ISSN 0377-4910

ICMR BULLETIN

Vol. 28, No. 12 December, 1998

CAMPAIGN AGAINST HIV/AIDS : YOUTH AS FORCE FOR CHANGE

"Young people are increasingly seen as agents of development rather than merely passive recipients of it".

(UN document on International Youth Year, 1985)

As of 1 July 1998, a cumulative total of nearly 1.9 million AIDS cases had been officially reported to WHO. This represents a 15% increase over the number reported in July last year. Currently an estimated 30.6 million adults and children have HIV/AIDS, 5.8 million having been newly infected in 1997. An estimated 11.7 million deaths have occurred due to AIDS since the beginning of the pandemic, 2.3 million of them in 1997. Trends in AIDS incidence show significant difference between the regions of the world. The numbers have been falling in the industrialized countries, whereas in the developing world, the numbers appear to be increasing and the spread of HIV is most profound[1].

Of the 1.5 billion young people between 10 and 24 years in the world today, 85% live in developing countries. It is estimated that every 12 seconds a young person somewhere in the world acquires HIV infection. There are about 10 million young people living with HIV/AIDS. About half of all new HIV infections occur in this age group (WHO Fact Sheet No.186, 1997). With adequate support and proper interventions, the young people can change the course of this epidemic. They can play a crucial role in promoting HIV/AIDS prevention by educating their peers, discussing issues related to sex and sexuality and facilitating safer sex behaviour.

Vulnerability of Young People

Experimentation, discovery, emerging feelings and exploration of new behaviour and relationships are a normal part of adolescent development which exposes them to health risks. Some young people are at greater risk of HIV like those who are out of school, who live on the streets, who share needles with other injecting drug users, engage in commercial sex, or are sexually and physically abused. (World AIDS Campaign Briefing Paper, UNAIDS, 1998).

The results of this potent mix of risk and vulnerability show up in country statistics. The HIV rates in pregnant women under 20 years in Maharashtra rose from 2.3 to 3.5% between 1994 and 1996. (World AIDS Campaign Briefing Paper, UNAIDS, 1998). An important indicator of the scale of unprotected sex, and hence of potential exposure to HIV is the incidence of other sexually transmitted diseases (STDs). Not only are the other STDs markers for HIV infection, the genital sores and lesions that result from some STDs may facilitate HIV infection during heterosexual transmission. Young people are vulnerable because of the biological immaturity of the female genital tract. If HIV infection follows the course of other STDs among young people, they are likely to soon represent the largest age group of HIV infected individuals in the nation. Of the estimated 333 million new STD cases that occur in the world every year, nearly half are in the young people (including male

Division of Publication & Information, ICMR, New Delhi - 110029

This issue commemorates the World AIDS Day (December 1, 1998)

and female) under 25 years of age (WHO Fact Sheet No.186, 1997). A study in Pune found that 75% of males attending a STD clinic were aged 18-19 years[2]. The sexual relations are often unplanned and typically occur before adolescents have gained experience and skill in self protection, and before they have acquired knowledge about STDs.

In a study conducted for the International Centre for Research on Women, a quarter of the adolescent girls in Brazil reported having first sex before the age of 13. In Malawi, the mean age was 13.6 years, and in Papua New Guinea it was 11 years. (World AIDS Campaign Briefing Paper, UNAIDS, 1998)

Girls and boys can often be infected through sexual abuse by relatives, family friends, teachers and strangers. Rape and forced prostitution are other forms of abuse and exploitation known to fuel the HIV epidemic. Young people who inject drugs are exposed to high HIV risk if they share needles. In Manipur, the proportion of young drug injectors (median age : 25 years) infected with HIV zoomed from virtually zero in 1989 to 56% within six months and to over 67% by 1992[3]. Even the non-injecting drugs do play a substantial role in disinhibitng sexual behaviour and placing youth in contexts that increase sexual risk-behaviours.

The long delay between initial HIV infection and the onset of symptoms, supports the belief that many of these people may have contracted the virus during an earlier period of their life, particularly during their teenage years. Therefore, the population group of adolescents and young adults needs to be addressed by prevention programmes. It is becuase of ignorance, myths and disbelief that they are ending up in situations that may endanger their health, or even their lives.

