. Jamison and W. H. Mosley, eds., *Evolving Health Sector Priorities in Developing Countries* (Washington, DC: The World Bank, 1990): 1-87.

Estimates of the Consequences of RTIs for Women in Southern Countries

Women's Deaths Associated with RTIs Annually*

Maternal deaths: 500,000, including 200,000 deaths following botched abortions

Cervical cancer deaths: 354,000

Pelvic Inflammatory Disease (PID)

Gynecological admissions attributable to PID:

- 20-40 percent in Sub-Saharan Africa
- 3-37 percent in Asia
- 6 percent in Cuba

Ectopic Pregnancy: PID is associated with a 6 to 10-fold increase in these outcomes, which is often fatal without emergency care.

Infertility:

- Of all women with PID, 15-25 percent become infertile.
- In some Sub-Saharan African communities, 30-50 percent of couples are unable to conceive; 50-80 percent of this infertility is due to infection.
- In Asia, 15-40 percent of infertility is due to infection; in Latin America, up to 35 percent is.
- Some 15-18 percent of women with PID develop chronic, disabling pain.

Other Consequences

Postpartum infectious morbidity: in Sub-Saharan African hospitals, 30-50 percent of such morbidity is attributable to STDs.

HIV transmission: Syphilis, genital herpes, chancroid, trichomoniasis, chlamydia, and gonorrhea raise the risk 3-5 times.

Emotional distress

Chronic pain

Social ostracism

*Infections play a significant role in many—perhaps most—of these deaths.

Percentage of Pregnant Women with RTIs Experiencing Adverse Outcomes

Maternal Diagnosis	Fetal Wastage	Low Birth Weight or Prematurity	Congenital or Perinatal Infection
Chlamydia Infection	Rare?	10-30	40-70
Gonococcal Infection	Rare?	11-25	30-68
Early Syphilis	20-25	15-50	40-70
Genital Herpes (Primary)	7-54	30-35	30-50
Genital Herpes (Recurrent)	Rare?	Rare?	0.4-8
Bacterial Vaginosis	Rare?	10-25	Rare
Trichomoniasis	Rare?	11-15	Rare
No STD	4-10	2-12	Not Applicable

Source: Judith Wasserheit and King Holmes, "Reproductive Tract Infections: Challenges for International Health Policy, Programs, and Research," in Adrienne Germain, King Holmes, Peter Piot, and Judith Wasserheit, eds., *Reproductive Tract Infections: Global Impact and Priorities for Women's Reproductive Health* (New York: Plenum Press, forthcoming, 1992).

"We have come to more of a consensus that the problem does not lie in a contradiction between dealing with 'core groups' and the general population. [Rather] the totality of the problem has to be tackled in a comprehensive and integrated way with the active involvement of the people and communities concerned."

Lieve Fransen
AIDS Task Force, European Economic Commission
Belgium

programs. Nonetheless, even in the face of AIDS, they have been widely neglected. Considerable—but still inadequate—resources are now being invested in HIV control, and to a lesser extent STD control, among "core groups" (e.g., commercial sex workers and their clients, who are at high risk of infection and who are high-frequency transmitters of infection). It is hoped that these investments will stem the spread of HIV infection to the general population. Meanwhile, many millions of women whom epidemiologists consider to be at "low risk" because they are not promiscuous are already HIV-infected, and millions more are at risk. The World Health Organization (WHO) estimated last year that at least 250 million sexually transmitted infections occur annually.

The Context for Policy and Program Design and Implementation

RTIs are not just a technical or epidemiological problem. They are embedded in a web of psychological, economic, political, and social factors that foster spread and must be addressed if RTIs are to be brought under control. Among the more important factors conference participants raised were sexuality and gender power relationships, poverty, and economic inequities within countries and between North and South, and political forces.

Sexuality and Gender Power Relationships

Complex norms and practices shape sexual behavior, within unequal relationships defined by gender and shaped by class and age. In many cases, the results are female powerlessness and social support for men to fulfill their sexual needs and desires as they wish.

Change in such entrenched power relations is likely to be extremely difficult, and very little groundwork has been laid for open discussion and reconsideration of sex roles and relationships among either adults or young people.

Empirical understanding of sexuality is largely limited to quantification of "high-risk activities"—who did what, with whom, how many times. Taboos against further behavioral and gender role research, and against education for young people and children, are widely and deeply held.

Economic Inequities and Poverty

At the global level, the international debt crisis and structural adjustment policies, among other forces, have plunged Southern countries deeper into poverty and contributed to the shrinkage of health and social service budgets (never very large) just when expansion is essential. Programs to prevent and control RTIs thus face stiff competition for scarce human and financial resources.

Within countries, poverty and unemployment increasingly mean that women cannot say no to sex or require safe sex for fear of losing an important source of financial support. In many countries, women from a range of groups—even privileged groups, such as university students—exchange sex for food, housing, or cash essential to their survival. And commercial sex work is sometimes the only source of employment for women. Increasing rural-urban migration, which disrupts families and reduces community restraints on sexual relationships, exacerbates these trends.

