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STAC Newsletter is a regular publication of SAARC TB and HIV/AIDS Centre, it includes reports on activities, decisions of important meetings of the Centre, news of important activities of National TB and HIV/AIDS Control Programmes of SAARC Member States and recent information on TB, HIV/AIDS and their control.

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Editorial

Tuberculosis is a public health problem globally, despite the availability of extremely effective treatment regimens. Moreover, multi drug resistant TB is an emerging threat for tuberculosis control. The SAARC region continues to make a considerable contribution to the global efforts towards the elimination of TB Control in the region.

The SAARC region, with an estimated incidence of 3.1 million TB cases, carries 37% of the global burden of TB out of which 1.7 million are estimated to be sputum smear positive infectious cases. Four of the eight Member Countries in the Region are among the 22 high burden countries (Afghanistan, Bangladesh, India and Pakistan) together notified 97% of the region.

Globally, the childhood tuberculosis is ranked among ten causes of death. The national health program has to give priority to children with TB. Recent technological advancements in the diagnosis of TB in adults have not been validated in children.

It is estimated that around 1 million of the global total of 9 million tuberculosis (TB) cases each year occur in children (0-14 years). However, estimates of the burden of childhood TB are very uncertain. Children with TB are not usually given high priority by National TB Control Programs (NTP) because children are less likely to transmit disease. Basic and translational research on diagnostic tools has not focused on pediatric needs to date. Childhood TB has been largely absent from the global public health agenda despite being a major contributor to childhood morbidity and mortality particularly in high-burden TB settings.

There is an urgent need to recognize that prevention, diagnosis and treatment of TB in children are important for public health. The risk of progression from infection to disease is increased among children particularly in the young (0-4 years), HIV-infected and malnourished. These are also the groups that pose the greatest diagnostic challenges. Bacteriological confirmation of the diagnosis and management of child TB is challenging because of difficulties with obtaining sputum samples, a lack of culture facilities in most high-burden TB settings. For these reasons, the burden of disease and the extent of drug resistant TB in children are not well documented.
SAARC Workshop on Experiences and the Best Practices, on Pediatric TB/TB-diabetes, Colombo, Sri Lanka

SAARC TB and HIV/AIDS Centre (STAC), Nepal in association with the National Programme for Tuberculosis Control and Chest Diseases (NPTCCD), Government of Sri Lanka organized a three-day SAARC Workshop on Experiences and Best Practices in Pediatric TB/TB-Diabetes” in Colombo from 14th to 16th July 2014. Mrs. Nirmala Paranawithana Director-South Asia and SAARC, Ministry of Foreign Affairs, Sri Lanka graced the inaugural session as Chairperson and Dr. Lakshmi Somatunga, Deputy Director General, Medical Service, Ministry of Health, Sri Lanka attended as Chief Guest. The objectives of the workshop were to share the information and discuss the best practices on childhood TB & TB-diabetes in the SAARC Member States.

A total of 15 participants from Bangladesh, Maldives, Pakistan and Sri Lanka attended the workshop. The workshop was facilitated by Dr. (Mrs) Anoma Siribanddana, Consultant Chest Physician. Teaching Hospital, Kandy and Dr. Nerajan Dissanayake, Consultant Respiratory Physician, District General Hospital, Nuwara Eliya, Sri Lanka. Dr. G. K. Bhatta, Research Officer, Dr. G. P. Bhandari, Epidemiologist and Ms. Srijana Dhakal from STAC also facilitated the workshop.

After three days deliberations, the participants of the workshop made the following recommendations:

**Recommendations**

**To STAC:**
1. Compile segregated data on Pediatric Tuberculosis sent by the member states and share the segregated information on Pediatric TB to the Member States.
2. Initiate Advocacy on Pediatric Tuberculosis through publishing a special STAC journal issue on Pediatric Tuberculosis
3. Initiate Advocacy on Tuberculosis through Goodwill Ambassador as in HIV and AIDS
4. Develop a regional strategy and program guidelines to address pediatric TB for the member states in the SAARC Region
5. Develop SAARC Regional Training of Trainers (ToT) manual on Pediatric Tuberculosis
6. Advocacy at regional level and development of strategy to develop guidelines on TB-DM

**To Member States:**
1. To segregate the data on Pediatric Tuberculosis from age 0-5 and 6-14 years children and to be sent to STAC.
2. Start awareness program on Pediatric Tuberculosis at national level and below by National Tuberculosis Control Program of each member states.