Prevention of sexual and substance-use risk acts remains the most effective strategy against HIV infection. Comprehensive interventions that emphasize responsible sexuality have reduced sexual risk for HIV in Europe, Australia, and the USA. A relatively large number of national social marketing campaigns have been launched, and about half have been evaluated with positive results.

Some Recent Research Studies on Sexuality and Youth

(i) A study is being conducted at the National AIDS Research Institute (NARI), Pune, which aims to understand youth sexual behaviour and possible risks to HIV/AIDS to address the knowledge, attitude and practice (KAP) gap to plan sustainable interventions from ethnic perspectives. Undergraduates from six co-ed colleges of Pune were covered (996 girls and 825 boys) using qualitative and quantitative methods. The results of the study are of major concern that despite adequate knowledge of AIDS, youth reported risky behaviour. The results suggest that AIDS awareness needs to be integrated with youth programmes involving both boys and girls where sexuality, and gender relationships are openly discussed along with reproductive health matters and responsible safe behaviour. Participatory approaches like workshops for information dissemination through peers leaders be planned for youth enabling democratic and responsible decision making by both boys and girls.

World AIDS Campaign 1998

Force for Change : World AIDS Campaign with Young People.

GOAL

To mobilize young people to reduce the spread of HIV infection and to strengthen support for young people infected and affected by HIV/AIDS. To promote and protect human rights.

OBJECTIVES

* Promote young people's genuine participation.
* Promote policies and action for young people's health and development using a human rights framework.
* Increase awareness of the impact of HIV/AIDS on young people and young people's impact on the course of the epidemic.
* Mobilize social and private sector to work in partnership on young people's health and development.
* Monitor the campaign.

(Source: World AIDS Campaign. Briefing Paper, UNAIDS, 1998).

The base-line data have provided valuable insights into why certain behaviours occur and also why certain beliefs and attitudes are held. This has also enabled in understanding the vocabulary used by college students which is an important consideration when intervention programmes are planned. There is a need to integrate the efforts with other activities in colleges like the National Service Scheme (NSS)and the National Cadet Corps (NCC), where students take an active part. The Friendship Networks of the students can pave a way for a wider dissemination of information on several aspects that include sexuality and reproductive issues in the context

of AIDS/HIV/STD. The second part of the study is the intervention phase through peer educators' training programme among college students. These interventions which aim to bring about behavioural change rather than increasing knowledge alone would pave the way to harm reduction among the youth[4].

(ii) Youth need complete information on HIV/AIDS within an open, and sensitive vision of human sexuality. However, interventions aimed at adolescents have largely been moralistic and rigid laying down patterns of sexual behaviour in terms of "dos and don'ts". Recognizing this Deepam Educational Society for Health (DESH), Chennai designed, after extensive field testing a loosely structured package for youth on issues related to sex and sexuality. A simple and watertight classification does not provide adolescents with full and complete information on the degree of 'risk' and 'no risk' attached to a particular sexual behaviour. A level of risk continuum is called for if information is to be translated into safe behaviour and practice. In this continuum, sexual behaviour may be broadly classified on a scale from high risk to low risk to no risk. DESH's intervention in some educational institutions led to an increase in understanding of the level of risk continuum among adolescents[5].

Human Rights in the AIDS Era

Young people, like adults have a right to information, life-skills and services that enable them to protect themselves against HIV/AIDS. They have a right to freedom from coerced sex, rape and other forms of exploitation. More broadly, young people have a right to develop in a supportive environment, with the backing of caring adults in their family, school and community. They have a right to education, skills, employment, health, confidentiality, and protection from discrimination, including discrimination on the grounds of HIV status, sexual practice, sex and age.

Research shows that these rights help protect health and development. Conversely, when they are not respected and promoted young people become vulnerable – that is, they have little or no control over their HIV/AIDS related risks. Vulnerability can be created by violations of the rights to education, health care, participation, and safety, among others.