Poverty also fosters demographic patterns that fuel the spread of RTIs and increase the numbers of people affected. The young age structure of Southern populations means that large portions of the population are in the sexually active ages; population growth increases the absolute number of sexu-

"Older men indulge in extramarital relations with impunity and in some cultures a urethral discharge is regarded as evidence of sexual potency . . . while in others sexual exposure to a virgin is believed to provide a cure . . ."

Adeyemi O. Adekunle and Oladapo A. Ladipo
University College Hospital
Nigeria

"The existing socio-cultural barriers and taboos associated with diseases even remotely connected with reproduction and sexuality are major hindrances to [women] seeking help. . . [The] majority of Indian women are reluctant to talk to or be examined by male doctors, especially for gynecological or sexual disorders. Nurses and paramedical workers are not trained to deal with gynecological diseases, and also the availability of female doctors in rural areas is greatly limited."

Usha K. Luthra and Badri N. Saxena
Indian Council of Medical Research
India

"Many countries of the Third World today—as they face the diseases of poverty and the chronic illnesses of industrial societies—also combine different 'sexual regimes': the values and practices of traditional cultures and those introduced by urbanization and the mass media. Both can be equally degrading to women and therefore detrimental to the development of pleasurable and egalitarian relationships between women and men where STD prevention follows naturally."

Carmen Barroso
The MacArthur Foundation
USA

"We have no data [on women's reproductive health] because collecting these data has not been a priority. This is a political decision which will only be changed through political action."

Josef Decosas
Canadian International Development Agency
Canada

ally active people; and older men commonly have relations not only with multiple women but also with young girls, who may then also have sexual relations within their own age groups.

Poverty and resource constraints often deter women from seeking services and deter governments from providing them. For example, screening pregnant women for syphilis is officially recommended in most developing countries. However, this intervention is implemented very inconsistently even in countries with a prevalence of active syphilis of over 20 percent among pregnant women. Reasons for this include, among others, little or no political will to allocate scarce health resources to STD control and, therefore, failure to provide serologic tests or penicillin, adequate staffing, and other resources necessary for the intervention.

Political Forces

Unequal gender relations—in sexual encounters and in the decision-making structures of societies, governments, and international agencies—have generally meant that women's health issues are relatively neglected.

The case for allocation of resources to RTIs can therefore not rest simply on medical grounds. Allocation of resources to women's health priorities—safe abortion, high-quality reproductive health services, female-controlled protective technologies or substances, among others—requires mobilization of women as a political constituency. Unfortunately, those most affected are also those who have the least information, who may have limited organizational strength, and who have been excluded from policy making.

Positive Factors

Though gender relations and resource and political constraints present daunting challenges, several positive factors exist. Health and family planning programs provide access to large numbers of sexually active women in the general population. AIDS has heightened awareness of the seriousness of STDs, the necessity of overcoming taboos about sex, and the vital importance of better understanding of sexual behavior. Finally, across Southern countries, women are mobilizing for many reasons, including to gain their own sexual health and rights.

The Case for Integrating RTI Prevention and Control into Health and Family Planning Programs

Conference participants strongly emphasized the importance of integrating RTI concerns into ongoing health and family planning programs.

1. Control of RTIs is a preventive measure.

Educating women about RTIs, supporting them to take preventive action, and treating infections not only will improve women's health, but also will prevent transmission to partners and infants, thereby reducing secondary infection and its severe consequences.

2. Women using MCH and family planning programs are not only important in their own right, but also are "epidemiologically" significant.

These women are sexually active and clearly important now that the AIDS pandemic has gone beyond "core group transmitters" and is increasing rapidly in the general population in many parts of the Third World. These women make up the major portion of the female population, and often have very poor reproductive health and limited access to services. They can become significant transmitters of STDs, as can their sexual partners. MCH and family planning programs are thus the best and often the only way to reach them.

"Current services have remained limited to treatment of a few STDs, and are inaccessible. . .as well as socially unacceptable. . . These efforts cannot pay dividends unless a holistic approach is identified and implemented. This will involve viewing reproductive health in a broader perspective, reaching beyond maternity care and family planning services, to include care for gynecological and sexual problems, safe abortion services, and reproductive health education."

Usha K. Luthra
and Badri N. Saxena
Indian Council of Medical Research
India

The Benefits of Integration

". . .neglecting infections was a big mistake: in preventing cervical cancer, the control of HIV infection may play a key role; in reducing infertility, avoiding RTIs could be more effective than all the new technology to reverse their effects; in contraception, the opportunity to address simultaneous protection against infection has been missed; in fetal and perinatal health, the treatment of vagino-cervical infection may save more babies' lives by preventing prematurity, than all the very expensive paraphernalia currently used; in reducing maternal morality, the prevention of infection and its determinants during childbirth could be a major mechanism; in AIDS control, a stronger emphasis on preventing STDs could have been and may still be a key strategy to prevent the spread of HIV to women. These six themes are legitimate priorities in women's health in which large intellectual and financial investments have already been made. . . .[G]enital infections underlie all of [them]. . ."

Source: Aníbal Faúndes and Ana Cristina Tanaka, "Reproductive Tract Infections in Brazil: Solutions in a Difficult Economic Climate," in Adrienne Germain, King Holmes, Peter Piot, and Judith Wasserheit, eds., *Reproductive Tract Infections: Global Impact and Priorities for Women's Reproductive Health* (New York: Plenum Press, forthcoming, 1992).