3. Training at country level on Pediatric Tuberculosis on the basis of country requirement using the SAARC Regional TOT on pediatric tuberculosis
4. Start advocacy by NTP at country level by each member states to screen DM in NTP

Dr. Sishira Liyanage, Director, NSAP, Sri Lanka expressed his pleasure for organizing the workshop. Dr. G. Wijesuriya, Director, National Hospital of Respiratory Diseases, Sri Lanka started his closing remarks by mentioning the existence of high prevalence of tuberculosis and diabetes in the region along with challenges of pediatric tuberculosis. Ms. Dilini Legagala, Deputy Director General of SAARC Division, Ministry of Foreign Affairs thanked STAC for organizing such an important workshop in Sri Lanka. Dr. Ghanshyam Kumar Bhatta from STAC thanked all participants and delegates for making the workshop successful.

Dr. Ahmed Hussain Khan, Programme Manager, NTP, Bangladesh delivered his closing remarks by representing the delegates of the workshop and said that the programme and people of the Member States will be beneficial under the umbrella of SAARC and STAC. He thanked Government of Sri Lanka for a good hospitality.

Finally, Dr. Gamini Seneviratne, Director NPTCCD formally thanked all those who were directly or indirectly involved to make the workshop success. He specifically thanked Director, STAC for his continuous effort to reduce the burden of tuberculosis in the region.
Welcome News

SAARC TB and HIV/AIDS Centre has the honor to welcome Ms. Fathimath Najwa, Director (Social Affairs), SAARC Secretariat

Born in a small island in the North H. A. Atoll of the Maldives, Ms. Najwa joined the Maldives Foreign Service in 2001. She graduated with a Bachelor's degree from Nizam College, Osmania University in Hyderabad, India and completed a Master's degree in Public Administration at the Lee Kwan Yew School of Public Policy, National University of Singapore.

She has been serving in the Maldives Foreign Service in different capacities at the headquarters as well several consular responsibilities. In Beijing, working directly under the Ambassador, as First Secretary and head of economic, commercial and cultural department at the Maldives Embassy in China, she worked on improving the commercial relations between Maldives and China, Promoted and facilitated Chinese investment in the Maldives and organized several activities to promote Maldives' tourism in China. She also coordinated Maldives' participation at the 2010 Shanghai World Expo, as Deputy Commissioner General of Maldives pavilion. In New York, She served at the Permanent Mission of the Maldives to the United Nations as First Secretary/Head of Chancery. She was a representative of the Government of Maldives at the 68th United Nations General Assembly and Election Officer for Maldives' campaign for re-election at the United Nations Human Rights Council.

More recently, she served in the Ministry of Foreign Affairs of Maldives as head of SAARC Division, before being deputed at SAARC Secretary in Kathmandu as Director, Social, Affairs.

Joining of New Director, SAARC TB & HIV/AIDS Centre

Dr. Sharat Chandra Verma, the Chief Consultant Chest Physician at National Tuberculosis Centre, Ministry of Health and Population, has been deputed by Government of Nepal as the new Director of SAARC Tuberculosis and HIV/AIDS Centre (STAC) in the month of September 2014. He has also done MPH (Epidemiology) from University of California, Berkeley, USA. Dr. Verma has 20 years of experience working for tuberculosis control of Nepal. He has clinical as well as programmatic experiences of managing TB including drug resistance tuberculosis. He has also worked as an international consultant for DR-TB. Besides these he has also been involved in many researches related to TB as well as TB-HIV co-infection.

Brief News

Participation in 20th International AIDS Conference, Melbourne, Australia

Director and Research Officer from STAC, participated in 20th International AIDS Conference in Melbourne, Australia from 20th to 25th July, 2014. Hon’ble Mr. Khagaraj Adhikari, Minister for Health and Population, Government of Nepal, Director, National Centre for AIDS & STD Control, Government of Nepal along with participants from STAC were welcomed by Honourable Consulate General of Nepal for Australia Mr. Chandra Yonjan at his residence. Under his leadership, an unofficial gathering was organized by Nepalese people living in Victoria to welcome the Nepalese delegates.