This is why action to prevent HIV infection must extend "beyond AIDS" to the broad social and economic rights that protect young people's health and development. This means grounding policies and programmes in the Universal Declaration of Human Rights, the UN Convention on the Rights of the Child, and the UN Convention on the Elimination of all Forms of Discrimination against Women.

(Source : World AIDS Campaign Briefing Paper, UNAIDS, 1998)

(iii)In a study on 2000 college students from 20 colleges in Mumbai regarding sexual terminologies, sexual initiation, and sexual and condom use behaviour, it was reinforced that it is necessary to evolve a peer based programme to educate the youth as to how to resist pressure from their peers and to provide a comprehensive contraceptive knowledge package and basic sex/family life education[6].

Empowering the Youth

The Government of India is focussing on young people through a multi-prong attack. It is using a combination of media campaign, education on AIDS for those attending school and those out of school and provision of supportive services like counselling. Five regional workshops covering all States and Union Territories have been organized for developing an action plan for introduction of AIDS education in the school system.

AIDS Education in Schools

In consultation with the National Council of Educational Research and Training (NCERT), New Delhi, State Councils for Educational Research and Training and State Institutes of Education, projects for introduction of AIDS education in schools have been prepared and implemented in seven States.

The NCERT has also undertaken the development and introduction of "adolescence education" in the school system in secondary schools on a pilot basis in 1998. This has been done by adding it to population education, which already exists in the school curriculum. It has three components, the process of growing up, AIDS education and drug abuse. It is too early to evaluate the impact of the sexual health education programme on risk behaviour of young people as these programmes are in their infancy. However, many programmes have shown encouraging evidence of change in knowledge and attitudes. For example, the State of Maharashtra has three concurrently running programmes that cover almost the whole state. Evaluation reports of the programmes indicate an increase in knowledge and a positive impact on attitudes.

To assess the impact of HIV and sexual health education on the sexual behaviour of young people, the joint UN programme on AIDS carried out a literature review in 1997 of 68 reports from developed and developing countries. It was found that in one third of the studies HIV/AIDS and sexual health education neither increased

nor decreased sexual activity and attendant rates of pregnancy and STDs. Another third of the studies reported that HIV and sexual health education either delayed the onset of sexual activity, reduced the number of sexual partners or reduced unplanned pregnancy and STD rates[7].

AIDS Education for Young Adults

The prevention measures for youth in India were initiated in 1991 in a phased manner under the banner of "Universities Talk AIDS". This was through an intersectoral collaboration of the National AIDS Control Organization (NACO) with the Ministry of Human Resource Development, Department of Youth Affairs and Sports. Creating AIDS awareness among youth through social marketing methods based on participatory approaches was a major objective of this programme. A great deal of AIDS educational material was generated which was later developed into posters, booklets, *etc.* Starting with about 50 universities in the first phase (1991), 168 universities were participating in this Programme by 1996-97.

This is the first governmental programme for the youth to spread the message of AIDS prevention. Social marketing strategies involved the university officials, college principals, youth officers in colleges, the non-governmental organizations (NGOs) and through them the peer educators. The Programme envisaged that the bands of peer educators would create AIDS awareness in colleges using participatory approaches.

It was realized that social marketing methods can prove effective in making the AIDS education programme low-cost and sustainable. The need to overcome information gaps, to involve parents and teachers and to introduce sexuality and AIDS prevention education in the curriculum was felt[8,9].

In order to make information youth-friendly, an entertainment programme on the FM radio channel is being broadcast in four cities – Delhi, Mumbai, Calcutta and Goa. NACO has also established a National AIDS Helpline 1097. Through this service young people are being provided correct information on HIV/AIDS/STDs. The service is already being implemented in Delhi, Chennai and Hyderabad and is expected to be expanded to all the major cities of the country.

NACO is supporting a programme to reach rural youth through a network of 700 Nehru *Yuvak Kendras* for spreading awareness on family life, education, responsible attitudes to sex and safer sex options. Workshops have also been held in several States to integrate AIDS/STD into their programme activities. In addition, the *Vishwa Yuvak Kendras* have trained NGOs working with the youth in seven major Indian cities.