"Limited access to care for STDs increases the prevalence of infection in the community and, therefore, the probability that any given sexual encounter will lead to exposure to an STD. . . [D]iagnosis and treatment of sexually transmitted diseases [thus]. . . ultimately result in declining disease prevalence and diminishing recurrent costs."

Judith Wasserheit
National Institutes of Health
and King Holmes
University of Washington
USA

"Infertility is a total disaster for [African] women who become social outcasts. . .women don't know that infection causes infertility. In Africa, policy makers must work on infertility if they want to promote family planning.

Oladapo A. Ladipo
University College Hospital
Nigeria

The Cost-Effectiveness of RTI Interventions

"Not only are the problems caused by RTIs at least as serious as the immunizable (childhood) diseases currently addressed, but their associated interventions appear to be more cost-effective. The cost per child for full immunization. . .has been estimated to vary between US$5 and $15. . .in Gambia. . .the per-childhood-death-prevented costs of immunization [were]: measles US$40.83; pertussis, US$99.85; and neonatal tetanus US$152.53. By comparison, in many locations in the Third World, US$1.40 would avert one case of gonoccocal ophthalmia neonatorum [which results in blindness if untreated] and US$12 would avert an adverse outcome associated with syphilis during pregnancy."

Source: Kenneth F. Schulz, Joanne Schulte, and Stuart Berman, "Maternal Health and Child Survival: Opportunities to Protect Both Women and Children from the Adverse Consequences of Reproductive Tract Infections," in Adrienne Germain, King Holmes, Peter Piot, and Judith Wasserheit, eds., *Reproductive Tract Infections: Global Impact and Priorities for Women's Reproductive Health* (New York: Plenum Press, forthcoming, 1992).

3. Although cost data are as yet inadequate, it is clear that RTI education and services are less costly than treatment of the consequences RTIs.

The hypothetical cost-effectiveness of RTI activities is very high, considering their immediate outcomes and the fact that they interrupt the chain of transmission, prevent serious consequences, and enhance the effectiveness, of other programs. Development of appropriate low-cost diagnostic tools and treatment regimens would reduce costs further.

4. RTIs can be a strategic common element among related, but often separate, health delivery systems and programs.

Integration of RTI services offers significant opportunities for synergistic effects. For example, effective screening and treatment for RTIs make modern contraception more appealing by preventing or curing symptoms that women perceive to be contraceptive side effects. Preventing infertility, similarly, would remove a significant impediment to contraceptive practice. Helping women have healthy infants by preventing or curing infection in pregnancy and minimizing procedure-related infection should increase women's confidence in and utilization of the health system.

5. RTI services for women are essential for the collection of necessary data on the scope and significance of infection in women in the general population, and for design and testing of appropriate services.

The Resources Needed

Resource mobilization, participants recognized, requires commitment by international agencies and national governments, as well as local communities. Although the resources required are modest compared with those needed for other health issues, and compared with the costs of managing RTI consequences, they are not insignificant, especially when health resources are shrinking.

Nonetheless, integration of RTI services into existing programs is likely to be far less costly and more cost-effective than separate RTI programs. For example, Peter Piot and Jane Rowley have estimated that the cost of treating a woman for syphilis, chlamydial infection, gonorrhea or chancroid is less than US$1.50. Diagnosis costs $1.50-$5.00, but that cost is likely to be greatly reduced with technologies currently under development. Piot and Rowley further point out that each case of STD treated will also prevent additional costs.[4]

Which programs are adopted will vary according to local conditions. Some countries, for example, may choose to invest more in safe abortion and reduction of procedure-related infections. Others may choose to invest more in STD control.

A primary resource-mobilizing tool in every case will be reallocation of existing health resources, away from unnecessary, costly, and potentially dangerous procedures. Funds used for hospital treatment of botched abortions could be used instead for safe abortion services. Actions to minimize procedure-related infections require very little money; rather, they require improved staff training and supervision, along with personnel policies that reward staff for quality care. Counseling and information sharing also need not be expensive.

Even small reallocations from existing MCH, family planning, and AIDS budgets to prevention and treatment of RTIs in women in the general population could thus be of major significance. Over time, with strong RTI programs, less money will be needed for advanced cervical cancer; the care of premature, low-birth-weight, or infected newborns; or costly and generally ineffective services to reverse infertility.

"The annual investment in Third World family planning is about $3 billion. By comparison, the estimated $330 million needed to under-take cervical cancer screening is nothing. We should just do it."

Sheldon Segal
The Rockefeller Foundation
USA

"[I]t is our considered opinion that a great deal can be done within existing budgets with resource reallocation and program alteration."

Allan Ronald,
University of Manitoba
Canada
and Sevgi O. Aral
Centers for Disease Control
USA

Priority Actions to Prevent and Control RTIs

Social Action and Education

- Give higher priority to public health and other social services in national budgets, and work to adjust gender power relations and attitudes toward women. Two goals are particularly important here:

  1. Enabling women to control when and with whom they have sexual relations, and to protect themselves against infection by practicing safer sex, especially negotiating condom use; and

  2. Encouraging men to adopt sexual behaviors that are respectful of their own health and of women's health, dignity, and bodily integrity.