UNAIDS visit to STAC

Visit of UNAIDS, Asia and Pacific Regional Programme Advisor Dr. Md. Ali Bhuiyan and UNAIDS Nepal Country Coordinator Ruben F. del Prado at SAARC TB and HIV/AIDS Centre. A discussion was held with Director, STAC and Professionals about ten years of programme achievements in SAARC Member States. Discussion was focused on SAARC regional strategy for HIV and AIDS.
The SAARC Regional Strategy for Control/Elimination of Tuberculosis is a guiding document drafted to support member states to implement the same strategy at national level to achieve the regional goal. This document includes guiding principles, targets, strategic objectives, strategic interventions, and action plan. The Strategic document is for the period of 5 years from 2013 to 2017.

The SAARC Regional Strategy on HIV/AIDS is developed to address the challenges of the epidemic in the region. It supports member states to implement the same strategy at national level to achieve the regional goal. This document has five chapters which include Background, Goals, strategies and actions, Measuring Progress, Institutional Arrangements and Financing. The Strategic document is for the period of 5 years from 2013 to 2017.

The SAARC Journal of Tuberculosis, Lung diseases and HIV/AIDS is the official journal of the STAC published three times a year. The journal's main aim is the Continued Public Health Education (CPHE) and to disseminate research articles and case studies in the field of Tuberculosis, Lung diseases and HIV/AIDS particularly in the SAARC region. The researcher can publish their original and review articles and case studies through easy online submission process, whereas readers can freely access the journal in the STAC website.

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The eleventh report on tuberculosis situation in the SAARC region has been published. This document is published annually and updating since 2003. The purpose of this document is to provide comprehensive and up-to-date information on situation of tuberculosis and progress in control and elimination process in the region and at country level.

This document has been compiled to reflect the situation of migration and tuberculosis in the region. It will be a guiding document for further research at member state level and as a whole in the region. It will also be a useful document in policy development on migration and HIV/AIDS in the region.

Best practices comprise examples of programmes, projects and activities that have been shown to contribute towards making interventions successful. We have made maximum efforts to focus on the detail information on the “Best Practices” and summary information about HIV/AIDS situation in SAARC Member States.

The objectives of this report is to observe the epidemiological trend on Tuberculosis, HIV/AIDS and TB-HIV co-infection and to determine the factors related to the trend in incidence, prevalence and mortality rate in the region.
HIV Vaccine and Clinical Trials

An HIV vaccine is a vaccine which would either protect individuals who do not have HIV from contracting that virus, or otherwise may have a therapeutic effect for persons who have or later contract HIV/AIDS. Currently, there is no effective HIV vaccine but many research projects managing clinical trials seek to create one. There is evidence that a vaccine may be possible. Work with monoclonal antibodies (MAb) has shown or proven that the human body can defend itself against HIV, and certain individuals remain asymptomatic for decades after HIV infection. Potential candidates for antibodies and early stage results from clinical trials have been announced.

One HIV vaccine candidate which showed some efficacy was studied in RV 144, which was a trial in Thailand beginning in 2003 and first reporting a positive result in 2009. Many trials have shown no efficacy, including the STEP study and HVTN 505 trials. Several vaccine candidates are in varying phases of clinical trials.

Phase I

Most initial approaches have focused on the HIV envelope protein. At least thirteen different gp120 and gp160 envelope candidates have been evaluated, in the US predominantly through the AIDS Vaccine Evaluation Group. Most research focused on gp120 rather than gp41/gp160, as the latter is generally more difficult to produce and did not initially offer any clear advantage over gp120 forms. Overall, they have been safe and immunogenic in diverse populations, have induced neutralizing antibody in nearly 100% recipients, but rarely induced CD8+ cytotoxic T lymphocytes (CTL). Mammalian derived envelope preparations have been better inducers of neutralizing antibody than candidates produced in yeast and bacteria. Although the vaccination process involved many repeated "booster" injections, it was very difficult to induce and maintain the high anti-gp120 antibody titers necessary to have any hope of neutralizing an HIV exposure.