Programmes have been developed using rural art forms to disseminate information on HIV/AIDS. Puppetry, magic, *harkatha, qawali, nautanki*, folk dance and music have been used to develop messages. These are being used in outreach activities of the National Service Scheme and Universities Talk AIDS[10].

Non-governmental Efforts

AIDS awareness efforts for youth were also made by NGOs, though a little later, for example in Chennai, Delhi, Pune, Calcutta and Ahmedabad. The YR Gaitonde Centre for AIDS Research and Education (YRG), Chennai was the first to initiate a youth programme through training community-based organizations for starting sexuality and sex education in schools, involving parents and teachers in discussing these problems. Subsequently, other NGOs such as the Deepam Educational Society for Health, Chennai and ASHA, and Indian Health Organization, Mumbai also started this for the school going adolescents, and college women, involving younger children, through religious festivals, street children *etc.* for creating cost-effective and culturally sensitive AIDS awareness. These interventions have been carried out to increase knowledge. However, efforts to measure the changes have been limited.

The YR Gaitonde Centre for AIDS Research and Education, Chennai has worked with schools, colleges and youth in informal settings through sexuality workshops. It was an uphill struggle for the organization to convince school and college principals to initiate education programmes on sexuality. For illiterate youth, 3-5 days programme using various art forms was conducted. The main objectives of the module were to impart information, motivate students for action, clarify myths and misconceptions, foster positive attitudes about HIV related issues and living with HIV infection. Despite several constraints with time the programme has gained a great deal of popularity among the youth who are also fairly active in peer education[11].

Using Youth as an Instrument of Change : Some Examples

Creating awareness and knowledge among young people about HIV/AIDS is not an end by itself. Not only

can they lead a safer life-style but also be an instrument of change in their family, lives of their friends, and even in the community.

There are some eloquent examples of approaches that have utilized young people to their fullest potentials.

(i) The Asian Red Cross and Red Crescent AIDS Task Force trained 1000 young people as peer educators using the life-skill approach. Culturally sensitive training manuals on sexual and reproductive health and HIV/AIDS were prepared. In consultation with national Red Cross and Red Crescent Societies in Asia, these materials were finalized and are used for conducting sexual and reproductive health training to young people (World AIDS Campaign Briefing Paper, UNAIDS, 1998).

(ii) The Clear Skies Project was initiated in a rural district outside Chiang Mai, Thailand, to provide emotional and practical support for people with HIV infection/AIDS. The project is run entirely by people who are themselves living with HIV/AIDS, many of them under 25 years of age. Weekly meetings are arranged where HIV positive people come together to discuss common concerns; the project provides home care for people with AIDS; and the project works closely with health care provides to increase their sensitivity to the need of people living with HIV/AIDS for caring, sensitive, and confidential care, in addition to other activities (World AIDS Campaign Briefing Paper, UNAIDS, 1998).

(iii) The ASHA project, Mumbai, observed that more than 25% of persons attending the sex clinic of the project were aged between 16 and 22 years. This prompted launching of a programme on youth and life-styles with focus on college students. It addressed HIV/AIDS in the context of sex, sexuality and life-styles. Seventeen colleges participated in the programme. The experience indicated that working with youth on HIV/AIDS is most important and if addressed properly, the AIDS prevention activity with this group could be very effective[12].

(iv) More than 150 Campaigns Among Students on AIDS (CASA) in different high schools, and colleges of Chittoor district have been organized. CASA has provided IEC material on AIDS to more than 89,000 students. The students were enthusiastic to know more about HIV/AIDS. They learned about sexual behaviour, safer sex and preventive methods. Two hundred students have undergone one month training on AIDS, and are actively spreading the awareness to other students and to the society[13].

(v) A young student properly motivated and guided as to the basic information on HIV/AIDS development – mode of transmission and consequences could effectively share education gained with people. In a project in the Philippines, students are taught to join in discussing HIV/AIDS when presented in their classroom, and attend a workshop on 'Why-When-Who-and How' HIV/AIDS becomes a community problem. If each student reaches out to two members of his/her family who in turn will reach out to two of their relatives and two of their friends and lastly two of their neighbours, 40 students (usual size of a class) will be able to spread information about the incurable disease to 320 students. The study recognizes the power of students to participate in the prevention and control of HIV/AIDS[14].