- Reduce gender discrimination so that girls and women have the same access as boys and men to education and health services and to employment. When women gain such opportunities, they will not have to resort to selling sex or trading sex for favors.
- Provide sex education and counseling, including analysis of gender roles, to children, young people, and the general public through a variety of channels.

Modifications in Ongoing Health, Family Planning, and STD/HIV Programs

- Minimize procedure-related infections through training, supervision, regular supplies, and rewards for service quality.
- Provide safe abortion and delivery services.
- Promote condom use through all health and family planning services, as well as through the mass media and other channels.
- Designate and fund a specific person or mechanism to direct a national STD program, including coordination with other health and education sectors, and special efforts to provide diagnosis, treatment, and counseling for groups at especially high risk of acquiring and transmitting STDs.
- Provide syndromic diagnosis and screening for RTIs and other gynecological problems in all public health services, especially family planning and MCH services. Expand the diagnostic and treatment capacities of these health services, especially for gonorrhea, syphilis, and genital ulcer disease, and develop protocols for management of common STD syndromes.
- Develop counseling services to enable women and men to avoid infection, follow treatment instructions, notify their partners, and develop responsible sexual relationships.
- Strengthen partner notification and treatment by all programs that undertake diagnosis, including STD/HIV, family planning, and MCH services.

Technology Development and Research

- Improve and develop new female-controlled methods to protect against infection.
- Develop simpler, inexpensive diagnostic tests and treatment regimens especially for chlamydia and gonorrhea.
- Evaluate the efficiency and cost-effectiveness of prophylactic antibiotics for IUD insertion and termination of pregnancy.
- Develop means to monitor the prevalence of RTIs and their antibiotic resistance patterns, the incidence of consequences, patterns of sexual and health-care-seeking behaviors, and the costs of RTIs.
- Evaluate experimental programs to prevent and control RTIs.

Recommendations

Keeping in mind the contextual factors raised above, conference participants concluded that actions are urgently required, at the national and international levels simultaneously, to put RTIs on existing health agendas.

It is essential that each country take initiative to define its own needs, priorities, and strategies. Given competition for limited or shrinking resources, the prevailing ignorance about and neglect of RTIs, and the lack of informed and effective political constituencies to promote work on RTIs, international actions are needed to provide both expertise and political impetus to make RTIs visible and to foster action by existing health programs.

The basic objectives are to prevent infection and, where it has already occurred, to treat both the infected person and those at risk of exposure in order to prevent the personally devastating and socially costly consequences of infection. Additional data will be useful to identify and implement more effective actions to prevent and control RTIs and to mobilize the political will needed to support those actions. Meanwhile, the research needed to act is minimal and is best undertaken by initiating actions that are carefully monitored and evaluated for responsiveness to women's concerns, for efficacy, and for costs.

Conference participants strongly recommended close interaction at all levels among policy makers, women's health advocates, service providers, and researchers from both biomedical and social disciplines. They made suggestions for immediate action at the national and international levels. The boxes on pages 12 and 18 outline the measures that are most feasible and have high cost-effectiveness ratios, relative to those of other health activities currently receiving priority.

General Recommendations for National and International Action

1. Support women to mobilize as a key constituency to advocate policy development and to participate in the design, implementation, and evaluation of programs. The group recommended that the International Women's Health Coalition foster initial efforts in this direction.

2. Renew governmental and international agency commitment to create broader social conditions in which women can manage their sexual health, and men and women can adopt the responsible and respectful sexual relationships necessary for emotional and physical sexual health. An important means is to use existing mechanisms, such as "women in development" offices, to assess the implications of social and economic development strategies and projects for women's health, as well as for women's status.

"Is it ethical not to intervene when the data are so strong? . . .[T]he evidence of consequences for mothers and children is so compelling we must act. . . .[P]olicies have been made on much less evidence."

Nancy Pielemeier
U. S. Agency for International Development
USA

"There is a need to find an appropriate fit between the technical discourse and the enlisting of political support from the women's movement. The pervasiveness of politics—gender politics, health politics, international politics—should make us aware of the need to extend the impact of this conference beyond this selected group of participants."

Carmen Barroso
The MacArthur Foundation
USA

"It is time we free ourselves a little bit from the tyranny of data and measurement. . . .[I]n the field of public policy, partial information available at the time action must be taken is infinitely more useful than complete information after that time. . .Until we start establishing appropriate health services for women, we will neither get the data to justify them, nor will we even know what exactly appropriate health services for women are."

Josef Decosas
Canadian International Development Agency
Canada

"With targeted support for research, several important RTI interventions [appropriate diagnostic tests and treatment regimens, female-controlled protective methods] could be available within the next five years."

Judith Wasserheit
National Institutes of Health
and King Holmes
University of Washington
USA

3. Support existing health (child survival, safe motherhood, MCH, HIV/AIDS, STD) and family planning programs to integrate a concern for RTIs into their routine work, including the following objectives:

- Development and implementation of standards, training, and supervision to minimize procedure-related infections; education and supervision of staff to provide information on sex and on condoms to all individuals regardless of age or marital status, to prevent sexually transmitted and endogenous infections; and
- Adoption and careful implementation of uniform guidelines and training for staff to diagnose, counsel, and treat infection; promote condom use; and provide partner notification and services when diagnosis of infection is firm.