The availability of several recombinant canarypox vectors has provided interesting results that may prove to be generalizable to other viral vectors. Increasing the complexity of the canarypox vectors by inclusion of more genes/epitopes has increased the percent of volunteers that have detectable CTL to a greater extent than did increasing the dose of the viral vector. Importantly, CTLs from volunteers were able to kill peripheral blood mononuclear cells infected with primary isolates of HIV, suggesting that induced CTLs could have biological significance. In addition, cells from at least some volunteers were able to kill cells infected with HIV from other clades, though the pattern of recognition was not uniform among volunteers. Canarypox is the first candidate HIV vaccine that has induced cross-clade functional CTL responses. The first phase I trial of the candidate vaccine in Africa was launched early in 1999 with Ugandan volunteers. The study determined the extent to which Ugandan volunteers have CTL that are active against the subtypes of HIV prevalent in Uganda, A and D.

In 2011, researchers in the National Biotech Centre in Madrid unveiled data from the Phase I clinical trial of their new vaccine, MVA-B. The vaccine was effective in inducing an immunological response in 92% of the healthy subjects.

Phase II

On December 13, 2004, the HIV Vaccine Trials Network (HVTN) began recruiting for the STEP study, a 3,000-participant phase II clinical trial of a novel HIV vaccine, at sites in North America, South America, the Caribbean and Australia. Merck developed the experimental vaccine called...
V520 to stimulate HIV-specific cellular immunity, which prompts the body to produce T cells that kill HIV-infected cells. In previous smaller trials, this vaccine was found to be safe, because of the lack of adverse effects on the patients. The vaccine showed induced cellular immune responses against HIV in more than half of volunteers.

V520 contains a weakened adenovirus that serves as a carrier for three subtype B HIV genes (gag/pol/nef). Subtype B is the most prevalent HIV subtype in the regions of the study sites. Adenoviruses are among the main causes of upper respiratory tract ailments such as the common cold. Because the vaccine contains only three HIV genes housed in a weakened adenovirus, study participants cannot become infected with HIV or get a respiratory infection from the vaccine. It was announced in September 2007 that the trial for V520 would be discontinued after it determined that the vaccination appeared associated with an increased risk of HIV infection in some recipients. The foremost issue facing the rAd5 adenovirus that was used is the high prevalence of the adenovirus-specific antibodies as a result of prior exposure to the virus. Adenovirus vectors and many other viral vectors currently used in HIV vaccines, will induce a rapid memory immune response against the vector. This results in an impediment to the development of a T cell response against the inserted antigen (HIV antigens). Additionally, it appears that V520 may have made some recipients more receptive to infection by HIV-1.

Phase III

In February 2003, VaxGen announced that their AIDSVAX vaccine was a failure in North America as there was not a statistically significant reduction of HIV infection within the study population. AIDSVAX was also a component of the prime boost (ALVAC/AIDSVAX) RV 144 vaccine study in Thailand that showed marginal successful results. In both cases the vaccines targeted gp120 and were specific to the geographical regions. The Thai trial was the largest AIDS vaccine trial to date when it started.

In October 2009, the results of the RV 144 trial were published. Initial results, released in September 2009 prior to publication of complete results, were encouraging for scientists in search of a vaccine. The study involved 16,395 participants who did not have HIV infection, 8197 of whom were given treatment consisting of two experimental vaccines targeting HIV types B and E that are prevalent in Thailand, while 8198 were given a placebo. The participants were tested for HIV every six months for three years. After three years, the vaccine group saw HIV infection rates reduced by more than 30% compared with those in the placebo group. However, after taking into account the seven people who had HIV infections at the time of their vaccination (two in the placebo group, five in the vaccine group) the percentage dropped to 26%.

Further analysis presented at a 2011 AIDS conference in Bangkok revealed that participants receiving vaccines in the RV 144 trial who produced IgG antibodies against the V2 loop of the HIV outer envelope were 43% less likely to become infected than those who did not, while IgA production was associated with a 54% greater risk of infection than those who did not produce the antibodies (but not worse than placebo). Viruses collected from vaccinated participants possessed mutations in the V2 region. Tests of a vaccine for SIV in monkeys found greater resistance to SIV in animals producing antibodies against this region. For these reasons further vaccine development was expected to focus heavily on vaccines designed to provoke an IgG reaction against the V2 loop.

Planned clinical trials

Novel approaches, including modified vaccinia Ankara (MVA), adeno-associated virus, Venezuelan equine encephalitis (VEE) replicons, and codon-optimized DNA have proven to be strong inducers of CTL in macaque models, and have provided at least partial protection in some models. Most of these approaches are in, or will soon enter, clinical studies.

Source: http://en.wikipedia.org/wiki/HIV_vaccine