(vi) In Lagos, Nigeria, counselling booths/centres were erected at strategic locations in the community. Peer health educators (PHEs) and reproductive health counsellors were available for 9 h, 6 days a week and disseminated information on issues concerning reproductive health. This entails education on HIV/AIDS, STDs, early marriage, teenage pregnancy, and use of contraceptives with emphasis on proper use of the condom. To promote information dissemination to all parts of the community, PHEs carry out house-to-house visits and work place visits and distribution of IEC materials to youth. Counselling has brought about an amazing increase in the number of youth willing to live risk-behaviour free lives, and sale of condoms; and a decrease in the number of cases of HIV/AIDS/STDs, teenage pregnancy and abortion[15].

(vii) Through training 30,808 peer educators in 1,188 high schools, a voluntary organization in Chennai, the Deepam Educational Society for Health, improved condom awareness from 3 to 40%, besides, 261 street youths were trained to function as street educators. The peer educators focussed on STD diagnosis and treatment[16].

(viii) In Bhubaneshwar, Orissa, an NGO has a State-wise network of 300 other NGOs dealing with the youth. In order to educate the youth outside the formal structure of education, it trained a representative each from 45 NGOs to multiply the message of sex and sexuality to the local and district level. About 500 peer educators have been trained[17].

(ix) An experimental intervention with HIV/AIDS prevention in mind was initiated in the Philippines, to address the HIV/AIDS problem of children and youth. Implemented by children and youth for children and youth the project includes building capabilities of a core of volunteer children and youth in educating, facilitating

and advocating with peers on HIV/AIDS and their issues, and concerns using the convention on the Children's Right as the framework and with alternative form of education techniques. Child action desks were set up by the young members of the Society in seven communities to monitor abuses and provide service to their peers[18].

Lessons Learnt

Interventions are important to sensitize the target population about the AIDS problem. If timely action is not taken it may jeopardize their future interests. Such information need to be given in a cultural milieu in which the interventions are accessible and acceptable. Social marketing strategies are useful as they are participatory and involve the individual. Sustained efforts can help in making behavioural changes. There is a need to monitor these changes for a meaningful impact of these programmes. The indicators for assessing these changes should also be meaningful and sensitive. For example merely assessing the knowledge of HIV/AIDS may not be enough but what is required is how the problem of AIDS/HIV is perceived by the youth and what changes in their behaviour has the intervention brought about.

The HIV/AIDS problem to a large extent deals with sex. Therefore, an emphasis on sexuality is crucial to address the issues of behaviour modification. Research, specially formative research has to be built in with the interventions to get the desired results. Research on these aspects would then depend on qualitative methods to get the insight rather than the counting of numbers through survey data, although this when complemented with qualitative data can give more power to the interpretation of the situation. Formative research for interventions is important although this is still in its infancy in India.

The young adults are the pillars of society, any investments on them goes a long way for the future of countries. Youth can be prepared to have positive health attitudes that can pave the way for better mental, physical and spiritual health.

The youth have energy, enthusiasm and a commitment, and with proper support they can face greater challenges. To achieve more difficult tasks like promoting good health, their positive energies can be put to a great use by involving them in activities of their concern like prevention of AIDS/HIV. Using the potentials of young, "A youth to youth programme" has been started by the Ministry of Human Resource Development, Govt. of India. This programme covers the junior college students and is still in the early stages of implementation. Such initiatives would first help the youth themselves and through them spread to their peers and then to a wide network of their friends. What is important is that they should have the correct knowledge and develop a positive attitude to change behaviour themselves first and only then can they contribute in the prevention of HIV. Experience of student volunteers to create awareness in their own colleges on the harmful effects of drugs, smoking, alcohol and recently AIDS and HIV through seminars, talks, exhibition, street plays *etc* has been effective.