With regard to sexually transmitted infections, simple, inexpensive diagnostics exist for syphilis, HIV, and common vaginal infections. The validity of syndromic assessment needs to be evaluated, but is probably reasonable for genital ulcer disease and urethritis in men; simple, inexpensive treatment regimens are known for syphilis, chancroid, gonorrhea, chlamydia infection, and vaginal infections. Syphilis, gonorrhea, bacterial vaginosis, trichomonas, and, in many parts of the world, chancroid require only a single dose of treatment. Single-dose therapies for chlamydia are now under development. Demonstration projects should be developed at the national level, with international assistance as necessary, to understand the human resources needed, logistics requirements, costs, and outcomes.

4. Compare the effectiveness, acceptability, quality, costs, and cost-effectiveness of community-based, integrated primary care efforts with those of vertical programs to prevent and control RTIs; assess the benefits of incorporating RTI prevention and control into health, AIDS, and family planning programs.

5. Assess the viability of providing RTI information and services through the private and informal sectors; design and evaluate cost-sharing approaches to services.

6. Develop and test simpler, low-cost diagnostics for gonorrhea and chlamydia.

7. Develop bacterial STD treatment regimens that are financially and technologically appropriate for Southern countries; survey antimicrobial resistance patterns in various populations; and develop RTI treatments that are effective despite HIV infection and are safe during pregnancy.

8. Develop and test female-controlled methods to protect against STDs.

9. Invest in human resources for policies, programs, and services, especially at the national level. Emphasize recruitment and training of health providers, especially women, in sexual health, gender equity, and RTI prevention; include not only clinical skills, but also counseling and partner notification.

10. Invest in biomedical and social research capacity in Southern countries. Train professionals in methodology, proposal writing, all stages of research implementation, data analysis, and report writing; strengthen basic institutional capacity, including laboratory facilities, technical skills, and improved financial, professional, and academic remuneration for research; identify research priorities attuned to program and policy needs, as well as to the views of consumers; and fund research in Southern countries.

National Policy Recommendations

1. Convene national commissions and other such bodies, including women's health advocates, to address various aspects of the situation:

- To generate public support for action to prevent and control RTIs (among other women's health issues);
- To define local goals and priorities;
- To mobilize necessary financial resources locally and internationally; and
- To review policies that foster infection and their consequences, including, for example, policies that restrict access of certain groups (especially children, adolescents, and the unmarried) to necessary information and services, and policies that restrict safe abortion services.

2. Develop one or more specific mechanisms for national program development and coordination that would work with and through women's health advocates, existing health and family planning programs and health professionals to accomplish the following:

- Develop suitable training and treatment guidelines and recommend appropriate constellations of services for the various service programs;
- Facilitate drug supply and distribution, including adding drugs necessary for RTI control to essential drug lists;
- Facilitate condom and spermicide supply and distribution;
- Define and oversee achievement of standards for the quality of health and family planning services;
- Foster development of necessary laboratory facilities;
- Outline a priority research agenda, including basic biomedical studies, research on sexual behavior and socioeconomic factors, and opera-

"The need for developing inexpensive diagnostic methods appropriate for use in field conditions prevailing in developing countries like ours cannot be overemphasized."

Usha K. Luthra
and Badri N. Saxena
Indian Council of Medical Research
India

"Special attention is needed on the female-controlled methods that will protect women from both infection and unwanted or unplanned pregnancies. The female condom currently under development is expensive and too cumbersome; there is a need to do better than this. For those women who want more children there is a need for methods that will protect them against infection with no contraceptive effects."

A. B. Ndugga Maggwa
and Elizabeth N. Ngugi
University of Nairobi
Kenya

"Legal restrictions on abortion are another expression of male dominance and the limited power women have in our society. As legal abortion is practically unattainable, women with unwanted pregnancies either accept their fate or seek illegal abortion, a very important risk factor for RTIs with the most severe consequences for women's lives."

Aníbal Faúndes
The Population Council
and University of Campinas
Brazil

tions research to assess costs and other factors;

- Design a feasible means of data collection for monitoring the prevalence of RTIs, patterns of sexual behavior, and program activities and costs; and
- Disseminate information (from program evaluations, research, and basic monitoring systems) to the general public, health providers, decision makers, and women's organizations.

3. Undertake studies to assess the prevalence of RTIs; to evaluate the incidence and medical, social, and economic costs of their consequences for women, for health services, and for health objectives; and to assess the capacity of existing health services to prevent and control RTIs.

International Support for National Action

1. Develop an international advocacy group on RTIs with broad participation by women's health advocates, especially from Southern countries.

2. Provide technical advice to countries on policies, programs, and research through existing programs such as the World Health Organization's programs on women's health, human reproduction, AIDS, and STDs; increase the participation of women's health advocates; and strengthen RTI knowledge, skills, and financial resources within these programs.

3. Provide financial and other material resources for national program and research development.

4. Model the likely costs and impacts of feasible actions, and their cost-effectiveness relative to that of other health priorities or actions to improve women's health and public health.

5. Map current national and international funding for RTI-related activities.

Behavioral and Operations Research Needed

(Research recommendations are also included under other headings.)

1. Assess gender power relations, including the economic, social, cultural, and political roots of power imbalances between women and men, along with women's strategies to achieve self-esteem.

2. Explore human sexuality, including cultural and social factors that influence choice, number, and characteristics of partners; differences in sexual behavior between men and women; and the meanings of sexuality and sexual behavior in social life and for individuals.

3. Assess women's perceptions of and experiences with RTIs, including the

social meanings of infection, treatment sought, knowledge of causes, and consequences.

4. Determine the cultural, social, and personal conditions that affect motivation to use (or not use) condoms and other barrier methods among subgroups of the population.

5. Assess barriers to women's use of health services; develop and evaluate specific actions to remove these barriers. Give special attention to women who are less educated or otherwise disadvantaged, adolescents, and older women. Consider, for example, timing and location of services; personal treatment; quality of medical services; and partner, family, or community pressure.

6. Assess the barriers to men's use of STD services, their participation in partner notification, and their attitudes toward condom use not only with commercial sex workers, but also with other partners.

7. Develop, test, and evaluate means to ensure that providers implement RTI screening and services as mandated, minimize procedure-related infection, and provide appropriate and sympathetic risk-reduction counseling.

8. Design, test, and evaluate humane, efficient, and cost-effective approaches to counseling of infected women and men, and partner notification and treatment.

9. Evaluate Pap smear screening programs in Southern countries for effectiveness and cost.

Program-Specific Recommendations

Building on these generally applicable recommendations, participants identified activities that existing service programs can undertake for which they are specifically qualified.

Family Planning

Because the most effective contraceptives provide little if any protection against infection, and some increase the risk of infection, service providers need to help each client choose a contraceptive regimen with the appropriate balance between contraceptive efficacy and protection against infection. Possible choices—depending on the client's circumstances and preferences, and the availability of safe abortion services—include use of a highly effective contraceptive together with condoms and use of barrier methods and spermicides with recourse to safe abortion.

Programs can take a number of steps:

1. Prevent iatrogenic infection. More careful implementation of standards of care for IUD and Norplant® insertion and for sterilization, appropriate screening of clients for contraindications, and elimination of unnecessary procedures

"Should family planning programs be active in controlling RTIs? They have no choice and they have an obligation. They must do all that they can do ranging from counselling women on appropriate method choice, provision of condoms, support where necessary to use two methods (one an effective contraceptive and one a barrier against infection), to clinical diagnosis and treatment."

Mahmoud Fathalla
World Health Organization
Switzerland

"If diaphragms, condoms, and spermicide can be made available and used just as consistently [as oral contraceptives], they can provide effective protection against both pregnancy and RTIs. We may have been too quick to assume that barrier methods cannot be effectively used in developing countries."

Willard Cates, Jr.
Centers for Disease Control
USA

Summary of Program-Specific Actions

	Family Planning	MCH	STD/HIV Control	Primary Health Care*	Public Education
HEALTH SERVICES					
Ophthalmia neonatorum: provide prophylaxis for eye infections		X		X	
Syphilis: screening programs	X	X	X	X	
Genital ulcer disease and cervical, vaginal, and urethral discharge: syndromic diagnosis and therapy	X	X	X	X	
Cervical cancer: Pap smears or visual inspection of cervix for premalignant lesions (following WHO guidelines)	X	X	X	X	
Birth prevention: Safe surgical contraception (IUDs, implants, sterilization, and safe abortion)	X	X		X	
Puerperal infection: Prenatal care, safe delivery, and postnatal care		X		X	
EDUCATIONAL INTERVENTIONS					
Individual/group counseling to increase condom use and partner notification, and improved health care utilization for RTIs	X	X	X	X	
Information, education, and communication to foster sexual health, more egalitarian gender roles and responsible sexual relationships, and condom use	X	X	X	X	X

*Participants suggested that primary health care services could effectively provide integrated reproductive health care that includes family planning, MCH, and STD/HIV control. They discussed two possible models: combined family planning/MCH/STD service at the primary health care level (a reproductive health clinic) with one or more specialized staff; and special clinics at the urban level that do both family planning and RTI work (including STD/HIV programs).

(e.g., misuse of cesarean section as a means of sterilization in Brazil) will help achieve this goal.

2. Provide safe early abortion services. Such services will reduce a major cause of maternal morbidity and mortality and allow freer choice of barrier methods of contraception, which protect against infection.

3. Assess the utility of antibiotic prophylaxis in surgical abortion and of medical abortifacients in reducing the risk of infection from induced abortion.

4. Evaluate the effectiveness and cost-effectiveness of antibiotic prophylaxis for IUD insertion.

5. Develop and test means to promote condom use that are effective both for disease prevention and for contraception; assess empirically the specific groups able to use condoms effectively.

6. Evaluate in various subgroups the use-effectiveness (for disease prevention and contraception) and the cost-effectiveness of simultaneous use of two contraceptive methods.

7. Evaluate the impact of specific contraceptives (e.g., hormonal methods, IUDs, spermicides) on RTIs, including the impact on HIV transmission and the safety of current contraceptives where RTIs are endemic.