The young people are hesitant to talk about matters like their own physical and physiological growth and related issues (masturbation, safe sex, condom use, STDs, contraceptives) with others. Due to the lack of correct information and knowledge they practice behaviours that put them at risk. They strongly feel the need of having someone they can talk to about these matters with ease. A brigade of student volunteers, both boys and girls to be peer educators who are concerned about the welfare of their friends and peers would be a great asset for the AIDS prevention programmes.

Conclusions

HIV/AIDS is a health problem of the young. The solution to which should also be found by the young. The adults can work in partnership with the young, show them the way, provide them support, set an example, but the ultimate force for change is the young people themselves. They are resilient, open to change, creative and enthusiastic. The youth can better appreciate the importance of making their own life-style safe, and encourage their friends to adopt safer behaviour practices. They can bring compassion and help to those living with HIV/AIDS. Young people are a force, and if channelized properly, this force can change the course of the HIV/AIDS pandemic.

References

1. *AIDS Watch*. SEARO, WHO, New Delhi, Vol.3, No.2-3, p.12, 1998.
2. Urmil, A.C., Dutta, P.K., Sharma, K.K. and Ganguly, S.S. Medico-social profile of male teenager STD patients attending a clinic in Pune. *Indian J Publ Health 33:* 176, 1989.
3. Sarkar, S., Das, N., Panda, S., Naik, T.N., Singh, B.C., Ralte, J.M., Aier, S.M. and Tripathy, S.P. Rapid spread of HIV among injecting drug users in North-eastern states of India. *Bulletin of Narcotics, Vol.XLV*, p.91, 1993.
4. Mawar, N., Tripathy, S.P., John, J.K., Sinha, S.K., Quraishi, S.Y., Bagul, R. and Gadkari, D.A. Youth sexuality study for behaviour change interventions for AIDS/HIV in college youth, Pune, India. XII World AIDS Conference, Geneva, 1998. Abstract No.14333.
5. Sankaran, L. and Sankaran, S. Level of risk continuum as a tool in HIV/AIDS prevention education. XII World AIDS Conference, Geneva, 1998. Abstract No.13511.

6. Gurumurthy, R. and Verma, R.K. Risk taking sexual behaviour in the age of AIDS: A study among college youth in Mumbai. XII World AIDS Conference, Geneva, 1998. Abstract No.14331.

7. Andersson, A. UNESCO's contribution in the field of sexual health education – Programme on preventive education againlnst HIV/AIDS. *Indian J Popul Educ 7 (April-Sept):* 23, 1998.

8. Quraishi, S.Y. Social marketing of AIDS education for youth. The Indian experiment. International Conference on AIDS, 1994. Abstract No.472D.

9. Bhagbanprakash, Quraishi, S.Y. and Binodini, D. AIDS education: A study on perceived prejudices and media habits of students and teachers. International Conference on AIDS, 1996. Abstract No.MoD-1821.

10. *Country Scenario - An Update*. National AIDS Control Organization, Ministry of Health & Family Welfare, Govt. of India, December, 1996.

11. *Proceedings of the Indo-US Workshop on Behavioural Research Priorities : Developing Effective Strategies for Prevention of HIV in India.* Eds. V.Nadkarni and Subadra. Cell for AIDS Research, Action and Training, Tata Institute of Social Sciences, Mumbai, p.17, 1995.

12. Nigudkar, P. Youth and life-style, in relation to HIV/AIDS – A programme for student youth. International Conference on AIDS, July 7-12, 1996. Abstract No.Th.C.4451.

13. Babu, R. Campaign among students on AIDS.International Conference on AIDS, July 7-12, 1996. Abstract No.Th.C.4450.

14. Angeles, R.E. The development of students as HIV/AIDS educators reaching out to their peers in school, members of their family, relatives, friends and neighbours. XII World AIDS Conference, Geneva, 1998. Abstract No.24287.

15. Ita, M.M. Counselling in reproductive health among young people in Shitta Community, Lagos State. XII World AIDS Conference, Geneva, 1998. Abstract No.60857.