8. Develop effective female-controlled contraceptives that also protect against infection.

Maternal and Child Health, Child Survival, Safe Motherhood

Available technologies and cost assessments indicate clearly that MCH programs should screen and treat pregnant women for syphilis, and routinely provide prophylaxis to newborns to prevent ophthalmia neonatorum (which can lead to blindness).

The cost-effectiveness of screening and treating pregnant women for other sexually transmitted infections is less clear, largely because demonstration programs have not been mounted, and because the diagnostic and treatment techniques are either more expensive or more difficult. Cost-benefit analyses have tended to assess the outcomes for the child only (sometimes the woman only), whereas treatment of the pregnant woman would benefit both the woman and the child and raise estimates of cost-effectiveness. These programs should undertake several activities.

1. Reduce trauma and infection in the reproductive tract. Programs can accomplish this by continuing and expanding safe delivery services at all levels of the health system; by training and equipping traditional birth attendants; and by reducing unnecessary invasive procedures.

2. Provide safe abortion services or referral.

"In the absence of safe abortion services, the balance of contraceptive choice shifts to pregnancy avoidance rather than protection against infection."

Willard Cates, Jr.
Centers for Disease Control
USA

"[Antenatal screening and treatment for syphilis] is not merely a theoretical intervention. It was implemented as a pilot project in Zambia with demonstrable success. . . adverse outcomes due to maternal syphilis were reduced by 61 percent."

Kenneth F. Schulz
Centers for Disease Control
USA

"At first it may seem that the best way to prevent RTI morbidity in women is to increase access to diagnostic testing for women. On further thought, providing access to treatment for men with STD symptoms and making sure that partner notification and treatment are accomplished may be one of our most effective, but most under-utilized, methods to prevent RTI morbidity in women."

King Holmes
University of Washington
USA

3. Screen and treat all pregnant women (and their partners) for syphilis. This will require simple laboratory facilities on-site, operations research to ensure quality, and evaluation of partner notification strategies.

4. Develop carefully documented demonstration projects to screen and treat pregnant women for other genital ulcer diseases, gonorrhea, chlamydial infections, and trichomoniasis.

5. Administer prophylaxis to newborns to prevent ophthalmia neonatorum at all levels of health delivery, including through traditional birth attendants.

6. Assess the feasibility and efficacy of training auxiliary health workers and traditional birth attendants to recognize symptoms of RTIs in women and children and to refer for care.

7. Assess the impact of specific RTIs and their treatments on the health of pregnant women, as well as on fetal wastage, prematurity, and intrauterine growth retardation.

AIDS and STD Prevention and Control

A clear consensus emerged that AIDS and STD control programs should be integrated at all levels, given the synergistic relations between STDs and HIV infection, the fact that the mode of transmission is the same for each, and the fact that they share behavioral factors. In general, these programs have served primarily "high-risk groups"—commercial sex workers and their clients in the case of HIV programs; men with sexually transmitted infections, and to a lesser extent commercial sex workers, in the case of vertical STD programs. It is essential to reach these groups to limit the spread of infection into the general population.

STD programs have, however, generally failed to identify and assist the female partners of men who are diagnosed and treated. These women are at very high risk of infection. In general, much more needs to be done to encourage men who are possibly infected to seek diagnosis and treatment, and, when diagnosed, to notify their partners and support them to seek diagnosis and care. Partner notification is an especially effective way to identify women with STDs who are asymptomatic.

STD/HIV programs can seek to achieve the following:

1. Invest more in partner notification and services, carefully documenting the efficacy of alternative strategies.

2. Improve access to services by expanding service sites and working with other health and family planning

programs, and by conducting community education and outreach, especially for men of all ages.

3. Develop attractive, accessible, comprehensive services for priority groups such as commercial sex workers, their clients, and adolescents, and evaluate the impact on RTI control in the general population.

4. Provide syndromic management of genital ulcer disease and urethritis in men in all health services.

5. Develop and evaluate RTI treatment regimens that are effective in HIV-infected individuals.

Public Education

Mass media campaigns are a common public health tool, but their efficacy in changing sexual and gender role behavior has yet to be demonstrated. In most countries, information and education programs for children and youths, in and out of school, are controversial. Conference participants emphasized the importance of carefully documenting and evaluating efforts to accomplish several goals:

1. Support women's organizations to inform their constituencies and mobilize them to advocate policy and program development for RTI prevention, and to manage their own sexuality and health, which includes seeking appropriate health care.

2. Identify influential men's groups and work with them on issues of sexual behavior and relationships, gender roles and power relations, and RTI prevention.

3. Design and provide education to children and youth on human sexuality, gender equity, and prevention of RTIs.

4. Utilize mass media and traditional communication channels to educate the public on safer sexual behavior, promote condom use, encourage health-care seeking, and generate more respectful and responsible sexual and gender relations.

5. Evaluate the efficacy and cost-effectiveness of each of the above actions.

"The critical issue is how human sexual behavior and sexual values can be changed."

Adeyemi O. Adekunle and Oladapo A. Ladipo
University College Hospital
Nigeria

Conclusion

"Women in most African countries have little or no say in sexual relationships and yet they suffer more severe consequences from RTIs than men do. They therefore deserve more attention. Nonetheless, the control of RTIs should be the responsibility of both men and women and not only women. . ."