16. Sankaran, S Research as a tool for effective Social action programme. XII World AIDS Conference, Geneva, 1998. Abstract No.14225.

17. Misra P.C. Peer education for youth groups/NGOs. XII World AIDS Conference, Geneva, 1998. Abstract No.60763.

18. Esguerra, R. Child rights and HIV/AIDS. XII World AIDS Conference, Geneva, 1998. Abstract No.44147.

The write-up has been contributed by Dr. Lalit Kant, Sr. Deputy Director General, ICMR Headquarters, New Delhi and Dr.Neeta Mawar, Assistant Director, National AIDS Research Institute, Pune.

ICMR AIDED SYMPOSIA/SEMINARS/WORKSHOPS/COURSES/CONFERENCES

Symposium/Seminar/Workshop/ Course/Conference	Date & Place	Contact Address
XXXV Guha Research Conference 1998	December 1-5, 1998; (at Port Blair)	Dr. Lalji Singh, Convener, GRC 1998, Centre for Cellular and Molecular Biolcgy, Hyderabad-500007.
All India Workshop/Training Course on Application of Direct Methods in Crystallography for Solving Small/ Medium sized Molecules	December 1-21, 1998; (at Chennai)	Dr. D. Velmurugan, Convener of the Workshop, Department of Crystallography and Biophysics, University of Madras, Chennai-600025.
International Conference on Quality of Psychiatric Care	December 2-4, 1998; (at Calcutta)	Dr. A.N. Chowdhury, Prof. and Head, Department of Psychiatry, Institute of Postgraduate Medical Education and Research, Calcutta-700025.
Seminar on Responsiveness in Pulmonary Tuberculosis – Clinical Relevance	December 12, 1998; (at Chandigarh)	Dr. S.K. Jindal, Head, Department of Pulmonary Medicine, Postgraduate Institute of Medical Education and Research, Chandigarh-160012.
XXVIII Annual Conference of the Endocrine Society of India	December 14-16, 1998; (at Varanasi)	Dr. S.K. Singh, Organising Secretary of the Conference, Department of Endocrinology, Institute of Medical Sciences, Banaras Hindu University, Varanasi-221005.
XXXI Annual Conference of the Indian Pharmacological Society	December 17-20, 1998; (at Lucknow)	Dr. V.N. Puri, Organisng Secretary of the Conference, Division of Pharmacology, Central Drug Research Institute, Lucknow-226001.
V International Symposium on Biochemical Roles of Eukaryotic Cell Surface Macromolecules	January 4-8, 1999; (at Bangalore)	Dr. A. Surolia, Convener of the Symposium, Molecular Biophysics Unit, Indian Institute of Science, Bangalore-560012.
National Symposium on Biological Control of Insects in Agriculture, Forestry, Medicine and Veterinary Science	January 21-22, 1999; (at Coimbatore)	Dr. K. Murugan, Organising Secretary of the Symposium, Division of Entomology, Department of Zoology, Bharathiar University, Coimbatore-641046.
VII Annual Meeting of Molecular Immunology Forum - 1999	February 13-15, 1999; (at Hyderabad)	Dr. Ashok Khar, Convener of the Meeting, Centre for Cellular and Molecular Biology, Hyderabad-500007.

COUNCIL'S TRAINING PROGRAMMES

Leprosy

At the Central JALMA Institute for Leprosy, Agra:

- Multidrug Therapy Orientation Course in Leprosy for Medical Officers (December 7-18, 1998).

Nutrition

At the National Institute of Nutrition, Hyderabad:

- Postgraduate Certificate Course in Nutrition (December 1, 1998-February 28, 1999).

ICMR BULLETIN INDEX
VOL. 28, 1998

EDITORIAL BOARD

Chairman
Dr. N.K. Ganguly
Director-General

Members
Dr. Padam Singh
Dr. Lalit Kant
Dr. Bela Shah
Dr. R. Ravi
Dr. V. Muthuswamy

Editor
Dr. N. Medappa

Printed and Published by Shri J.N. Mathur for the Indian Council of Medical Research, New Delhi at the ICMR Offset Press, New Delhi-110 029

R.N. 21813/71