*A. B. Ndugga Maggwa
and Elizabeth N. Ngugi
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Many of these recommendations have been under consideration for some time, and their immediate implementation would begin to fill serious gaps that exist in services and knowledge. Other issues have hardly received any attention: How can infected women who do not have symptoms be identified at manageable cost? How can women who have completed childbearing and no longer use family planning, child survival, or MCH services be reached? How can we reach women who are too poor to use health services or too distant from them, or who are restrained by their families? How can parents and policy makers be persuaded to allow provision of information and services for adolescents and children? Can protective substances or technologies be developed for couples who want to conceive? How can we take effective demonstration projects to scale? Can we keep women's health in its own right at the center of concern? What are effective means to change male sexual behavior and to adjust the balance of power between women and men?

Prevention and control of RTIs require profound changes in political will, scientific approaches, sexual behavior and gender power relations, men's self-concepts, and women's status and self-esteem. Women need support to organize so they may inform each other and become an effective political constituency for women's health nationally and internationally. Men need to rethink and revise their sexual attitudes and behavior. Children and young people need information and services on safer and caring sex, and encouragement to develop responsible sexual relationships. Scientific and medical policy makers need to include women's health advocates in their decision making. In their models and their strategic thinking, they must recognize socioeconomic and political factors, and they must balance public health priorities with the needs of individual human beings. These challenges are substantial, but the likely rewards are more than worth the costs.

References

[1] See also Judith Wasserheit, "The Significance and Scope of Reproductive Tract Infections among Third World Women," in *International Journal of Gynecology and Obstetrics*, 1989, Supplement 3:145-68 (available from IWHC).

[2] Judith Wasserheit and King Holmes, "Reproductive Tract Infections: Challenges for International Health Policy, Programs, and Research," in Adrienne Germain, King Holmes, Peter Piot, and Judith Wasserheit, eds., *Reproductive Tract Infections: Global Impact and Priorities for Women's Reproductive Health* (New York: Plenum Press, forthcoming 1992).

[3] See also Ruth Dixon-Mueller and Judith Wasserheit, *The Culture of Silence: Reproductive Tract Infections among Women in the Third World* (New York: International Women's Health Coalition, 1991).

[4] Peter Piot and Jane Rowley, "Economic Impact of Reproductive Tract Infections and Resources for Their Control," in Adrienne Germain, King Holmes, Peter Piot, and Judith Wasserheit, eds., *Reproductive Tract Infections: Global Impact and Priorities for Women's Reproductive Health* (New York: Plenum Press, forthcoming 1992).

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Appendix 2: Papers Presented

Overview of Reproductive Tract Infections

"Reproductive Tract Infections: Challenges for International Health Policy, Programs, and Research," by Judith Wasserheit and King Holmes

"Sexually Transmitted Diseases: Current and Future Dimensions of the Problem in the Third World," by Robert C. Brunham and Joanne E. Embree

Programmatic Issues

"Women's Health and Reproductive Tract Infections: The Challenges Posed by Pelvic Inflammatory Disease, Infertility, Ectopic Pregnancy, and Cervical Cancer," by André Meheus

"Family Planning: The Responsibility to Prevent Both Pregnancy and Reproductive Tract Infections," by Willard Cates, Jr., and Katherine M. Stone

"Human Immunodeficiency Virus Infection Prevention: The Need for Complementary STD Control," by Marie Laga

"Maternal Health and Child Survival: Opportunities to Protect Both Women and Children from the Adverse Consequences of Reproductive Tract Infections," by Kenneth F. Schulz, Joann M. Schulte, and Stuart M. Berman

Actions for Consideration

"Behavioral Dimensions of STD Risk," by Sevgi O. Aral

"Assessment and Prioritization of Actions to Prevent and Control Reproductive Tract Infections in the Third World," by Allan Ronald and Sevgi O. Aral

"Economic Impact of Reproductive Tract Infections and Resources Needed for Their Control," by Peter Piot and Jane Rowley

Country Cases

"Reproductive Tract Infections in Brazil: Solutions in a Difficult Economic Climate," by Aníbal Faúndes and Ana Cristina Tanaka

"Reproductive Tract Infections in Kenya: Insights for Action from Research," by A. B. Ndugga Maggwa and Elizabeth N. Ngugi

"Reproductive Tract Infections in Nigeria: Profound Challenges for a Fragile Health Infrastructure," by Adeyemi O. Adekunle and Oladapo A. Ladipo

"Reproductive Tract Infections in India: The Need for Comprehensive Reproductive Health Policy and Programs," by Usha K. Luthra and Badri N. Saxena

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Forthcoming Publications

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Reproductive Tract Infections: Global Impact and Priorities for Women's Reproductive Health, edited by Adrienne Germain, Peter Piot, King Holmes, and Judith Wasserheit. Papers from a Bellagio conference co-sponsored by the International Women's Health Coalition and The Rockefeller Foundation, to be published by Plenum Press. Forthcoming, 1992.

Women's Political Action and Population Policy in Three Developing Countries, Ruth Dixon-Mueller and Adrienne Germain. Prepared for the symposium on The Politics of Induced Fertility Change, Bellagio, Italy, February 1990.

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